



INTERNATIONAL SEMINAR
**“THE CONCEPT OF HEALING IN RELIGION, CULTURE,
HEALTH SCIENCES AND THE ECONOMICAL PROSPECTIVE”**

PROCEEDINGS

ISBN 978-602-61920-0-4



HINDU INDONESIA UNIVERSITY
Jl. Sangalangit, Tembau, Penatih, Denpasar - Bali
www.unhi.ac.id

ISBN. 978 - 602 - 61920 - 0 - 4

Editor

Prof. Ir. I Wayan Redi Aryanta, M.Sc., Ph.D

Prof. Dr. Yashwant Pathak, Ph.D

Prof. Dr. Ida Ayu Gde Yadnyawati, M.Pd

Cover Design and Layout

I Komang Gede Santhyasa

Wayan Iwan Suryawan

Publisher and Editorial Address

Hindu Indonesia University

Jalan Sangalangit, Tembau-Penatih, Denpasar Bali

Email : intersemunhi@gmail.com

PREFACE FROM CHAIRMAN OF EDITORIAL COMMITTEE

The Proceedings of International Seminar on ‘The Concept of Healing in Religion, Culture, Health Sciences and the Economical Prospective’ hosted by Hindu Indonesia University that was held on June 10, 2017, at Campus of Hindu Indonesia University, Denpasar, Bali, consist of 5 articles presented by keynote speakers in plenary session, and 28 articles presented by invited speakers in parallel sessions. A number of 4 full papers from keynote speakers and 26 full papers from invited speakers were submitted by authors for inclusion in the proceedings.

Yashwant Pathak (a keynote speaker, from University of South Florida, USA) presented an article that covers the application of Nanotechnology in delivery Ayurvedic Drugs such as Curcumin in various chronic diseases. Curcumin (a major ingredient in Turmeric) has excellent antioxidant activity. Several studies have reported its application in the treatment of cancer, Alzheimer’s diseases and other neurodegenerative diseases. The major problem faced by using Curcumin is its large dose and very less absorption when given systemically. To overcome this problem, nanotechnology has been used and many reports have shown the application of Nano Curcumin with better absorption and it can also help in reducing the dose levels. He also discussed the economic impact of adopting the modern technology for delivery of Ayurvedic and herbal drugs and benefits to humanity at large.

‘The contribution of Balinese traditional healing on the sustainable development of Bali’ has been presented by Nyoman Adiputra (a keynote speaker, from Udayana University, Denpasar). He reported that the existence of tradition healing in Bali is a factual thing. It is a part of Balinese culture, and its potential due to the three factors, such as the written-unwritten sources of knowledge, providers and the consumers. The tradition knowledge mainly written on the palm leaf, consist of the philosophy, religion, cosmology, calendar, anatomy, physiology, patho-physiology, pharmacopeia, and clinical textbooks. There is no formal schooling process of teaching to become a traditional healer. Practical aspect is based on observation and doing on the self acquired knowledge processing. Everything is done through a process of initiation ceremony. By doing that, the Balinese traditional healer is guaranteed, a professional one. The positive contribution of Balinese traditional healing on sustainable development of Bali is the Balinese traditional healers always do the right thing and do the thing right.

Abhishek Joshi (a keynote speaker, Chair of Ayurveda-University of Hindu Indonesia, from India) has presented an article concerning the concept of healing in Ayurveda-time tested ancient wisdom of medicine. He mentioned that Ayurveda is the ancient science of healing that has been benefiting mankind since immemorial age. This medicinal science is time tested and scientific. The concept of personalized medicine is explained under the topic of the *Tridosha* (three bio-energy) theory explained in Ayurveda philosophy. The distinctive concept of treatment in Ayurveda as explained in *Trividha Chikitsa* (three modes of treatment principles) explained its universal applicability. Even the principles and application of herbal medicines as mentioned in the ancient textbooks of Ayurveda holds true with the scientific parameters of modern era.

Lahaina Sue C. Azarcon (a keynote speaker, from Quirino State University, Philippines) has presented an article entitled ‘The Past is Alive in the Present: Folk Healing Practices among the Filipinos’. She mentioned that the Philippines is endowed with rich culture manifested in its systems of beliefs, rituals and practices. This paper is about the healing practices of the Filipinos, it includes discussions on folk healing system and treatments associated to ritual practices in Filipino cultural context. It specifically highlights the major folk healing beliefs and practices of the *arbularyo* or folk healers. At present, many Filipinos both in the urban and rural communities adhere to the combination of modern medicine and folk healing in treatments for illnesses.

The papers presented by invited speakers (28 papers) in parallel sessions, has been categorized in 5 specialized topics, including: Concept of Healing in Religion, Concept of Healing in Culture, Concept of Healing in Health Sciences, Concept of Healing in Education, and Concept of Healing in Economy.

We would like to thank 30 of the speakers (contributors) for their respective contributions made to the proceedings to its completion.

Denpasar, July 17, 2017
Chairman of Editorial Committee,

Prof. Ir. I Wayan Redi Aryanta, M.Sc., Ph.D

REMARKS FROM RECTOR

Om Swastiastu,

The International Seminar on 'The Concept of Healing in Religion, Culture, Health Sciences and the Economical Prospective' hosted by Hindu Indonesia University was held on June 10, 2017, at Campus of Hindu Indonesia University, Denpasar Bali.

A total of 33 articles consisted of 5 articles from keynote speakers and 28 articles from invited speakers were presented in the seminar.

The greatest academic interest discussed in this forum was about the healing, especially healing based on religion, culture, health sciences and economical prospective. Through this seminar, we enriched and expanded the available information on the concept of healing among particular societies in the world.

As the host, we consider that the attendance of participants and speakers to this seminar, both from inside and outside Indonesia clearly illustrated multi culture nuances. These nuances attract us to enter again the 'atmosphere' of healing subjects in the world as the focus of our attention.

The various types of experiences in the field of healing that the participants have in academic sharing, both in field and exploration of theoretical experiences, was clearly discussed during a one day seminar. Therefore, the next step is to investigate the mystery of subjects in this vast area, which will become additional topics to complete and enhance new academic meaning of healing concept in the world.

A number of 4 keynote speakers and 26 invited speakers submitted their full papers for publication in the proceedings. We thank all of them for their constructive contributions.

Om Shanti, Shanti, Shanti, Om

Denpasar, July 17, 2017
Rector of Hindu Indonesia University,

Dr. Ida Bagus Dharmika, MA

TABLE OF CONTENTS

Preface from Chairman of Editorial Committee	iii
Remarks from Rector.....	v
Table of Contents	vii

Keynote Speakers

Nanotechnology Applications in Delivering Ayurvedic Drug Curcumin & Natural Compounds for Better Effectiveness and Its Economic Impact	
Yashwant Pathak.....	1

The Contribution of Balinese Traditional Healing on the Sustainable Development of Bali	
Nyoman Adiputra.....	13

Concept of Healing in Ayurveda – Time Tested Ancient Wisdom of Medicine	
Abhishek Joshi.....	20

The Past is Alive in The Present: Folk Healing Practices Among The Filipinos	
Lahaina Sue C. Azarcon.....	29

Parallel Speakers

Production of Medicinal Compounds in Plants	
I Gede Ketut Adiputra.....	36

Family Role in Health	
Ida Ayu Gde Yadnyawati.....	43

Self Hypnosis Reduce Pain Labor and Lifting Labor	
Ni Wayan Armini	49

Hindu Bioethics: Healthy Philosophy in Dasaaksara	
Ida Ayu Komang Arniati.....	60

Religion as the Cure for Mental Disorder in Bali	
I Wayan Budi Utama, I Wayan Martha, I Gusti Agung Paramita.....	69

Effect of Extract Leaves Pandan Wangi (Pandanus Amaryllifolius) on Mushroom Causes (Malassezia Furfur) in Vitro	
I Made Adi Surya Dananjaya, Euis Dewi Yuliana	75
Campuhan Water for Healing	
Ida Bagus Dharmika.....	84
Humanistic Education Can Reduce Students' Stress	
Ni Made Indiani	89
Screening for Exopolysaccharide - Producing Lactic Acid Bacteria Isolated From Goat Milk	
N.W. Nursini, I.B.A. Yogeswara.....	96
New Age Tourism In Bali: Nature Religion and Self Spirituality	
Dewa Putu Oka Prasiasa	103
Inner Healing Concept and its Application in Higher Education	
Putri Anggreni.....	111
Pre Conceptional Care in Ayurveda : The Plan for A Healthy Society.	
Resmi V Rajagopal, Laxmi Priya .Dei	118
The Super Healing Powers of Garlic	
I Wayan Redi Aryanta, I Putu Sudiartawan, Ni Luh Gede Sudaryati.....	123
The Inhibitory of Extract Guava Leaves (Psidium Guajava) on Bacterial Escherichia Coli Growth	
Ni Putu Ayu Trisnayani, Anak Agung Komang Suardana.....	133
Usada: The Philosophy of Balinese Healing Tradition	
I Wayan Suka Yasa, W.A. Sindhu Gitananda	144
Concept Healing Traditional of The Balian Bawo for Health Human Being in Central of Kalimantan According to Hindu Philosophy	
I Ketut Subagiasta	153
Concepts of Healing in the Context of Education	
Ketut Suda, I Wayan Subrata	160

Implementation of Family Functions in Character Strengthening Children	
I Wayan Suija.....	165
Yoga and Healing	
I Gede Suwantana, Ni Ketut Ayu Juliasih, I Nyoman Arsana.....	176
Healing Aspects on Balinese Traditional Landscape	
I Putu Gede Suyoga, I Komang Gede Santhyasa, Ida Ayu Putu Mahapatni	187
The Aksara Modre Official of Magical Religius Treatment (Hindu Philosophy Persfective)	
I Wayan Watra	197
<i>Nawawida Bhakti</i> as the Form of Psychereligius Healing	
I Gusti Ketut Widana.....	209
Hyperlipidemia Induces Degeneration of Spermatogenic and Leydig Cells	
I Gede Widhiantara, I Wayan Rosiana	224
Ethics Values in <i>The Geguritan of Gadang Apadang</i> (Approaching of Religion Sosiology)	
I Wayan Wirata.....	232
Antioxidant And Antihypertensive Activity of Loloh Sembung (<i>Blumea Balsamifera</i>)	
IGA. Wita Kusumawati, I. M Wisnu A.P, IBA. Yogeswara, Umar S, Y. Marsono.....	237
The Understanding of the Function and Philosophy of Water in <i>Pengrwatan Sapuhleger</i>	
I Made Yudabakti	243

NANOTECHNOLOGY APPLICATIONS IN DELIVERING AYURVEDIC DRUG CURCUMIN & NATURAL COMPOUNDS FOR BETTER EFFECTIVENESS AND ITS ECONOMIC IMPACT

Yashwant Pathak

ypathak1@health.usf.edu

Faculty Affairs, College of Pharmacy, University of South Florida Health,
Tampa, Florida, USA

Abstract

Nanotechnology can be used in the delivery Ayurveda Drugs such as Curcumin in various chronic diseases. Curcumin (a major ingredient in Turmeric) has been used orally as a condiment in the Indian curries for centuries. Curcumin has excellent antioxidant activity. Several studies have reported its application in the treatment of cancer, Alzheimer's disease and other neurodegenerative diseases. The major problem faced using Curcumin is its large dose and very less absorption when given systemically. To overcome this problem nanotechnology has been used and many reports have shown the application of Nano Curcumin with better absorption and it can also help in reducing the dose levels. The present report will cover various reports with specific application of Nano Curcumin in chronic diseases. It will also discuss our lab work related to formulation of Curcumin Nano emulsions and its applications in inhibiting ROS mediated damage to neuronal cells and effect on **IL-1 β** inflammasomes (NLRP3 inflammasomes). Economic impact of adopting the modern technology, for delivery of Ayurvedic and herbal drugs and benefits to humanity at large is yet to be realized but show lot of opportunities.

GLOBAL SCENARIO FOR HERBAL DRUGS

Herbs are generally defined as any form of a plant or plant product, including leaves, stems, flowers, roots, and seeds. They have been used since ages as food, supplements, and medicines. Herbal medicine involves in the use of plants, parts of plants and isolated phytochemicals for the prevention and treatment of various ailments such as Cancer, liver disease, rheumatological disorders, asthma, allergy, and many other acute and chronic diseases [1]

From the World Health Organization (WHO)'s definition, herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain as active ingredients parts of plants, or other plant materials, or combinations [2]

World wide the consumption of herbal drugs is growing significantly. Nowadays, herbal medicines are playing major roles in the health of thousands of people worldwide. In the last 20 years, the trend on returning to natural or organic remedies has led to an increase in herbal

medicine use. It is estimated that about 25% of the drugs prescribed worldwide are derived from plants and 121 such active compounds are in use. Of the total 252 drugs in WHO's essential medicine list, 11% is exclusively of plant origin [2]

Recently, the World Health Organization estimated that 70-80% of people in Asia and Africa rely on herbal medicines for some part of their primary health care. In the European Union, herbal medicine products are classified as "regular" medicinal products if they claim to treat or prevent illness. In Germany, about 600 - 700 plant-based medicines are available and are prescribed by some 70% of German physicians. In the United States, about 19% of the adult population was reported using herbal medicine products in 2002 [2]

Nevertheless, herbal drugs are not regulated as drugs but as dietary supplements, a subset of foods. Efficacy and safety of some herbals used in medicine was well documented. Although randomized clinical trials are reported for herbal drugs, well-controlled double blind thorough clinical and toxicological studies are still lacking. Besides conventional forms of herbal medicine such as teas, syrups, and oils, new formulations of herbals have been developed including various oral solutions, soluble granules, tablets, and capsules.

CLINICAL STUDIES ABOUT HERBAL DRUGS

Several studies have reported the efficacy of herbal drugs in clinical studies in various diseases and disorders in human beings. A significant number of research articles are published for traditional Chinese medicines, Ayurvedic medicines and other indigenous traditional medicine systems and reported their usefulness either alone or in complimenting the modern medicines. Table 1 shows some of the studies done on herbal drugs in various applications.

Table 1: Reported clinical studies of herbal drugs

Name of the herbal drug	Application	Reference
St John's wart	Depression, Chronic ulcers and gastritis	3
Gingko	Peripheral arterial problems, Raynaud's disease	4
Ginger	Pregnancy related nausea, Osteoarthritis of knees	5
Ginseng	Postprandial glycemia	6
Curcumin	Healing of peptic cancer	7
Echinacea	Common cold	8
Chamomile	Generalized anxiety disorder	9
Valerian	Coronary diseases	10
Garlic	Hepato-pulmonary syndrome	11
Milk thistle	Diabetes type II	12

Several polymeric and natural materials have been used to create nanoparticles and these can also be used to incorporate natural herbal drugs or their polar or non-polar extracts (Table 2).

Table 2: Different materials with sources as Nano carriers for herbal drugs [13]

Se No	Sources	Materials
1	Natural	gelatin, albumin, alginate, collagen, chitosan
2	Synthetic	poly(lactide) (PLA), poly(lactide-co-glycolide) (PLGA), poly-ε-caprolactone (PCL), Polymethyl methacrylate, (PMMA), poly alkyl cyano acrylate (PACA), Poly methyl cyano acrylate (PMCA), polyarylamide, ethyl cellulose, eudragit
3	Metallic	iron oxide, gold, silver, gadolinium and nickel
4	Ceramics	silica, alumina and titani

Guidelines for the Regulation of Herbal Medicines in the South-East Asia Region: According to Guidelines for the Regulation of Herbal Medicines in the South-East Asia Region organized by WHO regional office for South East Asia 2003, herbal drugs have been categorized into four groups, including [14]:

Indigenous herbal medicines: They are defined as well-known medicines in terms of their composition, treatment and dosage due to their age-old use in a local community.

Herbal medicines in systems: These medicines in this group have been in use for a long time and therefore, for local use assessments of efficacy are not required.

Modified herbal medicines: They have got the modification of the form of indigenous herbal medicine or herbal medicine in systems (either in shape or dosage form, mode of administration, herbal medicinal ingredients, and methods of preparation and medical indications).

Imported products with an herbal medicine base: This type includes raw materials and products) must be registered and marketed in the countries of origin.

Challenges with Herbal Medicines:

Some of the challenges posed in the delivery of herbs based drugs include

- High dose levels
- Characterization/Solubility problems and Formulation challenges
- Consistency
- Reproducibility
- Clinical efficiency
- Manufacturing on large scale as a source of medicine for large number of people
- Disagreement between the practicing herbal experts and needs for standardization
- Patient compliance

CAN NANOTECHNOLOGY BE HELPFUL TO RESOLVE THESE CHALLENGES?

Nanotechnology and Nano science are widely seen as having a great potential to bring benefits to many areas of research and applications. The prefix Nano is derived from the Greek word meaning “Dwarf”. One nanometer is one billionth of a meter or 10^{-9} m. The term Nanotechnology was first used in 1974, when Norio Taniguichi a scientist at University of Tokyo, Japan used to refer the size of materials in nanometers.

Nano particles can be created by two major ways, bottom to top or top to bottom approach as shown in the Figure 1. [15]

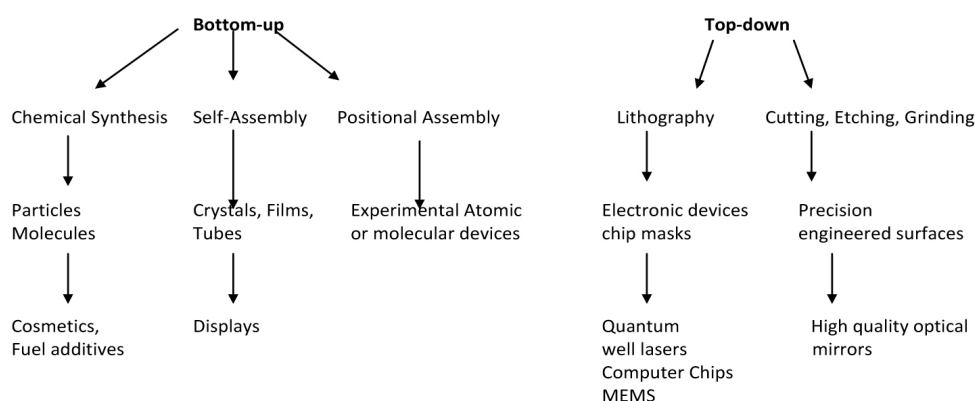


FIGURE: The use of bottom-up and top-down techniques in manufacturing nanoparticles. (MEM: microelectromechanical system)

Nano particles come in many different sizes and shapes. The advantages of using Nanotechnology are the creation of enormous surface area within the system.

Nano-characterization: in recent years many different analytical techniques mentioned in Table 3 are very useful in understanding the Nano particle and are used for characterizing the nanoparticles. As these techniques are helping the scientists to understand more and more about nanoparticles the applications of Nano technologies are increasing in all spheres of science. [16]

Table 3: Analytical techniques used to characterize Nano systems

1. Laser diffraction
2. Photon correlation spectroscopy
3. Wide angle X-ray scattering
4. Differential scanning calorimetry
5. Proton nuclear magnetic resonance spectroscopy
6. Electron spin resonance
7. Transmission electron spectroscopy (TEM)
8. Sedimentation velocity analysis and electron microscopy
9. Dynamic light scattering (DLS) and TEM
10. DLS and cryo- transmission electron microscopy
11. Flow cytometry and Elisa method

12. Fluorometry
13. Fluorescence and TEM

Some herbal drug delivery systems were patented and Table 4 lists the patents offered for herbal Nano drug delivery systems.

Table 4: Some selected list of patents awarded to Nano herbal drugs

Se No	Patent Number	Title of the patent
1	US20080103213	<u>LIPOSOMAL CURCUMIN FOR TREATMENT OF NEUROFIBROMATOSIS</u> The present invention provides a compositions and methods for the treatment of Neurofibromatosis Type 1 and 2, in a human patient.
2	<u>US20060067998</u>	<u>LIPOSOMAL CURCUMIN FOR TREATMENT OF CANCER</u> The present invention provides a compositions and methods for the treatment of cancer, including pancreatic cancer, breast cancer and melanoma, in a human patient.
3	<u>US20080138400</u>	<u>LIPOSOMAL CURCUMIN FOR TREATMENT OF DISEASES</u> The present invention provides compositions and methods for the treatment of a human patient
4	US7048943	<u>CAROTENOID-LOADED LIPOSOMES</u> The present invention is based on a novel method for encapsulating in liposomes substantially water immiscible carotenoids.
5	US20030059462	<u>Carotenoid-loaded liposomes</u> The present invention is based on a novel method for encapsulating in liposomes substantially water immiscible carotenoids.

Curcumin Nano Drug delivery system:

Curcumin, bio-active polyphenol :diferuloylmethane ($C_{21}H_{20}O_6$), with an ability to prevent and cure diseases. Turmeric contains about 2-5% curcumin alone.

Commercial curcumin contains three main types of curcuminoids, i.e.,

- curcumin (diferuloylmethane or "Curcumin I" about 77%)
- demethoxy curcumin ("Curcumin II" 17%) and
- bis demethoxy curcumin ("Curcumin III" 3%).

Several analogues of curcumin have been synthesized and studied such as:

(1).tetrahydrocurcumin (antioxidative), (2). 4-hydroxy-3-methoxybenzoic acid methyl ester (HMBME), (3).aromatic enone and dienone analogues, (4). metal chelates of synthetic curcuminoids etc

Challenges in Curcumin delivery:

- Low solubility
- The low bioavailability
- The low bioavailability of Curcumin has so far limited its medical use.

RECENT NANO CURCUMIN RESEARCH APPLICATIONS

Theracurcumin – A new curcumin formulation with markedly improved absorptivity: Japanese researchers have recently developed a new form of nanoparticle curcumin (Theracurcumin) containing 10% curcumin, 2% other curcuminoids and balance glycerin, gum ghatti and water. Its oral intake in rat model as well as humans shows 30 fold improvement in bioavailability as compared to conventional curcumin. It shows excellent safety profile even at high dose levels. Theracurcumin can be used as a promising tool to evaluate the anti-cancer potential of curcumin in clinical trials. [17]

Curcumin Polyvinyl pyrrolidone nanoparticles with enhanced antioxidant and antihepatoma activities: In this report PVP was used as a Nano carrier for curcumin and they found enhanced antioxidant activity of curcumin. [18]

Curcumin nanoparticles with highly potent antimicrobial properties: The antibacterial activity of nanocurcumin particles was attributed to their ability to penetrate inside the bacterial cell by breaking the cell wall, resulting to cell death. [19]

Chitosan-PVA-Curcumin-Silver nanocomposite antimicrobial films for wound dressing : Incorporation of curcumin into chitosan-PVA-silver nanocomposite films improve their therapeutic efficacy as anti-microbial agent [20]

Curcumin/MPEG-PCL micelles for colon cancer therapy: They were shown to suppress the growth of colon carcinoma by inhibiting angiogenesis and killing the cancer cells. [21]

Curcumin loaded PBCN nanoparticles for enhanced transport of curcumin to brain : in this report curcumin was loaded in PBCN nanoparticles and explored the transport of curcumin to the brain [22]

Curcumin loaded Lipo-PEG-PEI complex with enhanced antitumor effects on curcumin-sensitive/curcumin resistant cells : this report used curcumin loaded lipo-peg-pei nanoparticle to enhance antitumor activity of curcumin [23]

Nanoemulsion formulation and coadministration of Paclitaxel and curcumin to overcome multidrug resistance in tumor cells: this research paper explored synergistic effect of paclitaxel and curcumin for cancer treatment [24]

Chemo/radio-sensitization in ovarian cancer cells using nano-curcumin : this research paper reported chemo/radiation sensitization of ovarian cancer cells using Nano curcumin [25]

Coformulation of Doxorubicin (DOX) and curcumin in the clinical management of Leukemia
This research explains the use of co formulation of doxorubicin and Curcumin in clinical management of leukemia [26]

Some of Our studies with curcumin in Nano emulsions: we have prepared Nano emulsions using Nano Curcumin and incorporated the Nano Curcumin in the oil phase of the Nano emulsion. We used soybean oil as the oil phase. Nano Curcumin and egg lecithin were dissolved in the oil phase by over night stirring at normal temperatures. Water phase consisted of methyl paraben, propyl paraben, glycerol, polyethylene glycol and Pluronic F 68 . All the water-soluble ingredients were dissolved in the water phase with constant stirring at normal temperature. The two phases were mixed and then vortexed for 5 minutes and repeated for 4 cycles to get the coarse emulsion. Later the coarse emulsion was ultra-sonicated for 5 minutes in 5 cycles to get the Nano emulsions of the Curcumin. The Nano emulsion prepared was studied under the scanning electron microscope and the particle size distribution of Nano emulsion and the zeta potential was studied. Figure 2 shows the particle size distribution of the Curcumin nano emulsion. Table 5 gives the physical characterization of the Curcumin nano emulsion.

Subsequently the Nano emulsion was stored at the normal temperature for 3 months and later a 12 months to study the stability of the Nano emulsion. It was observed the Nano emulsion was very stable and no significant changes happened in the Nano emulsion parameters over one year stability studies (Table 5).

We also looked at the nanoemulsions under the scanning electronic microscope to look at the particle size of the nanoemulsion. Figure 3 shows the SEM characterization of the curcumin nanoemulsion.

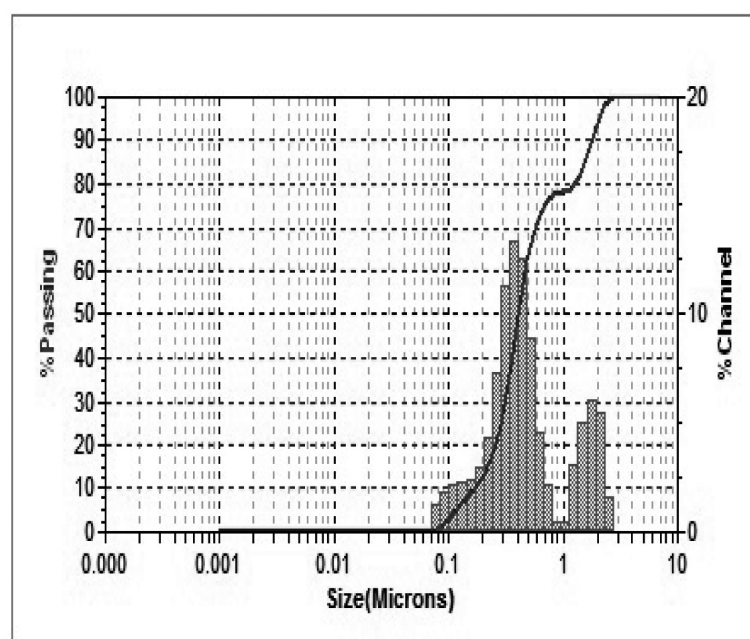


Figure 2 - particle size distribution of Curcumin Nano emulsions prepared in our labs

Table 5: Physical Characterization of Curcumin Nanoemulsion

Se Number	Parameter	Initial Readings stored at room temperature	Reading s after One year of stability studies at room temperature
1	Particle size distribution Mean particle size	259 nm	314 nm
2	Electrical Mobility	2.53	2.73
3	Zeta Potential	-36.29	-34.97
4	Polarity	Negative	Negative
5	Conductivity	27 ms/cm	25 ms/cm
6	pH value	5.75	5.35
7	Viscosity	6.55 cP	6.65 cP
8	Visual separation	No	No

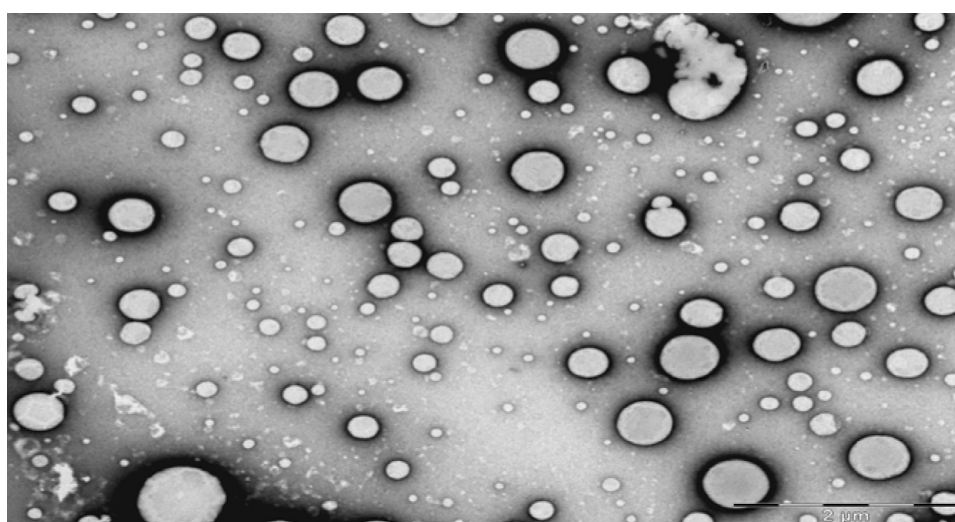


Figure 3: Curcumin Nano emulsion SEM picture

Effect of curcumin nanoemulsion on the inflammasomes mediation: THP-1 monocytes differentiated into **activated macrophages and treated with ATP, a known NALP3 inflammasome activator in the presence or absence of control or curcumin conjugated nanoemulsions. Caspase-1 release is** indicative of inflammasome activation. Curcumin treated cells show a decrease in caspase-1 activation and secretion in-vitro. This decrease in caspase-1 activity is correlated with a decrease in IL-1 β processing. Figure 4 shows the results of this study.

Effect of Nano emulsion of Curcumin on treatment of IL 1 Beta cells: In the above experiment, THP1 macrophages were activated with Nigericin, a known inflammasome activator. The secretion of IL-1 β , which is processed by the inflammasome upon activation, was measured in the cell culture supernatant. This data suggests that Curcumin treatment diminishes IL-1 β secretion. Figure 5 shows the results of this study.

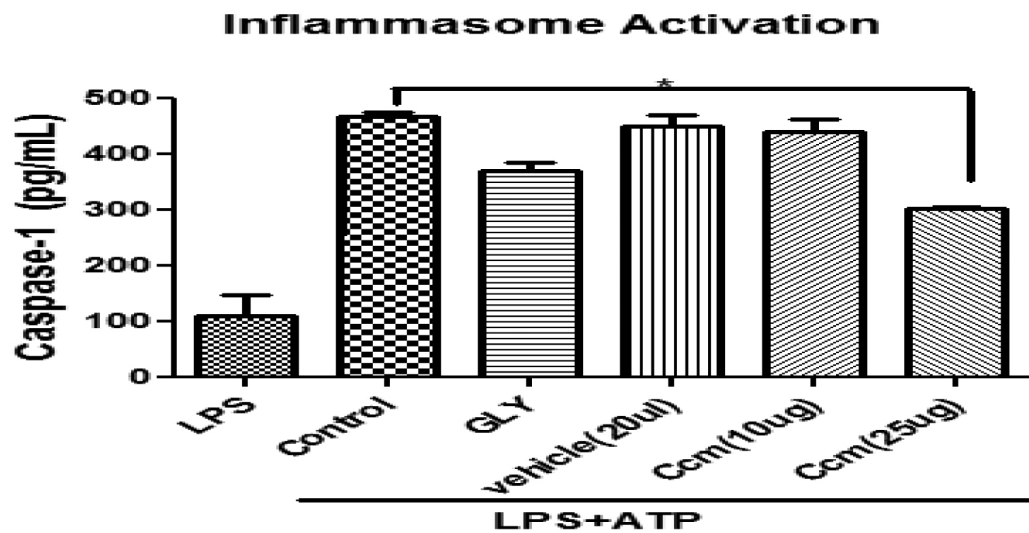


Figure 4: Curcumin effects on IL-1 β are inflammasome mediation

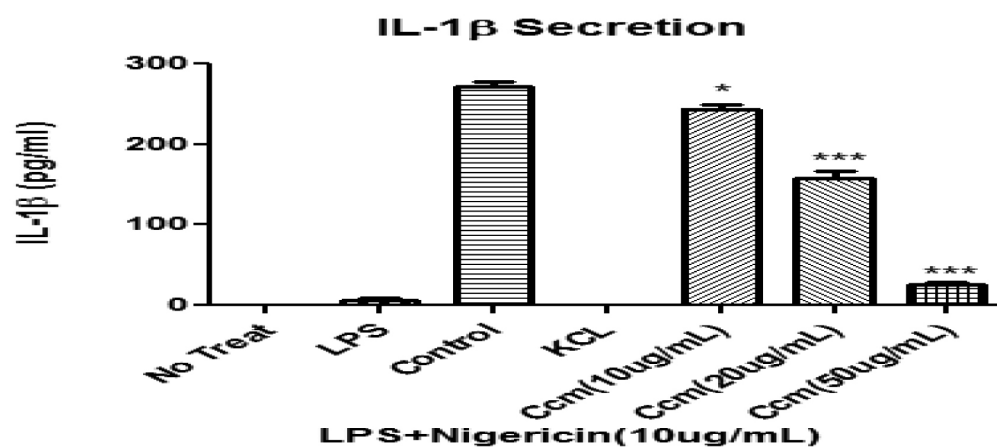


Figure 5. Effects of Curcumin treatment of Il1 B

SUMMARY OF OUR WORK ON CURCUMIN NANO EMULSIONS

- Nano Curcumin treatment augments ROS mediated neuronal cell damage
- Nano Curcumin treatment mediates reduced IL-1 β secretion
- Nano Curcumin treatment inhibits caspase-1 cleavage and secretion
- Nano Curcumin treatment inhibits the effects of NLRP3 inflammasome activators Nigericin and ATP.

Further researches are needed but our studies showed the effectiveness of nanotechnology application in delivering the Ayurveda drug Curcumin in the form of Nano emulsion and showed its effectiveness at the cellular levels.

Nanotechnology Applications in herbal Drugs

- Nanotechnology can help in
- Reducing the dose levels of the Herbal medicines
- Providing better stability to the product
- Ease in formulations and characterizations
- Better patient acceptability
- It will help in reproducibility of the therapeutic effectiveness

The economic impact of Nano application:

- Technology advances getting new patents out of such researches and nanotechnology applications in developing new drug delivery systems for herbal drugs and their products.
- Possibility of acquiring intellectual property (Patents for the new products)
- Enhancing the life and quality of the Herbal products
- In Highly competitive market nanotechnology will give edge to new products and with comparatively high price
- Overall financial improvement for all stake holders farmers, herbal drug producers, and for consumers also

Future potential:

- Nanotechnology principles can significantly contribute towards developing the herbal medicines, especially can address several challenges posed by the herbal medicines.
- It can also help to improve the efficacy of the products
- It will increase the acceptability by the patients as well as increase the prestigious of the herbal medicines.

References

- Pathak K and Das, RJ, Herbal medicine a rational approach in healthcare system, International Journal of herbal Medicine, 1(3), 86-89, 2011 [1]
- Essential Medicines and health products, General guidelines, www.who.int 2007 [2]
- Hypericum Depression trial group, Effect of St Johns wart in major depression, a randomized clinical trial, J Am Med Assoc, 287, 1897-1814, 2002 [3]
- Ginkgo clinical study, <https://nccih.nih.gov/research/results/gems/qa.htm> [4]

- Nafiseh Shokri Mashhadi, Reza Ghasvand, Gholamreza Askari, Mitra Hariri, Leila Darvishi, and Mohammad Reza Mofid, Anti-Oxidative and Anti-Inflammatory Effects of Ginger in Health and Physical Activity: Review of Current Evidence, *Int J Prev Med.* 2013 Apr; 4(Suppl 1): S36–S42 [5]
- The Effect of Korean Red Ginseng Supplementation on Glucose Control, <https://clinicaltrials.gov/ct2/show/NCT01911663> [6]
- Khonche A, Biglarian O, Panahi Y Valizadegan G Soflaei SS Ghamarchehreh ME1 Majeed M, Sahebkar A, Adjunctive Therapy with Curcumin for Peptic Ulcer: a Randomized Controlled Trial, *Drug Res (Stuttg).* 2016 Aug;66(8):444-8. [7]
- Three Studies Find Echinacea Ineffective Against the Common Cold, <https://nccih.nih.gov/research/results/spotlight/051805.htm> [8]
- Janmejai K Srivastava, Eswar Shankar, and Sanjay Gupta, Chamomile: A herbal medicine of the past with bright future. [9]
- Stephen Bent, MD, Amy Padula, MS, Dan Moore, PhD, Michael Patterson, MS, and Wolf Mehling, MD, Valerian for Sleep: A Systematic Review and Meta-Analysis, *Am J Med.* 2006 Dec; 119(12): 1005–1012. [10]
- Leyla Bayan, Peir Hossain Koulivand, and Ali Gorji, Garlic: a review of potential therapeutic effects, *Avicenna J Phytomed.* 2014 Jan-Feb; 4(1): 1–14 [11]
- C Mulrow, V Lawrence, B Jacobs, C Dennehy, J Sapp, G Ramirez, C Aguilar, K Montgomery, L Morbidoni, JM Arterburn, E Chiquette, M Harris, D Mullins, A Vickers, and K Flora, Milk Thistle: Effects on Liver Disease and Cirrhosis and Clinical Adverse Effects: Summary, <https://www.ncbi.nlm.nih.gov/books/NBK11896> [12]
- S. H. Ansari, Farha Islam, and Mohd. Sameem, Influence of nanotechnology on herbal drugs: A Review, *J Adv Pharm Technol Res.* 2012 Jul-Sep; 3(3): 142–146. [13]
- N Sahoo, P Manchikanti, S Dey - Herbal drugs: standards and regulation, *Fitoterapia*, 2010, <https://doi.org/10.1016/j.fitote.2010.02.001> [14]
- Bonifacio, BV, Bento da Silva, P, Ramos, AS, Negri KMS, Bauab TM and Chorilli, M, Nanotechnology based drug delivery systems and herbal drugs, *International Journal of Nano Medicine*, 9,1-15,2014 [15]
- Pandey A and Pandey G, Nanotechnology for herbal drugs and plant research, *Journal of Pharmaceutics and nanotechnology*, 2 (1), 13 -16, 2014 [16]
- H. Sasaki et al, “Innovative Preparation of Curcumin for Improved Oral Bioavailability”, *Biol. Pharm Bull.*, 34(5) (2011) p. 660-665 [17]
- Lin L, Shi Q, Nyarko AK, Bastow KF, Wu CC, Su CY, Shih CCY, Lee KH. *J. Med. Chem.* 2006;49:3963–3972 [18]
- Bhawana, R. K. Basniwal, H. S. Buttar, V. K. Jain and N. Jain, “Curcumin Nanoparticles: Preparation, Characterization and Antimicrobial Study”, *J. Agric. Food Chem.*, 59, (2011) p. 2056-2061 [19]
- K. Vimala, Y. M. Mohan, K. Varaprasad, N. N. Redd, S. Ravindra, N. S. Naidu and K. M. Raju, “Fabrication of Curcumin Encapsulated Chitosan-PVA Silver Nanocomposite Films for Improved Antimicrobial Activity”, *J. Biomaterials and Nanobiotechnology*, 2, (2011) p. 55-64 [20]
- M. Gou, K. Men, H. Shi, M. Xiang, J. Zhang, J. Song, J. Long, Y. Wan, F. Luo, X. Zhao and Z.Y. Qian, “Curcumin-loaded Biodegradable Polymeric Micelles for Colon Cancer Therapy in vitro and in vivo”, *Nanoscale*, 3, (2011) 1558-1567 [21]

- M. Sun et al., "Enhancement of Transport of Curcumin to Brain in Mice by Poly(n-butylcyanoacrylate) Nanoparticle", *J.Nanopart Res* 12, (2010) 3111-3122 [22]
- Y. Lin, Y. Liu, N. Tsai, J. Hsieh, C. Chen, C. Lin, K. Liao, "A Lipo-PEG-PEI Complex for Encapsulating Curcumin that Enhances its Antitumor Effects on Curcumin-sensitive and Curcumin-resistance Cells", *Nanomedicine: Nanotechnology, Biology and Medicine*, 2011.06.011 [23]
- S. Ganta and M. Amiji, "Coadministration of Paclitaxel and Curcumin in Nanoemulsion Formulations to Overcome Multidrug Resistance in Tumour Cells", *Molecular Pharmaceutics*, 6(3), (2009) p. 928-939 [24]
- M. M. Yallapu, D. M. Maher, V. Sundram, M. C. Bell, M. Jaggi, and S. C. Chauhan, "Curcumin Induces Chemo/Radio Sensitization in Ovarian Cancer Cells And Curcumin Nanoparticles Inhibits Ovarian Cancer Cell Growth", *Journal of Ovarian Research*, 3 (11), (2010) p. 2-12 [25]
- R. Misra and S. K. Sahoo, "Coformulation of Doxorubicin and Curcumin in Poly-(D,L-lactide-glycolide) Nanoparticles Suppresses the Development of Multidrug Resistance in K562 Cells", *Mol. Pharmaceutics*, 8, (2011) p. 852- 866 [26]

THE CONTRIBUTION OF BALINESE TRADITIONAL HEALING ON THE SUSTAINABLE DEVELOPMENT OF BALI

Nyoman Adiputra

nadip2003@yahoo.com

Center for Ergonomics Study, Udayana University-Denpasar, Bali, Indonesia

Abstract

The existence of tradition healing in Bali is a factual thing. It is a part of Balinese culture, and it's potency due to the three factors, such as: the written - unwritten sources of knowledge, providers, and the consumers. The traditional knowledge is written on the palm leaf (*lontar*). *Lontar* for traditional healings consist of *tatwa* or *tutur* (the philosophy, religion, cosmology, calendar, etc), *lontar usadha* (anatomy, physiology, patho-physiology, pharmacopea, and clinical textbooks). To be a traditional healer in Bali, there is no formal schooling. It is done very informally; and the process is ended based on two ways communication between the student/candidate and the teacher. The learning situation is performed in accordance with local culture, by a process of self acquired knowledge, individual learning, home works, and discussion. Practical aspect is based on observation on the self acquired knowledge processing. Everything is done through a process of initiation ceremony. By doing that, the Balinese' traditional healer is guaranteed, a professional one. It will support the development's process. The development is a must, and should be done until forever. Not just for this generation, but, for the further generation. Therefore, all resources should be taken into consideration, including the traditional medicine. The providers, and the natural resources in terms of medicinal plants, should be managed gently. Their roles and functions is a must for the sustainability. By doing that the efficient and effective development program could be achieved, implementing do the right thing and doing the thing right. That is the positive role of Traditional Medicine to the sustainable development. In doing that the development program should be based upon the both approaches (bottom up and top-down) for the equity effect to the all regions. That is in agreement with development program patron of Bali, based on agricultural sector, tourism, and small scale industry. By doing that it has been proven the prosperity of Balinese at a moment.

Key words: Balinese traditional healing, medicinal plants, sustainable development.

INTRODUCTION

Bali is one of the many provinces in Indonesia. It is a small area, but, due to historical background, especially from the cultural point of view, is considered as one province. In carrying out the development program of Bali, is based on three basic elements. The pin points are still based on agricultural aspect, tourism, and small scale industry. The problem encountered is, among others, the equity of results of development between the northern and the southern area of

Bali. Therefore, now has started to do, how process of equity should be tackled appropriately. The similar problems also happened in the medical services, either the Balinese go to public hospital, or to the traditional healer, it depends on the user. This article, try to criticizing the contribution of the Balinese traditional medicine on the development program in the region.

MATERIAL AND METHOD

This paper is written based on the data of literature studies on the Balinese traditional medicine and development program carried out in Bali. Plus a common sense as a Balinese, based on the participatory approach in observing the results or process of development at the grass root level. No statistical analysis was implicated. It is very sorry, for the Balinese traditional healing services, event it is still utilized by people, but, in fact still no evidence based at all. It is due to the fact, that reporting and recording system on traditional medicine has never been done.

RESULTS AND DISCUSSION

In term of Balinese traditional medicine, it is a fact, that Balinese still do believe and utilized them. The modern health facilities such as the Health Center in every district, and Public Hospital in every sub-provincial area had been built. There are 57 districts in Bali, but, for the Health Center, there are about 120 had been built all over Bali, and staffed by more than one medical doctor, and one dentist in every health center. There are about 129 Mobile Health Centers (BPS Bali, 2016). If comparing with the traditional healers, there are about 1 - 2 persons per village, and there is no cultural gap between the people and the traditional healer; as it is true, for the Medical Doctors and the clients. From the cultural aspect point of view, traditional medicine and modern medicine, it is not, an un-bridgeable one. After carrying out a national seminar in 1981, and a workshop on traditional medicine in 1983, in Denpasar, there is a need to collaborate between the Medical Doctors and the traditional healers.

Looking at the process of becoming the traditional healers, *Balian Usada* is identically to the Medical Doctor (Goris, 1937; Pigeaud, 1967; Adiputra, 1979; 1981; Bagus, 1981). There are four categories of healers: herbalists, spiritual healers, bonesetters and massage therapists, and practitioners who combine several approaches. As a traditional healer, of course, he or she given a license to offer private practice, as long as the requirement is fulfilled.

But, for this article the pin point of report is limited on the *Balian Usadha* only, looking from their curricula. Many subjects should be studied before offering the services (Weck, 1937; Pigeaud, 1937; Goris, 1937; Adiputra, 1981; Angela, 2014). The main subjects are: a) general knowledge *tatwa* or *tutur* (Weck, 1937; Goris, 1937), teaching about the philosophy, religion, calendars, cosmology; b) The *usadha* (traditional medical knowledge: *panca maha bhuta, saraswati, sastra sanga, buwana mahbah, genta pinarah pitu, kehilangan kawah, pati urip*), pharmacopeae (*Taru premana, Sundari siksa, Parik kayu*), and the applied clinical knowledges (*Buda Kecapi, Kalimaha Usadha-Usadhi*, and several kinds of *usadha*). In the Balinese Traditional Medicine there is also a specialization, based on *usadha*. The approach more holistic, and the herbal drugs are used. Due to that, the traditional healers having a special functions in their society such as: a healer,

a mediator, an adviser, an artist, a priest, a village council, village administrator and as informal leader (Goris, 1937; Pigeaud, 1967; Bagus 1981; Adiputra, 2009).

From the foreigners who are interested on the tropical, medicinal plants in Bali, some criticisms were offered. They worrying on the sustainability of the medicinal plants, while a very small amount of research have been done on them, and due to a great changing's land used from agricultural purposes into non-agricultural one (Manuaba, 1995; Dulbary, 1995). Therefore, it is reasonably to say, that many of the tropical medicinal plants will disappear.

In other studies, we found that there are some roles of the medicinal plants in Balinese society, such as: ceremonial-, commodity-, horticultural-, and magical-plants (Adiputra, 2007; 2014; 2015). Due to that the medicinal plants used as horticultural plant, planted in the hotels (Adiputra, 2005), governmental offices (Adiputra, 2006), house yards (Adiputra, 2004), and in the median road strips (Adiputra, 2005). Some examples had been shown in form of medicinal plants park and ceremonial plants park. In individual level, every family also plant as horticultural plants in the house yards, and the products of them are used in the daily live for offerings. By so doing, the medicinal plants will not be totally disappeared. Nevertheless, for several times it was wisely advised to do a program of preservation and conservation, in every village (Adiputra, 2007; 2009; 2011; 2014; 2015). In terms of commodity and from business matters, medicinal plants also bring an economical added value for the country, either as raw materials or as products of phytopharmaca (Mooryati Soediby, 1990).

On the development program of Bali for several decades had been put the program of development based on three basic elements, such as: 1) agriculture in a broad meaning, 2) tourism which is cultural based one, and 3) small scale industry (Manuaba, 1995; 2015). The problem that we are facing is the equity in distributing the development programs among the all over of Bali area, especially between southern and northern parts. Secondly, the Balinese' young generation are not interested any more on agricultural works. It is associated by the great land used shifting from agricultural purposes into non-agricultural one (Manuaba, 1995; Dulbahri, 1995).

In regarding to the contribution of traditional medicine, it is, fair to say that there is a positive contribution on development of Bali. In terms of human capital the traditional healers (*Balian Usada*) they function in a multi facet in the society such as agent for treating the patient, as a mediator, as a consultant, as a priest, an artist, village administrator, or as informal leaders. They are elite one in the society (Mel Borins, 1990; Angela Hobart, 2003; Cal Stanny, 2014), they must given opportunity to participate in every development process. The traditional healers talk using their mother language with the people. It is not like a medical doctor talks with the patients, there is a great communication gap. Participatory approach is a must, in involving every one in the community to be active in the health program development or in general development. Secondly, in using and preserving the natural resources, active participation of local people is very important. The medicinal plants will not be disappeared, meanwhile, they have many roles in Balinese society. The people understand on the multi-role or function of the medicinal plants; such as ceremonial plants due to it needed in conducting any religious ceremony. It also considered as commodity which economically valued (to say one: clove); as well as food stuffs (rice, corn, coconut), and as a horticulture (which are planted in hotel-, governmental-offices, and private house yard). The last, as magical plant (coconuts with it' variant, *ficus rhumpii Bl.*; banyan tree,

Rhapis excelsa, *Piper betle* L; and *dedap*: *Erythrina cuodiphylla* Hosste). Most of Balinese could not be separated from those plants. Therefore, people at grass root level understand how to maintain those plants for its sustainability. From tourism aspect, the existing Balinese traditional medicine is becoming one interesting point for foreigners to see. That is an asset for net-working, in carrying out any collaboration program with any one (Adiputra, 2011).

Some of the recommended medicinal plants written in *usadha* had been searched in some university in Bali or Indonesia. The aims are looking for its effects from the physical fitness point of view, its active component, chemical characteristics, main effects, maximal dosage, effective dosage, its anti aging activity, and anti-viral activity (Adiputra et al, 2017), etc.

Beside the positive aspect of Balinese traditional medicine on the sustainable development, there is also a problem. Frankly speaking, it is, seems to be serious, that among the young generation of Balinese, there is no more interested on becoming a healer. In the reality, in rural or in the urban area, most of the existing healers, are not because of their choices. They are forcedly agree to do, for maintaining the role and duty of their ancestors. It is, usually preceded by a suffering with any kind of illness or disease, before becoming a healer. Why? Becoming a *balian* (healer), considered, it is, as an old fashion; it has not as trendy as becoming a medical doctor. We have searched around 24 healers who already actively offering the services, around 20 persons were preceded by suffering an illness. In fact also, the modern health facilities in Bali, had been built more than enough, as stated above. It is also, in Denpasar to day, there are two schools of medicine, already opened and in operational. But, based on what had been handed down from older generation, the traditional medicine is also one of our heritages, should also be preserved and conserved. That is our task and duty to be, otherwise, it will be disappeared and just existed in a prescriptive, heritage one. That is a pity for the Balinese or Indonesia as a nation.

The sustainable development concerned with continuity. The principles exist in the way of life of Balinese who believe on Hinduism. The principles, among others, are: 1) **Tri Kona**: trichotomy (past/yesterday, now/to day, and next/tomorrow). What is happening to day is due to our past/yesterday. Our to day's condition is foundation for tomorrow. 2) **Phala Karma**, a doctrine to motivate for every one doing his (her) best. If you plant a corn you will harvest a corn. It is covering either for to day living, next living or results of the past living. 3) **Tri Angga**: head, body, and legs. Head is part of body which is sacred one. What the body will do is depend on what is commanded by the head (brain). This concept also prevails in the Balinese traditional architecture. Whatever will be constructed should be consists of three parts. Another thing which is also implementation of this concept is orientation of the building location. There are two orientations. First, geographical orientation, started from north to south. The house yard is divided into three parts: north (mountain; is considered sacred), middle (considered moderate), south (sea considered impure). Secondly, solar' orientation, started from east to west. The house yards also divided into three parts. East is considered sacred; middle is considered moderate; and west is considered impure. By combining these two orientations, the north-east is considered the most sacred one, and therefore, is the chosen location for the family temple or house shrine. The south-west is considered to be the most impure. In this part the sanitary waste, as well as all of the other wastes produced from the daily activities must be dumped or buried. Practically, in the south-west part of house yard, Balinese plants quick yielding plants. In the area of family shrine usually flowers are planted. It is important to note that in their daily lives, flowers and fruits are the

most important elements of the offerings. In the middle part of yard, the compound house is built. 4) **Tri Hita Karana**. It means the source of prosperity and welfare. It is a doctrine for everyone to practice completely for the prosperity and welfare. The elements are: 1) *parhyangan*, the spiritual environment; 2) *pawongan*, the social environment; and 3) *palemahan*, the natural environment. The *Tri Hita Karana* should be understood by everyone, and then should be able to practice in the family, in a community, at village level, district level, provincial and country level. As a Balinese this philosophy has been instilled since childhood by the parents. It is the duty of parents to hand down this information to the new generations. As members of community, everybody should obeys and respects with the tradition of transferring this information. It is the basic foundation for the sustainability. 5) **Tri Kaya Parisuda**. It consists of thinking, talking, and doing. The doctrine tells us, as a Balinese always think, speak, and do with the best intentions. These important three bests must be done in regards to our interactions with others, our environment of living thing and the non-living things. This is also considered as preservation principle with the last concept – doing or action – manifesting in a harmonious balance with the environment. In another aspect it also teaches the Balinese to be aware of themselves as similar beings in essence to one another; therefore, humans must respect each other. Respect for others in this case is done by practicing the concepts of *Tri Kaya Parisuda* (Peter and Wardana, 2013).

Why should Balinese people be so concerned about sustainable development? For Balinese the social value of children is extremely important, they are the successors to the older generation. This implies that young generation carries the responsibilities in society for what the older generation has done. In this regards, each person in the older generation would like to have a good child to replace them. That is way, the parent must teach the younger generation as well as possible. Another important motivating factor for the Balinese, it is, the social stigma attached to having a child with a bad reputation. The last, but not the least, the Balinese to be so concerned on sustainable development, is the older generation wants the younger generation to have a better quality of live than they experienced.

On the other hand, the Balinese who did as a traditional healer, he or she also doing the similar thing for his or her young generation. It is, therefore, supporting the sustainable development. Every parent wants to preserve and conserve their duties to their young generation.

CONCLUSIONS AND RECOMMENDATIONS

From the above discussion it can be concluded: 1) the Balinese traditional medicine still functioning; 2) it is a part of Balinese cultural heritage; 3) Balinese traditional medicine positively contribute to development of Bali; 4) the sustainable development of Bali on one side, and the traditional medicine on the other side, having the similar basic foundations in the Balinese way of life. Therefore, maintaining the traditional medicine of Bali, it means also supporting the sustainable development.

Therefore, it is recommended: as a part of Balinese culture, preserving and conserving the traditional medicine in Bali is becoming an every body business.

References

- Adiputra, I N. 1979. Balinese Traditional Medicine. UPDATE. A Modern Medicine. An Asia Publication. Vol.1. no.3, July 1979: 5.
- Adiputra, I N. Kurikulum Balian Usadha. Proseding. Seminar Nasional Kedokteran Tradisional Bali I. FK UNUD di Denpasar, tgl. 9-11 Januari 1981.
- Adiputra, N. 2011. Proceedings. Chiang Mai International Conference on Traditional Medicine: Wisdom of Asia Looking into the Future. August 25-26, 2011. Conducted in Imperial Chiang Mai Hotel, Chiang Mai, Thailand.
- Adiputra, N. and Wadi, Nyoman. 2015. Coconut in the Balinese Culture and its conservation. *BUMI LESTARI. Journal of Environment*. 15(1): 79-86.
- Adiputra, N. 2014. Horticultural, Medicinal, and Ceremonial Plants in Petiga Village, Tabanan, Bali Province. *BUMI LESTARI. Journal of Environment*. 14(1): February: 101-110.
- Adiputra, N.; Aman, I G M.; and Putra Manuaba, I B.; 2017. The Anti-viral Plants used in Balinese Traditional Medicine. *Bali Medical Journal*.
- Adiputra, I N. 2010. The sustainable development principle in Balinese society supporting the application of ergonomics. Paper presented on: International Joint Conference Asia-Pacific Computer Human Interaction (APCHI)-ERGOFUTURE 2010, Denpasar, 3-6 August.
- Adiputra, N. and Purnamawati, MSP. 2009. Systemic, Holistic, Interdisciplinary and Participatory (SHIP) Approach for the Sustained Agriculture in Bali. *Proceedings: The 17th International Ergonomic Association Congress*. Beijing-China, August 9-14. 2009.
- Adiputra, N. 2007. The systemic, Holistic, Interdisciplinary and Participatory (SHIP) Approach Supports the Conservation Program of Medicinal Plants in Bali. *J Hum Ergol*. 36(2), 2007: 51-55.
- Adiputra, N.. Hari Raya Nyepi dan Maknanya dalam Kelestarian Lingkungan Hidup. Dalam: Buku Kearifan Lokal dalam Pengelolaan Lingkungan Hidup. Editor: AAG Raka Dalem, dkk. PPLH UNUD. UPT Penerbit UNUD. 2007: 157-173.
- Adiputra, N. By SHIP Approach Preserving and Conserving the Medicinal Plants in Bali. Proceedings. The Ergo-FUTURE2006, The International Symposium and Workshop on Ergonomics and Occupational health in Denpasar. November, 28-30, 2006.
- Angela Hobart. 2003. Healing Performances of Bali. Between Darkness and Light. Berghahn Books. New York.
- Anonymous. 2017. Dua puluh Sembilan Desa Raih Anugerah Desa Wisata Award 2017. BaliPost, 20 Mei 2017: 9.
- Bagus, I G N. Dorongan Belajar Serta Hubungan Guru Dengan murid dalam Pendidikan Kedokteran Tradisional di Bali. Proseding. Seminar Nasional Kedokteran Tradisional Bali I di Denpasar, tgl.9-11 Januari 1981: 549-553.
- Dulbahri. 1995. Land Use Changes in Bali. In: Sugeng Martopo and Bruce Mitchell (Eds). Bali. Balancing Environment, Economy and Culture. Chapter 10: 143- 151.
- Cal Stanny. 2014. A Balinese Self-Healing System. Ancient Techniques for Life-long Optimum Health. Saritaksu Edition. Padanggalak, Denpasar.
- Manuaba, I B A. 1995. Bali: Enhancing the Image Through More Effective Planning. In: Sugeng Martopo and Bruce Mitchell (Eds). Bali. Balancing Environment, Economy and Culture. Chapter 3: 29-42.

- Mooryati Soedibyo. 1990. Javanese Traditional Medicine. Proceedings. The International Congress on Traditional Medicine and Medicinal Plants. Denpasar-Bali, Indonesia, October 15-17, 1990: 1-6.
- Nala, I Gusti Ngurah. 2010. Pendidikan Pengobatan Ayurveda di Universitas Hindu Indonesia. Dalam: Nyoman Kertia (Ed). Naskah lengkap. Seminar Nasional Terapi Medis Berbasis Herbal di Auditorium FK UGM Yogyakarta, 8-9 Mei 2010: 237.
- Peters, J H. and Wardana, W. 2013. Tri Hita karana. The spirit of Bali. Kepustakaan Popular Gramedia. Jakarta.
- Pigeaud, T G. The Literature of Java. Vol.I. Medical literature. The Hagus Martinus Nyhoff. 1967: 261-268.
- Weck, W. Heilkunde und Volkstum auf Bali. Stuttgart. 1937.

CONCEPT OF HEALING IN AYURVEDA – TIME TESTED ANCIENT WISDOM OF MEDICINE

Abhishek Joshi

dr_abhishekjoshi@yahoo.com

Chair of Ayurveda, Hindu Indonesia University
Bali, Denpasar - Republic of Indonesia

Abstract

Ayurveda the ancient science of healing has been benefiting mankind since age immemorial. This medicinal science is a time tested, scientific and is at par with the recent medicinal innovations. With the base of its strong, unique and universally applicable principles Ayurveda has stood test of time and justified itself as capable of continuing to heal the humanity in natural and holistic manner. The concepts of personalized medicine which is considered as futuristic medicine is very explained under the topic of the *Tridosha* (three bio-energy) theory explained in Ayurveda philosophy. The distinctive concept of treatment in Ayurveda as explained in *Trividha Chikitsa* (three modes of treatment principles) explains its universal applicability. Even the principles and application of herbal medicines as mentioned in the ancient textbooks of Ayurveda holds true with the scientific parameters of modern era. For example, the modern clinical researches have shown the same merits of the wonder herb turmeric as told in the *Samhitas* (Ayurveda text books). Ayurveda being a holistic science has touched every aspect of human life ranging from healthy living to disease, righteous living to spiritual growth, daily activity to seasonal regimens. This paper aims to throw light on these unique healing concepts of Ayurveda as explained in the classics of Ayurveda and its relevance in the modern scientific era.

INTRODUCTION

Thousands of years ago, a knowledge of Life was being codified in India that taught individuals how to lead long vital and creative lives. Ayurveda – the ancient wisdom of medicine has been benefitting mankind since ages. The word Ayurveda is comprised of two words, Ayur + veda; Ayur = life; Veda = knowledge / science; Hence Ayurveda means knowledge of life Ayurveda is not just a traditional system of medicine. It is a well-researched ancient scientific medicine. Ayurveda has continued to grow along with the modern age and its living wisdom translates into any culture, environment, or bio-region. A number of modern researches have justified the scientific temperament of Ayurveda.

Ayurveda has always established relation between the Macrocosm and Microcosms. It firmly believes man is the replica of universe. It is in tune with the universal principle told in the Veda “*Yat Pinde Tat Brahmande*”. Ayurveda has its five greater elemental theory or *Panchamahabhuta* theory, which is one of the basic concept of Ayurveda.

Five elements viz. *Pritvi, Apa, Tejas, Vayu and Akasha* are the common elements between macrocosm and microcosm. *Pritvi* = earth element; *Apa* = water element; *Tejas* = fire element; *Vayu* = air element; *Akasha* = space element; When it comes to the physiological concepts the 5 elements are further summarized into *Tri Doshas* or 3 bio-energies. These 3 bio-energies are made up of 5 greater elements. *Vata* = space + air; *Pitta* = fire + water; *Kapha* = earth + water. According to Ayurveda all the physiology, metabolism and pathology of human body is under the influence of *Tri-Doshas*.

In Ayurvedic, the basic approach to the concept of health is essentially psychosomatic in nature. Health is defined as related to the state of equilibrium of physio-biochemical factors namely *Dosha* (bio-energies), *Agni* (digestive fire), *Dhatu* (body tissues), *Mala* (waste material from body) along with a state of wellbeing of spiritual, sensory and mental faculties.¹ *Ayurveda* has particularly has emphasized the significance of the relationship between body and mind in both its physiological and pathological status.² In fact, 'Ayu' as the science of life considers, *Sharira, Mana* and *Atma* as three legs of a tripod stand required for the existence of universe.

DISCUSSION

Tri-doshas / Bio-energies

Tridosha comprise three ascertainable physiological entities; *Vata* (kinetic), *Pitta* (metabolic) and *Kapha* (potential) that are pervasive across systems, work in conjunction with each other, respond to the external environment and maintain homeostasis. Each individual is born with a specific proportion of *Tridosha* that are not only genetically determined but also influenced by the environment during foetal development. Jointly they determine a person's basic constitution, which is termed their '*PRAKRITI*'. Development and progression of different diseases with their subtypes are thought to depend on the origin and mechanism of disturbance of the *Doshas*, and the aim of therapeutic practice is to ensure that the *Doshas* retain their homeostatic state.

Bio-energies concept of Ayurveda is correlated to genotypes & phenotypes theory by many researches. Genotype is an organism's full hereditary information.³ Phenotype is an organism's actual observed properties such as morphology, development or behaviour. This distinction is fundamental in the study of inheritance of traits and their evolution.⁴

Researchers have studied genetic, gene expression and biochemical profiles from peripheral blood amongst prakriti types, to analyse and probe the ontological links between doshas and molecular signatures (Prasher et al. 2008). Differences in immune cell type abundance associated with the prakriti have also been observed (Rotti et al. 2014)

Just to highlight a few things from a research published on *TRI-Dosha* correlation to the modern scientific tools in Journal of Translational Medicine, 2008.⁵

- Study was carried out in unrelated healthy individuals of predominant prakriti. Genetic homogeneity in terms of the ethnic background of these individuals was established by a set of genomewide neutral markers. Following this, genomewide expression profiling was carried out on these individuals and both the genders were analysed separately.

- At the biochemical level, there were significant differences in lipid profiles, liver functions, haematocrit, and blood clotting between the constitution types, albeit within normal range. This highlights that the normal range of biochemical parameter for different constitution types may be different, so also their subclinical ranges.
- Significant differences with respect to genomewide expression were also observed between contrasting prakriti types which mapped to core biological processes such as the cell cycle, immune response, apoptosis and regulation of physiological processes, metabolism and haemostasis.
- Many of the differences resonated with the descriptions of Ayurveda.⁶

Another work published in Journal of Genetics, 2016 highlights significant role of *Tri-Doshas* as a part of diagnostic and preventive medicine.⁷

- Western systems biology epitomized by translational P4 medicine (personalized, predictive, preventive and participatory) envisages the integration of multiscale genetic, cellular, physiological and environmental networks to predict phenotypic outcomes of perturbations.
- *Prakriti* provide phenotype scaffolds through p-p links for Understanding human individuality and Stratification of individuals irrespective of population labels
- *Prakriti* are likely to have genomic correlates e.g immune, metabolic and neurophysiological gene activity
- A significant enrichment of the highly connected hub genes explains differences in *Prakriti*. The research focussed on EGLN1, a key oxygen sensor that differs between *Prakriti* types and is linked to high altitude adaptation.
- Integrating observation with the current literature, EGLN1 could qualify as a molecular equivalent of *Tridosha* that can modulate different phenotypic outcomes, where hypoxia is a cause or a consequence both during health and diseased states
- Genetic and genomic analyses show how EGLN1 could be an example of a molecular contributor to *Tridosha*.

Integration of our understanding of the principles of Ayurveda in drug discovery development holds enormous potential, not just for predictive health but also for personalized therapeutics (Patwardhan and Mashelkar 2009; Dwivedi et al. 2012)

Healing concept in Ayurveda

Ayurveda mentions three types of treatments for healing viz.

1. *Daivavyapasraya Chikitsa* (divine or spiritual/therapy)
2. *Yuktivyapasraya Chikitsa* (logical therapy)
3. *Satwavajaya Chikitsa* (psychotherapy)

Daivavyapashraya Chikitsa

This refers to measure like *Mantra*, (incantation), *Ausadhi* (wearing scared herbs), *Mani* (wearing precious gems), *Mangala* (propitiatory rites), *Bali* (oblations), *Homa* (sacrifice), *Upahara* (offerings), *Niyama* (vows), *Prayaschitta* (ceremonial penitence), **upavasa** (fasting), *Swastyayana* (prostrations), *Pranipata* (surrender), *Gamana* (pilgrimage) .

Just to highlight one aspect of the modalities told under *Daivavyapashraya Chikitsa*.

Upavasa (fasting)

As defined in the commentary on an ancient text book of Ayurveda Astanga hrudaya, the term *Upavasa* implies

उपवासः प्रसदिधः पापहर्तृत्वेऽ ॥

Upavasa prassidha papa hartrutve II

Fasting implies to total or partial abstinence from intake of food. It is said to purify mind and body. In yogic terminology this is known as the *Sattva* element, as the mind becomes predominantly *Sattvic* and more receptive. The scriptures advise the worship of certain deities during these fasting periods. This is called *Vrata*, a specific type of purifying austerity or *Tapa*. Fasting is referred to as *Param Tapa*, or supreme austerity.⁹

Autophagy

Autophagy is the process of utilizing and recycling unnecessary or dysfunctional cellular components—the so-called cellular rubbish which accumulates in cells. The term autophagy originates from two Greek words which summarily mean self-eating. Autophagy is intrinsic to living organisms, including those of human beings. Autophagy cells get rid of excess parts, while an organism gets rid of unnecessary cells. Autophagy becomes especially intensive when an organism under stress, for example, when it fasts. In this case a cell produces energy using its internal resources, that is, cellular rubbish, including pathogenic bacteria.

2016 Nobel prize winner scientifically proves that fasting is good for health

Yoshinori Ohsumi, a cellular biologist from Japan, became a Nobel Prize winner in physiology and medicine “for discovering the mechanisms of autophagy.” He discovered the fundamental importance of autophagy for a large number of physiological processes, such as adaptation to starvation and response to an infection. Autophagy protects organisms from premature senility. This process even probably rejuvenates organisms by creating new cells, removing defective proteins and damaged intracellular organelles from them, thus maintaining them in good condition. His discovery indicates that abstaining from food and keeping fasts is wholesome, the body truly cleans itself. This is confirmed by the Nobel Prize Committee.

The same has been mentioned in an ancient text of Ayurveda fasting purifies the body

Another researcher, Professor Valter Longo, a professor of both gerontology and biological sciences at the University of California has scientifically proved the medical benefits of fasting. His studies have shown fasting can assist the body with producing a new immune system. It gives the okay for stem cells to go ahead and begin proliferating and rebuild the entire system. The body got rid of the parts of the system that might be damaged or old, the inefficient parts, during the fasting. If you start with a system heavily damaged by chemotherapy or aging, fasting cycles can generate, literally, a new immune system

Yukti vyapashraya Chikitsa

This refers to the planning of *Ahara* (diet) and *Aushadha* (herbal medication). Dietary corrections are an important part of treatment in Ayurveda, in fact the first step of any treatment is to correct the diet. Varieties of herbal medication are used in the management of diseases ranging from single herb to complex combinations of 50+ herbs.

One of the most commonly and very popular herb is *Haridra* or turmeric. A lot of researches have been done on this single herb.

Turmeric – pubmed database has

- 10280 research study published in reputed journals about compound curcumin
- 4026 research study published in reputed journals about turmeric
- 2919 research study published on curcuma longa variety of turmeric
- 76+ research study published on Ayurveda aspects of the herb

Just to highlight few modern scientifically proven benefits of the herb turmeric are,

- The breakthrough in modern turmeric research likely occurred when its anti-inflammatory activity was demonstrated in 1971 by Arora et al. The effect of turmeric was comparable to that of hydrocortisone, a steroidal drug prescribed for the treatment of many inflammatory and allergic conditions¹⁰
- Turmeric derived from the rhizome of the plant *Curcuma longa* and has been used by the people of the Indian subcontinent for centuries with no known side effects, not only as a component of food but also to treat a wide variety of ailments.¹¹
- Modern medical findings include antioxidant, anti-inflammatory, anticancer, antigrowth, anti-arthritic, anti-atherosclerotic, antidepressant, anti-aging, antidiabetic, antimicrobial, wound healing, hepato-protective and memory-enhancing activities.^{12,13}
- Turmeric's history goes back over 2000 years, to the heyday of Ayurveda. Sushruta Samhita, dating to about 200 BCE, recommends a turmeric ointment to relieve the effects of consuming poisoned food and for wound healing.¹⁴

- Turmeric's efficacy and safety was monitored through simply observing. Turmeric is prevalent in both formulations and oils, these have been adapted and developed on experience. As we have just seen, analytical and clinical research dates back at least to Avicenna (around 1000 CE).¹⁵
- Chemical analysis has so far uncovered hundreds of thousands of natural plant compounds. There are approximately 235 compounds in turmeric including polyphenolic, terpenes and volatile oils. Curcumin is just one compound that gives the yellow colour to turmeric. More recent studies have identified that curcumin-free turmeric components possess also numerous biological activities including anti-inflammatory, anticancer and antidiabetic activities.¹⁶
- By taking isolated curcumin, you would forego the benefits of turmerones (part of the essential oil) which not only significantly enhances the absorption and transport of curcumin but are proven to exhibit anti-inflammatory and anticancer activities and support regeneration in neurologic disease.¹⁷

By means of modern science based medical research, the benefits of turmeric are being confirmed and the mechanisms of its action more deeply understood. The following table is a comparison of the beneficial effects of turmeric mentioned in Ayurveda classics and the modern research. ^{18,19}

Evidence based Ayurveda (EBM)

Sanskrit	Meaning	Potential uses of turmeric based on modern science**
<i>Lekhniya</i>	Scraping property	Gall stone, Hypolipidemia
<i>Dipana</i>	Enkindles the digestive fire	Hypothyroidism
<i>Prameha</i>	Useful in diabetes	Diabetes
<i>Pāṇḍughna</i>	Used in Anaemia	Fanconi anemia
<i>Raktaśodhana</i>	Blood purifier	All inflammatory diseases eg.
		Arthritis, Inflammatory bowel
		disease, Pancreatitis, Allergy,
		Cancer, Gastric Ulcer
<i>Ārtavajanana</i>	Promotes Menses	
<i>Jvaraghna</i>	Alleviates fever	Fever
<i>Viśaghna</i>	Destroys poisons	Malaria, Leishmaniasis,
		Antihelminthic
<i>Kuṣṭhaghna</i>	Removes skin	Psoriasis
	diseases	
<i>Kaṇḍūghna</i>	Stops itching	Psoriasis

<i>Vedanāstahāpana</i>	Analgesic	All painful diseases
<i>Sandhānīya</i>	Heals broken bones	Osteoporosis
<i>Śirovirecana</i>	Clearing stagnation from the head	Multiple sclerosis, Epilepsy, Alzheimer's, Parkinson's
<i>Stanyaśodhaka</i>	Purifies breast and breast milk	

Sattvavajaya Chikitsa

सत्त्वावजयः सत्त्वस्य मनसोऽवजयः। अहिताद्विषयान्नग्रहो नविरणम२० ॥

Sattvavajaya satvasya manaso avajayaha I

Ahitad vishayanna nigraho nivaranam II

Sattvavajaya is defined as the subjugation of mind, reduction of mind to restrain itself from unwholesome preoccupations or Stressors. Withdrawal of mind from unwholesome objects (*Ahitartha*) is known as *Sattvavajaya Chikitsa*. It is a treatment by Self Control.

The methods adopted are^{21,22}

- Spiritual and holy scriptural knowledge
- Patience
- Memory
- Meditation
- Courage
- Self- knowledge

The psychological treatments are given mainly in stress, anxiety etc. disorders. Stress – not an alien word for the present generation!!! Recent research provides compelling evidence of mind–brain–body interactions at the organismal, cellular, and molecular level that can impact on the health and quality of life of individuals (Straus, 2001). There are four interacting information processing systems in humans, the mind (the functioning of the brain), the endocrine system, the nervous system, and the immune system. These four systems continually communicate with each other, and the science and paradigm of health incorporating all of these systems have been termed Psychoneuroimmunology.²³

Ayurveda credits this concept years back which has been explained in *Sattvavajaya chikitsa*. *Atma*, Mind which constitutes the emotions, thoughts, feeling along with intellect and its dimensions can be a cause for happiness, health, sorrow and disease depending on the indulgence

and feedback it is given. The same concepts mentioned in the Ayurveda books are being explore by the scientist to treat psychology disorders. The newest term used is mind body medicine.

The term mind body medicine emphasizes the deep interconnection between mind and body but also our capacity to have positive influence on mental functions, emotions and physiology. A variety of psychological, mental and physical techniques and approaches we can consciously use to effect change.²⁴ This perspective acknowledges that what we do mentally and psychologically affects the body. It also confirms the reciprocal effects of physiology on the mind. The thoughts and feelings can affect our health. Viewed through the lens of 21st century science, anxiety, alienation and hopelessness are not just feelings. Neither are love, serenity and optimism. All are physiological states that affect our health just as clearly as obesity or physical fitness.²⁵

The in-depth analysis of the Ayurveda modes of healing is what the modern researches are exploring too give a better solution to the ailing mankind. All the researches highlighted in this paper are rightly proving the efficaciousness modes of healing mentioned in the ancient time tested science of medicine Ayurveda. I would like to end with a beautiful quote from the veda, *Ano bhadra kratavo yantu viswataha* II Rig veda Let noble thoughts come from every side.

References

- ¹ Sushruta, Sushruta Samhita, Dalhana commentary, Nibandhasamgraha, Sutra Sthana, Doshadhatumala Kshayavruddhi Vijnaneeya Adhyaya (15), Shloka 41, Ed by Vd. Jadhavji Trikamji Acharya, Chaukhambha Sanskrit Sansthan, Varanasi, reprint 2009. P.765-770.
- ² Agnivesha, Charaka Samhita, Chakrapanidatta commentary, Sutra Sthana, Deerghanjeevitiya Adhyaya (1), Shloka 42, Vaidya Yadavji trivikramji Acharya Ed., Chaukhambha Sanskrit Sansthan, Varanasi, reprint 2009.
- ³ <https://en.wikipedia.org/wiki/Genotype>
- ⁴ <https://en.wikipedia.org/wiki/Phenotype>
- ⁵ Journal of Translational Medicine 2008, 6:48, whole genome expression and bio-chemical correlates of extreme constitutional types defined in Ayurveda Prasher et al.
- ⁶ Agnivesha, Charaka Samhita, Chakrapanidatta commentary, Sutra Sthana, 12 & 18 chapters, Vaidya Yadavji trivikramji Acharya Ed., Chaukhambha Sanskrit Sansthan, Varanasi, reprint 2009.
- ⁷ Journal of Genetics, Vol. 95, No. 1, March 2016. Genomic insights into ayurvedic and western approaches to personalized medicine, bhavana prasher, greg gibson and mitali mukerji.
- ⁸ Sashilekha commentary on Astanga Sangraha. Sutra sthana. 15/4
- ⁹ <http://www.yogamag.net/archives/1981/emay81/hindu.shtml>
- ¹⁰ Arora, R. B., Kapoor, V., Basu, N., Jain, A. P. Anti-inflammatory studies on Curcuma longa (turmeric). Indian J. Med. Res. 1971, 59, 1289-1295.
- ¹¹ Aggarwal B.B, Ichikawa H., Garodia P, Weerasinghe P., Sethi G., Bhatt I.D., Pandey M.K., Shishodia S., Nair M.G. From traditional Ayurvedic medicine to modern medicine: identification of therapeutic targets for suppression of inflammation and cancer. Expert Opin Ther Targets 2006; 10(1):87-118.
- ¹² Aggarwal B.B., Sundaram C., Malani N., Ichikawa H. Curcumin: the Indian solid gold. Adv Exp Med Biol. 2007; 595:1-75.

- ¹³ Aggarwal B.B., Yuan W., Li S., Gupta S.C. Curcumin-free turmeric exhibits anti-inflammatory and anticancer activities: Identification of novel components of turmeric. *Mol Nutr Food Res.* 2013; 57(9):1529-42.
- ¹⁴ Singh A., Singh A.K., Narayan G., Singh T.B., Shukla V.K. Effect of Neem oil and Haridra on non-healing wounds. *Ayu.* 2014; 35(4):398-403.
- ¹⁵ Moosavi J. The Place of Avicenna in the History of Medicine. *Avicenna J Med Biotechnol.* 2009; 1(1): 3–8.
- ¹⁶ Aggarwal B.B., Yuan W., Li S., Gupta S.C. Curcumin-free turmeric exhibits anti-inflammatory and anticancer activities: Identification of novel components of turmeric. *Mol Nutr Food Res.* 2013;57(9):1529-42.
- ¹⁷ Hucklenbroich J., Klein R., Neumaier B., Graf R., Fink G., Schroeter M. Rueger M. Aromatic-turmerone induces neural stem cell proliferation in vitro and in vivo. *Stem Cell Res Ther.* 2014;26;5(4):100).
- ¹⁸ Properties of turmeric experienced over 4000 years in Ayurvedic Medicine (Caraka Samhita) from Pole S., 2006
- ¹⁹ Aggarwal B.B., Sundaram C., Malani N., Ichikawa H. Curcumin: the Indian solid gold. *Adv Exp Med Biol.* 2007; 595:1-75.
- ²⁰ Astanga Sangraha. Sutra sthana.15/4
- ²¹ Vagbhata, Asthanga Hridaya, Arunadatta and Hemadri commentary, Sutra Sthana, Ayurshkameeya Adhyaya (1), Shloka 26, Harishastri Paradakara Vaidya (ed.), Chaukhambha Orientalia Publications, Varanasi, 2005.
- ²² Agnivesha, Charaka Samhita, Chakrapanidatta commentary, sutra Sthana, deerghanjeevitiya Adhyaya (1), shloka 58, Vaidya Yadavji trivikramji Acharya Ed., Chaukhambha Sanskrit Sansthan, Varanasi, reprint 2009.
- ²³ Oeklay Ray 'How Mind Hurts And Heals The Body; American Psychologist, Jan 2004
- ²⁴ David Rakel, Nancy Faass; Complementary Medicine In Clinical Practice Page No 141 Ebook
- ²⁵ Scientists Are Mapping The Pathways That Link Emotion To Health By Herbert Benson, M.D., Julie Corliss And Geoffrey Cowley; https://Patrickwanis.Com/Files/Mind_Body_Medicine_Fact_Sheet.Pdf

THE PAST IS ALIVE IN THE PRESENT: FOLK HEALING PRACTICES AMONG THE FILIPINOS

Lahaina Sue C. Azarcon

hannah.sue09@gmail.com

Quirino State University, Diffun, Quirino Philippines

Abstract

Every country has its unique culture, for culture is way of life. It is the embodiment of a society's totality. The body and soul of a nation. The Philippines is endowed with rich culture manifested in its systems of beliefs, rituals and practices. This paper is about the healing practices of the Filipinos, it includes discussions on folk healing systems and treatments associated to ritual practices in Filipino cultural context. It specifically highlights the major folk healing beliefs and practices of the "*arbularyo* or folk healers. At present, many Filipinos both in the urban and rural communities adhere to the combination of modern medicine and folk healing in treatments for illnesses.

Keywords: culture, folk healing practices, albularyo, Philippines

BACKGROUND

Everywhere in the world, each country has its own system of cultural beliefs and practices; the Philippines is a country that has its own share of numerous cultural beliefs and practices that takes different forms, which includes folk healing and faith healing systems, beliefs and practices. For the purpose of this paper, folk healing refers to a system of healing methods that have been long been established and are passed down from generation to generation to heal a person suffering from various types of illness, from a simple fever to a more complicated cancer. Folk healing in the Philippines can be traced back to the early history of the archipelago (Agoncillo, 1990; Constantino, 1998). The *babaylans* were the first healers within the tribal communities of the ancient Philippines. The *babaylans*, as described by Strobel (2010) is a "person who is gifted to heal the spirit and the body; a woman who serves the community through her role as a folk therapist, wisdom-keeper and philosopher; a woman who provides stability to the community's social structure; a woman who can access the spirit realm and other states of consciousness and traffic easily in and out of these worlds; a woman who has vast knowledge of healing therapies" (Strobel, L. 2010).

A folk healer which synonymously referred to as traditional healer can be defined as "someone who is recognized by the community in which he lives as competent to provide health care by using vegetable, animal and mineral substances and certain other methods based on the social, cultural and religious backgrounds as well as the prevailing knowledge, attitudes and beliefs

regarding physical, mental and social well-being and the causation of disease and disability in the community” (ncbi.nlm.nih.gov).

While the World Health Organization (WHO) defines Traditional Medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.

Today, despite the advent of modernization and globalization, many Filipinos still adhere to folk healing practices. In fact, many Filipinos, infused and utilized simultaneously modern health care system and a variety of folk practices (geriatrics.stanford.edu). In the rural communities, where access to health services is limited and medical service is expensive, people inflicted with sickness and maladies go to folk healers for the treatment of illnesses.

In the Philippines, there are various types and of folk healers. Each folk healer has his own specialization. The most common of them are the herbalists (*albularyo*), masseurs, midwives, diviners, sorcerers and general practitioners. Different they maybe from one another, common among them is the infusion of prayers and rituals in their specific fields of specialization.

The succeeding paper will exhaustively discuss the folk healing beliefs and practices of the Filipinos.

FOLK HEALING

Majority of the populace of developing countries thrive in rural communities of village, where access to and control over resources is scarce, hence they have to strive on their own in order to survive, as result the ancient dwellers or fore fathers have developed a system of methods and practices in order to combat sickness and diseases that plague them. And this practice of healing has evolved through the years. This folk healing practices are infused with cultural beliefs and social relationships.

Needless to say, folk healing is as old as an oak tree and is as diverse as the human race. In fact, folk healing is not only compartmentalized in the Philippines, many countries across the universe, have their own share of folk healing practices. Ayurveda, for instance has been practiced for as far back as the 12th century BC. Ayurvedic method of treatment aims to accomplish physical, mental, social and spiritual well-being by adopting preventive and promotive approaches as well as treating diseases with the holistic approach. *Zhongyi* or the Traditional Chinese Medicine has been used for about a 2000 years. (Hongguang D. and Xiaorui Z, 2001 as cited in Traditional Medicines in Asia, 2001).

In the Philippines, the Filipinos rely on folk healing or traditional method of curing an illness and even recover from a certain disease for more than three centuries. In fact in the ancient time, in every village, there is a folk healer. In Philippine culture, not everyone can be a folk healer; for folk healing is said to be a gift from the divinity, fortified by time and practice and transferred to the next bloodline. Folk healing therefore, is through bloodline.

The ancient Filipino folk healers believed in the concept of balance. It is believed that when an imbalance in the body occurred and was not addressed, the person will suffer health deterioration or and prolong illness. They believed that the body has the capacity to recuperate on its own, however, with the existence of imbalances, recovery would be difficult.

The ancient folk healers believed that there are four elements that exist within our bodies. These are Earth, Water, Air and Fire. "Earth element deal basically with digestive organs and digestion process, Water element deals with water-related organs and processes, Air element with lungs basically, and Fire element, which is the by-product or in much better words, the synergy of the functioning of Earth, Water and Air. Health is a balance or correct function of all these elements and their respective processes, sickness is the reverse." (pinoywarrior.com).

Filipinos also believe that unseen earth dwellers or spirits causes illness and sickness. This happens, when a person consciously or unconsciously offended the unseen earth dwellers or spirits.

TYPES OF FOLK HEALERS

Albularyos

Albularyos or sometimes called a quack doctor is someone who heals all forms of illnesses and diseases using a concoction of various herbs, prayers and a ritual. The term *arbularyo* is actually an evolution of the Spanish word *herbolario* (herbalist). During the ancient time, the *herbolario* sells a variety of herb to cure and treat maladies and disease. An *Arbularyo* is also sought when the origin of the disease or illness is believed to be caused by the unseen earth dwellers or spirits.

The *albulario* mode of treatment is by application of various plants, prayers and native rituals. He/she may also prescribe concoction of herbal plants for the person to drink to be taken on prescribed number of days.

If the cause of illness is believed to be from the unseen earth dwellers and spirits, prayers, chants, incantations and rituals are the methods used.

At present *albularyos* are prominent in the rural villages and communities where medical facilities like hospitals and district clinics are very far. They are also the ones people consulted by impoverished families who do not have enough money for modern medical services.

Masseurs

The Massurs or *manghihilot* is a specialist in fractured bone, sprain, dislocated joints, pinched nerves. The *manghihilot* uses hand-me-down skills rather than scientific knowledge. He/She is familiar with the body's joints and ligaments and can spot the problematic part of the body by just feeling or touching the person's affected body joints or ligaments. Once he/she felt the problematic area of the body's joints or ligaments.

He/she will then massage the affected area usually with coconut oil until the patient feels better.

Kumadrone

The local midwife o *kumadrone* is a trained and experienced practitioners who assist in the birthing process particularly in far flung areas. Her practice includes massage to correct inverted uterus, pre-natal massage to position the baby for easy delivery, post-natal massage and “suob” to hasten the healing recovery of the mother.

In Filipino culture, it is believed a mother who has just delivered a child should undergo a month long “care” from a *kumadrone*, who will assist the mother to recover soon by giving her a daily warm bath of concocted herbal plants and daily massage (Apostol and Baet, 2007, p5)

Magluluop/magtatawas

Filipino, believe in unseen earth dwellers that bring sickness or malady to a person when offended. Diviners or *magluluop/magtatawas* are the specialists sought when a person’s illness is believed to be the cause of unseen earth dwellers or spirits. The *magluluop/magtatawas* performs a diagnosis through the use of alum and candle. If the he/she confirmed that illness brought about by them, he /she will execute the ritual in pacifying the offended or angered unseen earth dwellers or spirits. This is done by making an offering to the offended unseen earth dwellers or spirits. Most offerings consists of a ,chicken or eggs, rice, rice-wine or coconut beverages betel or tobacco, coins, fruits and and chosen leaves and roots of known ‘medicinal plants. If the patient is in danger of dying and if all minor paraphernalia have been tried to no avail, then a pig, a goat or any big domestic animal may be slaughtered (Jocano, L.F, 1966, p43).

Case 1

The diagnosis and treatment by some maladies may be illustrated by the following The diagnosis and treatment of disease in some areas may be illustrated by the following incident which took place among the Sulod, in Central Panay, when Jocano (1966) was in the field.

One day a man from Masuruy, a sitio located at the foot of Mt. Kudkuran, came to Buri. He complained of severe abdominal pain and came to be treated by Diansa, the 50-year old female baylan in the area. Diansa, after a brief interview with the man, told him to sit on the floor with his legs crossed. Then she took a piece of ginger from the basket above the fire-place and cut it into seven slices. She put these on top of the man’s head, in his armpits, on his buttocks and on the soles of his feet. Having done this, she seated herself in front of the man. Then she took hold of his middle finger with her right hand, and with her left she felt his pulse, at the same time murmuring .an unintelligible prayer. At length she looked the man directly in the eye. After a while, she laid aside the man’s hand and told him that he was “suffering from a’ burugtang (a charm placed by the angered environmental spirits inside the stomach of the victim, causing him to suffer an indescribable abdominal pain). Diansa told her patient that unless that burugtang was removed he would not be able to rest, and perhaps he would die. The man asked Diansa to remove the charm. She left the house and when she came back she brought leaves and twigs of various plants. I inquired what the names of the plants were but Diansa refused to tell me, saying that doing so would make her medicine ineffective. She placed the leaves and twigs of the various plants

inside a kararaw (a tray made of bamboo splints) and divided these into two parts. One-half - she pounded in a small wooden mortar (lusung-lusung) and the other half, she boiled. The juice derived from the pounded leaves and twigs was filtered through an abaca cloth and placed inside a folded banana leaf. Pieces of glowing embers were placed inside a coconut shell. When everything was ready, Diansa told her patient to lie down on the mat spread near the wall. She wound a piece of red cloth around his stomach. Picking up the coconut shell, she blew the ashes off the embers, and dropped a pinch of kamangyan (native incense) into it. Then she fumigated the wrapped juice before she placed it on the belly of the man. As she did this, she called out in a loud voice: I call upon you Dumalaphig, Paiburung, Pagsandan, Paharunan (all identified spirits of the departed ancestors) to help me locate the charms, to remove the spell, of the evil ones. Let it look like a butterfly if it is from -the spirits of the grassland; turtle-like if it is from the spirits of the trees: if it is from the spirits of the streams or of the river, let it form a figure inside the talug (wrapper) and show it in the panabang (twigs and limbahon (leaves) After the invocation, Diansa opened her maram-an (chewing pouch) and talked to the patient. The wrapped juice remained in the folded banana leaf for thirty minutes before the leaf was opened. When unfolded the leaf revealed a fat-like substance, Diansa said it was the burugtang or charm of the himyaw (spirits of the fields) which was removed from the patient's abdomen by the hirogom (power) of the plants. Pointing at the formed substance, which looked like a butterfly, she said that the patient had displeased the spirits of the fields' while he was working. The man admitted having killed a strange looking insect two days before he went to be treated by Diansa in Buri. The man was then given the bowl of brew from the boiled leaves and twigs. He was advised not to consume all of the decoction but to leave a portion of it, about a ginger-deep, in the vessel. Diansa dipped her finger into the remaining brew and anointed the patient's forehead, palm, chest, and back. She said later that the patient was fortunate to have consulted her; otherwise, he would have died. The patient, apparently relieved of his discomfort, paid Diansa the sanag or advance fee for the spirits. Diansa collected her fee two weeks later.

The Local Specialists Every known group in the Philippines today has its own local "medical" specialist. This specialist is called by various names-sirkano, surhano, baylan, haplasan, tambalan, and the mananambal. Normally, these practitioners act as the health custodian of the locality. They interpret the dreams, diagnose the illness, and attend to all ceremonies connected with the society's rite of passage. Often these specialists are older men and women in the group and, as such they also function as religious and political leaders. At any rate the type of illness or the degree of development which, an ailment has may be understood in terms of who among the specialists in the community-the family of the sick man approaches for help. For prenatal care, delivery assistance, and postnatal care the partira or midwife is called. For ordinary sprain or for broken limbs, the hilot is called. For complicated illness the tambalan, the sirkano, or the baylan is called. The latter is often an omnibus practitioner. Most partira and the hilot do not receive their knowledge from supernatural beings. They acquire their skills through early trainings. In Guinhangdan, one may become a midwife if one is the proper sex, has given birth to a child, and has the inclination.

CONCLUSION AND FUTURE DIRECTIONS

At present, folk healing is still strongly adhered to by many Filipinos. In the personal interviews conducted by the author to people who opt to go to folk healers rather than professional health practitioners, they disclosed that the one of reasons for doing so is financial constraints. Consultation to medical practitioners are expensive and the medicines are also costly. Distance to nearest medical health care provider and hospital or clinic is also a deterrent, they live in far flung areas where mode of transportation is usually unavailable especially in times of emergency and during night time. Moreover, according to the interviewees, folk healers have proven their expertise in providing treatments to sickness and disease on several accounts. One interviewee even emphasized that folk healers can cure some illnesses and maladies that a medical practitioner cannot cure.

Harmonization of modern and folk medicine

In recognition of the deep seated practice and adherence of the Filipino people to traditional medicine and folk healing, Philippine's Department of Health (DOH) launched and promoted the use of alternative modality for treating and preventing diseases dubbed as the Traditional Medicine Program in 1992. This program aims to promote an effective and safe use of traditional medicine. Former President Fidel V. Ramos, signed into law the Republic Act 8423 (R.A. 8423), otherwise known as the Traditional and Alternative Medicine Act (TAMA) of 1997. This gave rise to the creation of Philippine Institute of Traditional and Alternative Health Care (PITAHC) which is tasked to promote and advocates the use of traditional and alternative health care modalities through scientific research and product development (kbl.org.ph). And since then, the DOH have endorsed the used the herbal or alternative medicines.

With all these, the prospects of harmonization seems to have a brighter future. However, studies to facilitate the harmonization of modern medicine and folk healing should further be conducted in order to shed more light the integration of traditional therapies with modern medicine. In doing so, there will be substantial concrete evidence that the past is still alive in the present and will have a dwelling in the future.

References

- Agoncillo, Teodoro A. (1990) History of the Filipino People. Quezon City, Philippines: Garrotheon Publishing.
- Apostol, V.J. and Baet, P.A. (2007). Philippine Healing Arts. Batangas City: Ancient Publishing House.
- Constantino, Renato (1998) The Galleon Guide Series. Quezon City, Phi;ippines: Manila, Philippines: UP Press
- "Faith healing". *thearda.com. University Park, PA: Association of Religion Data Archives*. Archived from the original on 2016-01-01. Accessed April 2, 2017 Citing Smith, Jonathan; Green, William Scott, eds. (1995). *The Harper Collins Dictionary of Religion*. San Francisco, CA: HarperCollins. p. 355.

- GMA News, "Bolo-bolo Traditional Way of healing in Siquihor" Online clip. YouTube. YouTube. 05 November 2015 geriatrics.stanford.edu/ethnomed/filipino/fund/health_beliefs/health_behaviors.html
- Hilot, Filipino Traditional Art of Healing <http://filipinoalternativemedicine.blogspot.com/2010/01/hilot-filipino-traditional-art-of.html> Accessed March 26, 2017
- Jocano, Landa F. Cultural Context of Folk Medicine: Some Philippine Cases: Philippine Sociological Review. 1966 in <http://lynchlibrary.pssc.org.ph> accessed May, 12, 2017
- Mercado, Leonardo. Power and Spiritual Discipline Among Filipino Folk Healers. *Missions Studies*. Vol VII-1, 13, 1990. p63.
- Saydoven, A. (2009). Filipino Traditional Medicine. Accessed March 29, 2017 from <http://www.scribd.com/doc/22046305/Filipino-Traditional-Medicine-report#scribd>.
- Strobel, Leny. CFBS Media "Honoring our Babaylan Ancestors" Online video clip. YouTube. YouTube, 10 October 2010. Mon. 03 April 2017.
- Traditional Medicine in Asia. SEARO Regional Publications No. 39 accessed April 21, 2017 www.who.int/medicines/areas/traditional/en/ accessed MArch 29, 2017
- www.medical-dictionary.thefreedictionary.com/traditional+healer. accessed MArch 29, 2017
- www.booksandjournals.brillonline.com/content/journals/10.1163/157338390x00092. Accessed March 29, 2017

PRODUCTION OF MEDICINAL COMPOUNDS IN PLANTS

I Gede Ketut Adiputra

dr_gede_adiputra@yahoo.co.id

Department of Biology, Faculty of Natural Science, University of Hindu Indonesia Denpasar.

Abstract

Once plants anchor its root into the soil, they stay in the place forever albeit various environmental conditions are exposed to them. The ability of plants to solve environmental conditions is amazing and rise question of how the plants regulate physiological mechanism under the environmental stress. Base on the fact that plants are autotrophic, it is very likely that plants produce specific compound to alleviate stress. It is also hypothesized that candidate for these compounds are originated from primary metabolites synthesized by plants in chloroplast. So, specific compounds produced by plants to alleviate stress conditions are commonly known as secondary metabolites. Diversities of these specific compounds are enormous, thousands of it has been found. Those various compounds are then grouped into terpenoids, alkaloids and phenolics compounds. Some of the compounds have been successfully used to alleviate human diseases. More importantly, Indonesia as a tropical country is reported to have a half of world plants species. If those specific compounds are produced by specific plants species, Indonesia is therefore has a tremendous source of secondary metabolites which could be use to ease medicinal problems. However, only some plants are already known as medicinal plants, so, further comprehensive study is still required to ease medicinal problems.

Key words: Biosynthesis, environment, medicinal plants, secondary metabolites.

INTRODUCTION

Human survival depends on the sustainability of organic compounds synthesized by plants. This is because food as a source of energy for humans being can only be produced by plants. The study of the biosynthesis of organic compounds in plants has been done for centuries and continues to this day. Unlike animals and human being, plants are able to produce organic material because they have organelles known as chloroplast. This organelle is the sites where plants synthesize organic compounds using energy from sun light. The main products of this process are carbohydrates, fats, proteins and nucleic acids. This compound is mainly used by plants for growth and reproduction. Therefore they are classified as primary metabolites. The same compounds are also used by animals and humans for growth and energy sources, but because they do not have chloroplast, animals and humans depend on plants for their food.

In addition to primary metabolites, plants also produce a variety of compounds that are not directly related to growth and reproduction. These compounds are then classified as secondary

metabolites. This secondary metabolite is also an interesting subject for a long time, especially in medicine (Pavarini et al. 2012). Some argue that secondary metabolites are produced by plants to overcome the disturbance of their environment or as a tool that can help species preservation. For plants, this material is very important because since the plant stuck his roots on the ground, it will remain in that place forever. The environment, where the plant is located, can turn out to be very dangerous for its growth, both in terms of biotic and abiotic stress. Without the ability to cope with the dangerous situation, the existence of plants in the place will be threatened with extinction. Therefore plants also produce compounds that are not directly related to growth and reproduction called secondary metabolites.

Unlike plants, humans and animals can move to avoid dangerous environments, but they can also experience dangerous situations, both biotic and abiotic. Bacteria or viruses, which can cause disease in humans, can be anywhere. Likewise, weather and chemical changes can threaten human health. However, humans and animal could not synthesize their own secondary metabolites, as the plants do. Therefore, humans depend on plants not only for energy and growth, but also for medicine.

It has now been recorded that thousands of secondary metabolite compounds produced by plants. For humans and animals, these secondary metabolites have varying effect. Some plants produce secondary metabolites that can be toxic to humans. These compounds belong to the group of alkaloids, such as nicotine, caffeine, morphine and cocaine produced by tobacco plants, coffee, cannabis and coca. Other compounds produced by plants have a bitter taste. These compounds belong to terpenoid groups, such as mint, taxol, rubber and resins. Compounds that also belong to terpenoid groups are cyanogenic glycosides and cardiac glycosides. If cyanogenic glycosides which produced by *Passiflora* plant are consumed by animals or humans then these compounds will turn into cyanide in the body and will endanger the safety of humans and animals. Cardiac glycosides produced by *Digitalis* plants. This compound is very famous because it can affect the work of the heart. Plants also produce secondary metabolites that produce attractive colors for animals and humans. The purpose of plants to produce this compound is to attract animals and humans to help pollination or disperse seeds so that the sustainability of the plant species is preserved. These compounds are classified in Phenolic groups. Examples of compounds belonging to this group are flavonoids (coloring grapes), tannins and lignins. The compound which also includes phenolic is salicylic acid which is the main component of painkillers aspirin. This salicylic acid is produced by willow plants.

DISCUSSION

Biosynthesis of secondary metabolites in plants

Secondary metabolites in plants are produced from primary metabolites synthesized primarily in chloroplasts from inorganic compounds using energy from sunlight. The metabolic pathway to produce secondary metabolites begins with the main route: (1) glycolysis producing pyruvic acid, (2) conversion of pyruvic acid to acetyl-coa and (3) the Krebs cycle.

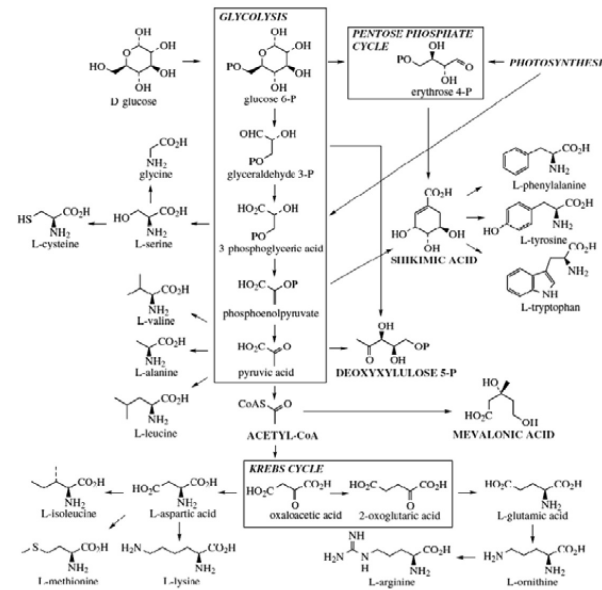


Figure 1. Amino acids as the precursor for secondary metabolite are produced from the primary metabolite, glucose (Kabera et al 2014).

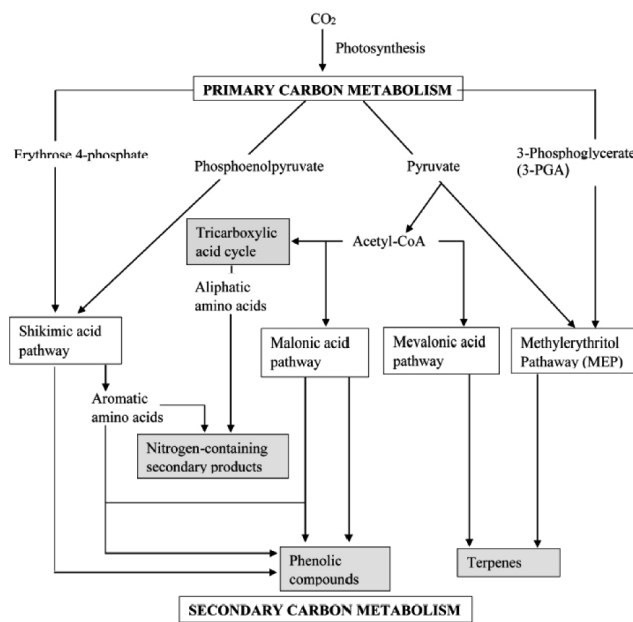


Figure 2. The synthesis of alkaloid, terpene and phenolic compounds (Ncube and Van Staden 2015).

At each stage of this glucose metabolism, amino acids are produced which then become the precursor for secondary metabolites. From stage 1 (glycolysis), produce Shikimic acid, which is then converted to amino acid phenylalanine, tyrosine and triptopan. From stage 2, mevalonic acid is produced. Amino acid originated from stage 3 (Kreb cycle) includes: methionine, lysine, arginine. The amino acids that produced from primary metabolism are presented in Figure 1 (Kabera et al. 2014). According to Ncube and Van Staden (2015), secondary metabolite synthesizes from glycolysis are mostly compounds that belong to terpene groups. Phenolic compounds are produced from acetyl-CoA and alkaloid is produced from Krebs Cycle (Fig. 2).

Secondary metabolites as medicine

Secondary metabolites are essential for plant growth because they are useful for overcoming unfavorable environments and as a means of self-defense. Secondary metabolites are also very important for human health because it could determines the quality of food, color, flavor, aroma, anti-oxidants, anti-cancer, tension reduction, anti-swelling, anti-microbial, triggers the body's defense system, lowers cholesterol etc. (Irchhaiya et al. 2014). According to Wink (2015), secondary metabolites produced by plants are well known for their toxic properties. These metabolites are usually contains alkaloid or terpene. Some of these compounds has been extracted and used in modern medicines. This author indicated that secondary metabolite of this kind has specific target on human (Wink 2015, Tab. 1).

Table 1. Use and bioactivity of a few selective secondary metabolites which are applied as isolated compounds in medicine [12]; alkaloid (A), terpenoids (T) [11–14].

Plant Species	Substance (Class)	Mode of Action	Properties/Applications
<i>Aconitum napellus</i>	aconitine (A)	activates Na ⁺ channels	analgesic
<i>Atropa belladonna</i>	L-hyoscyamine (A)	antagonist of mAChR	parasympathomimetic
<i>Camptotheca acuminata</i>	camptothecin (A)	inhibitor of DNA topoisomerase	tumour therapy
<i>Cannabis sativa</i>	tetrahydrocannabinol (T)	activates THC receptor	analgesic
<i>Catharanthus roseus</i>	dimeric Vinca alkaloids (A)	inhibit microtubule assembly	tumor therapy
<i>Chondrodendron tomentosum</i>	tubocurarine (A)	inhibits nAChR	muscle relaxant
<i>Cinchona pubescens</i>	quinidine (A)	inhibits Na ⁺ channels	antiarrhythmic
<i>Coffea arabica</i>	caffeine (A)	inhibits phosphodiesterase and adenosine receptors	stimulant
<i>Colchicum autumnale</i>	colchicine (A)	inhibits microtubule assembly	gout treatment

Table 1. Cont.

Plant Species	Substance (Class)	Mode of Action	Properties/Applications
<i>Cytisus scoparius</i>	sparteine (A)	inhibits Na ⁺ channels	antiarrhythmic
<i>Digitalis lanata</i>	digitoxin, digoxin (T)	inhibits Na ⁺ , K ⁺ -ATPase	heart insufficiency
<i>Erythroxylum coca</i>	cocaine (A)	inhibits Na ⁺ channels and reuptake of noradrenaline and dopamine	analgesic; stimulant
<i>Galanthus woronowii</i>	galanthamine (A)	inhibits AChE	Alzheimer treatment
<i>Lycopodium clavatum</i>	huperzine A (A)	inhibits AChE	Alzheimer treatment
<i>Papaver somniferum</i>	morphine (A)	agonist of endorphine receptors	analgesic, hallucinogen
<i>Physostigma venenosum</i>	physostigmine (A)	inhibits AChE	Alzheimer treatment
<i>Pilocarpus joborandi</i>	pilocarpine (A)	agonist of mAChR	glaucoma treatment
<i>Psychotria ipecacuanha</i>	emetine (A)	protein biosynthesis inhibitor	treatment of amebae infections; emetic
<i>Rauwolfia reserpina</i>	reserpine (A)	inhibits the uptake of noradrenalin into postsynaptic vesicles	hypertonia treatment
<i>Sanguinaria canadensis</i>	sanguinarine (A)	DNA intercalator	antibacterial, antiviral
<i>Strophantus gratus</i>	ouabain (T)	inhibits Na ⁺ , K ⁺ -ATPase	heart insufficiency
<i>Taxus brevifolia</i>	paclitaxel (taxol) (A)	inhibits microtubule disassembly	tumour therapy

According to Wink (2015), alkaloid compound are rarely found in traditional medicine. Since this traditional medicine usually apply extract, it bioactivity is almost not known. This particularly because extract contain various form of compounds. As shown in Table 2, mode of action for compound that produced by medicinal plants are not specified (Tab. 2).

Table 2. Composition of extracts from medicinal plants used in traditional phytotherapy and their putative interactions [10–12].

Medicinal Plant/Drug	Phenolics *	Terpenoids *	Saponins *	Polysaccharides *	Covalent Interactions **
<i>Actaea (syn. Cimicifuga) racemosa</i>	++	++			
<i>Aesculus hippocastanum</i>	++		++		
<i>Allium sativum</i>	+				++
<i>Althaea officinalis</i>	+			++	
<i>Andrographis paniculata</i>	+	++			
<i>Arctostaphylos uva-ursi</i>	++				++
<i>Arnica montana</i>	++	++	+	+	+
<i>Boswellia sacra</i>		++	++	+	
<i>Calendula officinalis</i>	++	++	++	+	
<i>Centella asiatica</i>		+	++		
<i>Cistus creticus</i>	++	+			
<i>Crataegus monogyna</i>	++		+		
<i>Curcuma longa</i>	++	++		+	
<i>Cynara cardunculus</i>	++	++			+
<i>Echinacea purpurea</i>	++			++	
<i>Eleutherococcus senticosus</i>	++	++	++	+	

Factors affected the biosynthesis of medicinal compounds in plants

In plants, production of secondary metabolites is used for a defense system and adaptation to the environment. The production is affected by various factors such as; biotic, abiotic and plant growth factors. Biotic factors can be herbivores, bacteria or viruses that cause disease in plants. Abiotic factors can be light, dryness, temperature, height of place etc. While the development of plants is an internal factor associated with the growth phase.

Biotic factors

Several types of secondary metabolite compounds include diterpenes and sesquiterpenes produced by plants as a direct defense against herbivore and microbial pathogens. Because it can be toxic or has a very unpleasant taste, then the animal will not consume it so that the plant is free from herbivore attack. In the event of a bacterial or herbivorous attack, the plant will increase the production of this compound so that its accumulation will increase in the plant (Cheng et al., 2007).

Altitude.

Flavonoids are a very obvious example showing that the production of secondary metabolites is affected by the altitude of the site. Compounds belonging to this flavonoid group include: Carotene, vitamin C, anthocyanin. These compounds were found higher in the northern regions compared to the southern regions (Jaakola and Mohtola 2010). The increase in flavonoid levels is attributed by the responds of plants to cold environmental conditions.

Light, temperature and drought

Under serious conditions, such as high light intensity, high temperature and draught the plant cannot continue its growth unless it could produce compounds to alleviate the condition. These environmental factors can lead to production of excess energy in plants that resulted in the formation of reactive oxygen. These reactive compounds can adversely affect physiological processes in plants. Therefore under condition of these environment, the plant will increase the production of anti-oxidants i.e. flavonoids and phenolic acid (Ramakrishna et al. 2011). Abiotic factor that may affect secondary metabolite production in plant is presented in Fig. 3.

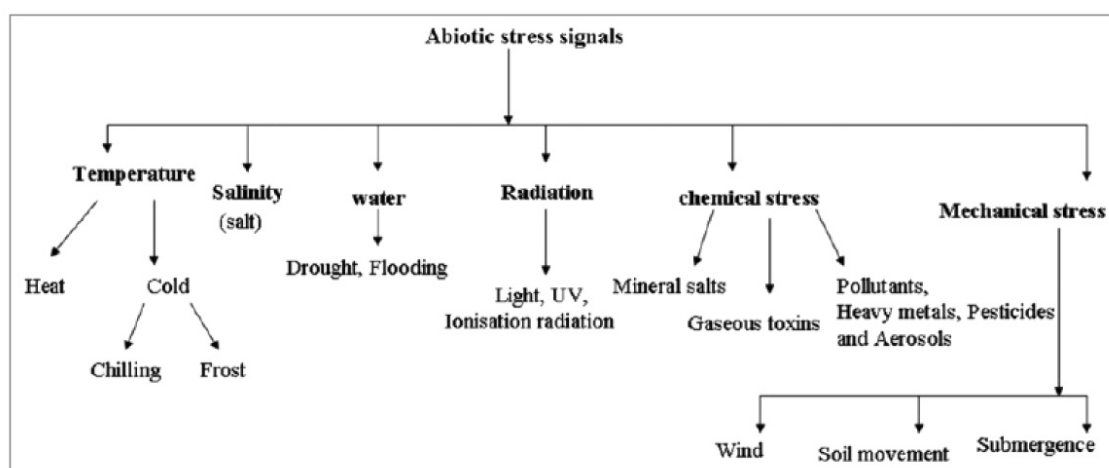


Fig. 3. Abiotic factors affected the production of secondary metabolites.

It is believed that plants have been used for medicine since human civilization. Plant part that is used for traditional medicine may be root, flower, leaf or fruit. In the “Usada of Bali”, the number of recorded species used as medicinal materials and has been known scientifically is only about 60 species (Adiputra 2008). This amount is very small when it is compared with the existing plant species in Indonesia which accounted for about 170000 (one hundred and seventy thousand) types of plants (Tjitrosoepomo 2004).

CONCLUSION

Plants appear to have a philosophy similar to humans, i.e. taking drugs when there is a health problem. However, whereas humans look for drugs to alleviate diseases because they could

not produce it, plants will make their own materials to alleviate health problems. Since secondary metabolite in plants is species specific, potentially Indonesia has various kinds of medicinal plants. So, in order to ease medicinal problem, Indonesia should promote more researcher to identify and subsequently conserve medicinal plants.

References

- Adiputra N. 2008. Tanaman Sebagai Bahan Obat, Menurut Lontar Usada Bali. Fakultas Kedokteran Universitas Udayana, Bali. [Http://Www.Scribd.Com/Doc/92782108/File](http://www.Scribd.Com/Doc/92782108/File), Download: 10 Mei 2012
- Cheng AX, Lou YG, Mao YB, Lu S, Wang LJ, Chen XY 2007. Plant terpenoid: Biosynthesis and ecological functions. *Journal of integrative plant biology* 49 (2):179-186.
- Irchhaiya R, Kumar A, Yadav A, Gupta N, Kumar S, Gupta N, Kumar S, Yadav V, Prakash A and Gurjar H 2014. Metabolites in plants and its classification. *World journal of pharmacy and pharmaceutical sciences* 4(1): 287-305.
- Jaakola L and Mohtola A 2010. Effect of latitude on flavonoid biosynthesis in plants. *Plant, Cell & Environment* 33:1239-1247.
- Kabera JN, Semana E, Mussa AR, He X 2014. Plant secondary metabolites: Biosynthesis, classification, function and pharmacological properties. *Journal of pharmacy and pharmacology* 2: 377-392.
- Ncube B and Van Staden J 2015. Tilting plant metabolism for improved metabolite biosynthesis and enhanced human benefit. *Molecules* 20: 12698-12731.
- Pavarini DP, Pavarini SP, Niehues M, Lopes NP 2012. Exogenous influences on plant secondary metabolite levels. *Animal feed science and technology* 176:5-16.
- Ramakrishna A and Ravishankar GA 2011. Influences of abiotic stress signals on secondary metabolites in plants. *Plant signaling & behavior* 6(11):1720-1731.
- Tjitrosoepomo G. 2004. Taksonomi tumbuhan (Spermatophyta). Gadjah Mada University Press.
- Wink M. 2015. Modes of Action of Herbal Medicines and Plant Secondary Metabolites. *Medicines* 2: 251-286. doi:10.3390/medicines2030251.

FAMILY ROLE IN HEALTH

Ida Ayu Gde Yadnyawati
dayuyadnya@yahoo.com
Hindu Indonesia University

Abstract

Family is the smallest unit in society that is formed on the basis of voluntary and love that is basic between two human subjects (Husband - Wife). Based on this basic principle of love, the child is born as the next generation, the family with the love and devotion that noble life of the child. By Ki Hajar Dewantara said that parents (as educators) serve the child. The motivation of family devotion (the parent) is solely for the love of nature. In the atmosphere of love and affection this will be realized family health.

According to the World Health Organization (WHO) called healthy not only a disease-free and disabling state, physically, spiritually, and socially healthy. Physical health means the body is not attacked by pests or diseases of body equipment, such as sprains, heart attacks, or tumors. Being spiritual means being able to use reasoning and thoughts well, without harming oneself or others. The healthy social means to get along with the community around him.

In order to stay healthy physically, spiritually, and social until the end of life, this effort must start early (still children). This is where the role of family is very important.

Keywords: family, health, love.

INTRODUCTION

The family is the smallest unit in society that is formed on the basis of voluntary and love between the two human subjects (husband and wife). Based on this basic principle of love, children are born as the next generation. Family with love and noble dedication serve the life of the child. Ki Hajar Dewantara said the efforts of parents (as educators) serve for the children. Motivation of family dedication (parents) purely for the sake of natural love.

The family is the first educational society to provide the biological needs of the child and at the same time provide education so as to produce a person who can live in his community while receiving and cultivating, and in heriting his culture. The family or parents are the first and foremost that provide the fundamentals of education such as religious education, character, manners, aesthetics, affection, security, the basics of obeying the rules and habits (healthy life habits).

In an effort to create a happy and prosperous family atmosphere, which in Hinduism there is mentioned Jagaditha and Moksah, the role of family health can not be ignored. Because family

health is one factor that contributes to the creation of a happy and prosperous family condition. It is impossible for a family to be able to enjoy a happy and prosperous condition, when it is in an unhealthy state of mind. Similarly, healthy mental and social health is very decisive as well. So here the emphasis on health is a natural and obligatory thing.

Health as a support in the attainment of happy and prosperous family, the starting point is related to the physical condition of man. As mentioned that according to the concept of Hindu teachings, the human body is nothing more than the existence of nature. Nature as Makrokosmos (*buana agung*) while the human body is a Mikrokosmos (*buana alit*). (Swastika pasek, 2012; 24) In reality the human body is equipped with ten senses, both functioning as the senses of consciousness as well as the sense of the implementer / mover. These senses cause people to receive stimulation from their environment (macro nature) and respond to these stimulation. In other words, the senses provide an opportunity for him to communicate in carrying out the mission of life in this virtual world. If the senses are not working properly, then the activities of life will be disrupted, which in turn will also interfere with efforts to create a happy and prosperous family condition. Body health in this case the perfection of its function, it should be pursued. For this purpose there are several attempts that can be taken, among others: a. Maintain body health, b. Meet the needs of calories, c. Sports including yoga and so on.

Man consists of *suksma sarira* that is mind. In his life, man can not be separated from some components of the mind (*suksma sarira*) and the system works. In that case, a person should always hear and practice the whisper of *budhi*. Because only then, a person will be able to run and enjoy life well, including the happiness of family happiness and prosperous. *Budhi* is one component of *citta*, the mind (*suksma sarira*), which is responsible for responding to external stimulation received by *manah*. In response to all forms of stimulation, *budhi* responds objectively, meaning that he will give command to the sense of activator to do something reasonable according to the measure of *dharma* (*satyam*-truth) to perform a virtue (*sivam*) in order to achieve prosperity (*sundaram*). (Swastika Pasek, 2012; 25). Thus the family plays a very important role in health.

DISCUSSION

Maintain Health

Being healthy is everyone's dream, but what happens when all family members get sick, it will be very troublesome, is not it? Diseases that often attack humans are often caused by a person's ignorance in maintaining cleanliness. Therefore, to prevent illness from attacking us and all our loved ones, here are 8 ways we can do to prevent it:

a. Maintain cleanliness of the house

In the dry season, the environment around us can become very arid. The most common consequence is that the soil dust can easily be blown by the wind, then come into the house, attached to the floor, furniture, cupboards, tables, dining areas, and so on. Diseases often caused by dust that is attached are allergies, cough, shortness of breath, itching, and so on. Every member of the family should be given understanding and responsibility to keep their homes clean always, by routinely sweeping and mopping floors, cleaning windows, wiping

tables and other furniture with basic fabrics, watering the yard or by planting crops on the porch home as a living fence.

- b. Keeping eating utensils is always clean
Dirty tableware such as spoons, plates, forks, drinking glass, and so forth are often the cause of a person susceptible to diarrhea or intestinal worms. Therefore, if we want to always be able to avoid these diseases, then keep the tableware to always clean is a necessity. Wash your utensils immediately after use, do not wash using dirty water or use the same water for multiple utensils simultaneously, use a laundry soap containing antiseptics so that bacteria, germs and viruses can be attenuated, and finally dry. Do not directly store your cutlery when it is wet so as not to mold.
- c. Cooking the meal properly
As much as possible avoid eating raw food that is not cooked, why? Obviously because we never know what bacteria, germs or viruses are attached to the food, and before cooking it's good that we first wash the food, so that dust, sand, and pesticides dissolve in water.
- d. Maintain body hygiene
Keeping the body clean is an obligation if we want to keep our bodies healthy from disease. Bathe 2 times a day, wash your hands before eating, brushing your teeth before bed, washing dirty clothes immediately, are the ways that we should get used every day especially to our young children.
- e. No snack carelessly
Always be careful when buying food outside, make sure the food hygiene and the place where the food is sold. Where possible, we can avoid buying unopened snacks or cooking them back after arriving home or making packed meal for our children so they will not have to buy any food outside that is not guaranteed quality.
- f. Always carry antiseptic fluid
The antiseptic fluid that we always carry when we are in a public place can prevent us from getting infected by viruses or harmful bacteria around us. Get in the habit of washing our hands with the liquid immediately after contact with public toilets, door handles, money, and so forth because they are generally nests where viruses and bacteria are concentrated.
- g. Using a mask
Some time ago when the bird flu virus outbreaks of people by themselves using a mask when in public places so as not to get infected by the virus. Now when the outbreak of the bird flu virus has subsided, it's good we keep using masks while inside railway cars, public transport and other places where there are crowds of people, instead we are paranoid, but masks can prevent us from contracting viruses such as cough, influenza, tuberculosis, and so on.
- h. Exercising, taking additional vitamins and vaccinations
The last way we can do to stay healthy is to exercise regularly because when we exercise, the body will produce more and more antibodies. Then we can consume additional vitamins when it is perceived that the food we consume lacks vitamins, and do not forget to provide vaccinations that our children need according to age and growth.

Family Function

a. Definition of family

Family is the smallest unit of society that consists of the head of the family and some who are gathered and live somewhere under a roof in a state of interdependence. According to Salvicion and Celis (1998) in the family there are two or more persons who are affiliated by blood relations, marriage or rapture, in their life in one household, interacting with each other and in their respective roles and creating and maintaining a culture.

b. Family Function.

- The Affective Function is a primary family function to teach everything to prepare family members to connect with others. This function is required for individual and psychosocial development of family members.
- Socialization Function is the process of development and change through which individuals generate social interaction and learning play a role in the social environment. Socialization begins at birth. This function is useful for fostering socialization in children, establishing norms of behavior in accordance with the level of child development and continuing family cultural values.
- The Reproduction Function is a function to preserve the generation and maintain family continuity.
- The Economic Function is a family function to meet the needs of families economically and where to develop the ability of individuals to increase income to meet family needs.
- The Health Care Function is to maintain the health of family members in order to maintain high productivity. This function is developed into family duties in the health field.

Family Role In Health

The family has roles and duties in the health sector that need to be understood and done which includes:

a. Getting to know health issues

Health is a family necessity that should not be ignored because without the health of all things does not mean and because health all the power of resources and family funds run out. Parents need to know the health and changes experienced by family members. The slightest changes experienced by family members will indirectly be the concern of parents or decision makers in the family (Suprajitno, 2004). Knowing according to Notoadmojo (2003) is defined as a reminder of something that has been learned or known before. Something is something specific from all the learned material or stimuli that have been received. In recognizing family health problems should be able to know about the pain experienced by family members.

b. Deciding on the right course of action for the family

This role is the primary family effort to seek appropriate help in accordance with family circumstances, with the consideration of who among the families who have the decision to decide the right course of action (Suprajitno, 2004). Friedman, 1998, states that family contact with the system will involve professional health institutions or local practitioners (*Dukun*) and is highly dependent on:

- Is the problem felt by the family?
- Does the head of the family feel resigned to the problems facing a family member?
- Is the head of the family afraid of the consequences of therapy performed on one of his family members?
- Do heads of households believe in health workers?
- Do families have the ability to reach health facilities?

c. Provide care for the sick family

Some families will relieve the sick from their roles or responsibilities fully. Physical care is the heaviest burden that family feels (Friedman, 1998). Suprajitno (2004) states that families have limitations in addressing family care issues. Family homes have the ability to perform first aid. To know can be reviewed:

- Is the family active in taking care of the patient?
- How do families seek help and understand the patient's care?
- What is the family's attitude toward the patient? (Actively seeking information about patient care)

d. Modify the family environment to ensure family health

Family knowledge about the resources owned around the home environment. Knowledge of the importance of environmental sanitation and its benefits. Togetherness in improving and maintaining a home environment that supports health.

e. Using health services

According to Effendy (1998), in certain families when there are family members who are sick are rarely taken to the puskesmas but to the mantri or shaman. To know the ability of family in utilizing health facilities need to be studied about:

- Family knowledge about health facilities that can be familiarized
- The advantages of health facilities
- Family trust on existing health facilities
- Whether health facilities are accessible to the family. Health care can be an obstacle in the family business in utilizing existing health facilities. The obstacles that can arise, especially

communications (Bahasa) are poorly understood by health personnel. Unpleasant experience of family when dealing with health workers.

According to Friedman (1998), family support is one of the most influential factors for positive behavior. Major factors affecting family support include : social classes, family forms, family backgrounds, family life cycle stages, situational role models-especially health problems or pain.

CONCLUSION

- 1) Family is the smallest unit of society that consists of the head of the family and some who are gathered and live somewhere under a roof in a state of interdependence.
- 2) In an effort to create a happy and prosperous family atmosphere, which in Hinduism there is mentioned Jagaditha and Moksah, the role of family health can not be ignored. Because family health is one factor that contributes to the creation of a happy and prosperous family condition. It is impossible for a family to be able to enjoy a happy and prosperous condition, when it is in an unhealthy state of mind. Similarly, healthy mental and social health is very decisive as well. So here the emphasis on health is a natural and obligatory thing.
- 3) Family Role In Health; Getting to know health issues, Deciding on the right course of action for the family, Provide care for the sick family, Modify the family environment to ensure family health, Using health services.

Reference

- Friedman, Marilyn M. 1998. *Family nursing : research, theory & practice*.
- Notoatmodjo, S. 2003. *Pendidikan dan Perilaku Kesehatan*. Jakarta : Rineka.
- Putra, Ngakan Putu. 2015. *Kebijakan Weda untuk Hidup Bahagia*. Jakarta : Media Hindu.
- Salvicion dan Celis. 1998. *Hubungan Perkawinan dan Keluarga*.
- Setiawan, Agung Candra. <https://keluarga.com/1293/8-cara-menjaga-kesehatan-keluarga-kita>
- Suparto H. 2000. *Sehat Menjelang Usia Senja*. Bandung : Rosdakarya.
- Suprajitno. 2004. *Asuhan Keperawatan Keluarga : Aplikasi dalam praktik*. Jakarta : EGC.
- Swastika Pasek. 2012. *Dharma Kahuripan*. Denpasar : Pustaka Bali Post.
- Uno Hamzah B, Lamatenggo. 2016. *Landasan Pendidikan*. Jakarta : Bumi Aksara.

SELF HYPNOSIS REDUCE PAIN LABOR AND LIFTING LABOR

Ni Wayan Armini

amiarmini81@gmail.com

Lecturer of Midwifery Department of Health Polytechnic of Denpasar

Abstract

Psychological problem during pregnancy, childbirth and post partum are one indirect cause of obstetric complications. Uncontrolled fear and anxiety can increase pain during labor and postpartum depression. Pregnant women with high anxiety tend to take anticipatory action that it consider to delivery with cesarean section. With the development of science, then developed several methods to minimize and or eliminate pain during labor. One of the method is hypnobirthing. Hypnobirthing is a blend of self hypnosis with natural birth process. Hypnobirthing create peace of mind that eliminate mild complaints during pregnancy, reduce pain during childbirth, until the mental formation of the baby since in the womb. This article aims to provide an overview of self hypnosis can provide solutions in reducing labor pain and shorten the time of birth. The method is used literature search about self hypnosis relation with childbirth. It is expected that every pregnant women are able to carry out of self hypnosis so that the process of labor is safe and smooth.

Keywords: pain, labor, self hypnosis

INTRODUCTION

Pregnancy and childbirth are wonderful gift for a married woman, but often there are fear and anxiety of how painful and difficult the process of giving birth will be. This phenomenon is even getting worse as mothers tend to share their stories that a normal birthing is very difficult and painful. This creates a sense of panic and stress for the mothers which will make many pregnant women feel more painful during the process of giving birth. This condition is known as fear-tension-pain concept, which means a painfulness felt by pregnant women caused by the tension or panic that make the muscles become stiff and sore.

Pain is a natural process that occurs during childbirth. The Pain is caused by various factors that are very complex, both physical and psychological factors. Physically, a strong contraction for the opening of the birth canal, stretch of the cervix, vagina, perineum and suppression by the baby's head are some factors that make the pregnant women feel painful. Every woman has different pain thresholds. Pain can be felt more severe if pregnant women are experiencing psychological problems such as anxiety and fear because stress conditions is very potential to reduce the body's ability to deal with the pain (1,2).

Psychological problems during pregnancy, labor and childbirth are among the indirect causes of obstetric complications. Uncontrollable fear and anxiety of mothers, plays an important role in increasing the pain during labor and are improving postpartum depression. Anxiety of labor is the most frequent psychological problems experienced by women, especially nulligravida. This condition is because by the nulligravida had not any experience of labor. Nulligravida will feel anxious about labor, labor pain and the baby's condition. Research in Canada found that there is a difference in the intensity of pain felt by nulligravida and multigravida. Bonica also reported painfulness in labor. The research showed that 15% feel a little, 35% feel a moderate pain, 30% feel painful, and 20% feel extremely painful during labor. Anxiety will be increasing if the woman interprets unclear information, by trusting any information notifying that giving birth process is a threat to the safety of both the mother and the baby (2-5).

Anxiety that is experienced by adults is a result of the vibrational recording of life since in the womb. The vibrations that will be recorded until adulthood, therefore since the baby in the womb needs to get patient and peace from his mother. According to dr. Sarah Brewer in her book entitled *Super Baby* revealed that anxiety and stress during pregnancy as the same dangerous of pregnant women who smoke and drink of alcohol. The condition can results premature birth, learning difficulties, children become hyperactive or even autism (3-6).

Pregnant women with high levels of anxiety often take anticipatory measures against situations that are considered threatening. The understanding of pain are greatly influenced by the level of knowledge, perception, past experience and also socio-cultural factors. Nowadays many delivery is done through caesarean section on as requested by the patient that it is a safer way for both mother and baby. Keogh (2005) found psychosocial factors in women who tend to chose caesarean birthing that increase up to 30% caesarean section (4). The trend reflects that she thinks the normal birthing is a process that threatens the safety of mother and baby (7). Kjaergaard (2008) found that anxiety that occurs in maternal improve the delivery of early medical intervention, such as epidural anesthesia, augmentation, and delivery by cesarean section (8). In addition of that, Alehagen et al (2008) found a tendency for an increase in the use of epidural anesthesia during labor in women who are experiencing stress (8).

The incidence of prolonged labor in women with either non-risk or low-risk pregnancies is often associated with psychological problems. Elizabeth et al (2004) found that 20% of nulligravida with low risk had prolonged labor (7). Kjaergaard (2008) found that dystosia is caused by dilatation of the cervix which is not optimal often associated with psychological problems by the mother (8). Prolonged of labor has a bad result to mother and fetus. The mother will feel fatigue, postpartum hemorrhage, and infection. The consequences for the infants are fetal death in uterus (IUFD), perinatal death and increased incidence of morbidity of infants (1).

Based on the empirical experience, the attention of health workers at various levels of health services to the psychological aspects of pregnant women and childbirth in the region is not adequate. The documentation of the psychological aspects in maternity medical records is very few even sometimes absent, so information about maternal and maternity psychological problems is hard to find.

Science developed several methods to minimize and or eliminate pain during childbirth. Such methods include: epidural anesthesia, waterbirth, hypnosis, acupuncture, aromateraphy, and

yoga for pregnant women (9). Epidural anesthesia is seen as a very effective way to reduce pain during labor, but the pharmacological effects to the mother and baby are still there (2). Kjaergaard (2008) reported a 71.2% mothers who use epidural anesthesia experience dystocia deliveries by low plasma levels of oxytocin, so the effect on uterine contractions (8). Zealand College of Anaesthetists (ANZCA) suggest non pharmacological therapy should be given as first choice to reduce pain in childbirth (2).

One of non-pharmacological pain therapy offered by an expert hypnotherapist and hipnoanestologi of New Hampshire, American, Marie F. Mongan since 1990 is a relaxation exercise through a technique called hypnobirthing. Hypnobirthing is a mix of self hypnosis with natural childbirth process. In this case there is a process of planting positive suggestions to the subconscious, including so that pain does not arise (10). Therefore, when a view point has been positive that childbirth is a natural process that does not cause pain so great, then the body will express only a little pain during childbirth. Dr. Nandita Palshetkar states that no one can help oneself, other than oneself, including overcoming the pain in labor (9). A clinical review by Astin JA et al (2003) reported that the mind-body approach is more effective than conventional medical treatments such as hypnosis (11).

Many benefits can be obtained by the mother and fetus if there is peace of mind, such as eliminating minor complaints during pregnancy, reducing the pain during childbirth, forming positive mental of the baby since the womb. Some research shows the advantages of hypnosis. Jensen et al (2009) found that 47% of women with apply self hypnosis can reduce pain due to multiple sclerosis (12). Tournaire (2007) found that mothers who apply self-hypnosis are more satisfied and proud in maternity. Harmon et al (2007) reported that self hypnosis can shorten the duration of labor and the reduce the pain and the need to take medicine. Mairs (2007) reported a decrease in pain and anxiety for mothers who applied self hypnosis as compared with the control group. The mothers are more able to control the pain felt by the contractions of the uterus during labor (5,13).

This article aims to provide an overview of self-hypnosis can provide a solution in reducing labor pain and shorten the delivery time. The method used is literature search about self hypnosis relation with childbirth.

DISCUSSION

Pain, anxiety, stress during labor and body response

Stress and unhealthy emotions are associated with the perception of pain, longer pain, and low tolerance for pain (14). The pain of labor lead to a stressful situation and causes increased secretion of catecholamines. The increasing these hormones cause the following symptoms: increased cardiac output, increased heart rate, hyperventilation, alkalosis in women, decreased blood flow to the uterus because blood vessels contraction, decrease uterine contractions, slows emptying of the gastrointestinal tract, nausea, and vomiting (15). Statement of Dot Stables (2006) and Cooper (2003) is further clarified by Mander (2004) as in the following description:

Ventilation

The pain and stress that accompany uterine contractions cause hyperventilation, with respiratory frequency recorded 60-70 times per minute. Hyperventilation causes a decrease in pressure of CO₂ and the consequence is an increase number in the pH levels that are consistent. One of the dangers of lower maternal pressure CO₂ is causing slow fetal heart rate decelerations (16).

Ventilation can be marked increased when women use maternity breathing exercises (16). This could affect the acid-base balance of the circulatory system, resulting in alkalosis. The real danger of alkalosis during labor is a the oxygen transfer for the fetus. Alkalosis can also induce uterine vasoconstriction, prolong labor, and an worsening alkalosis of a vicious cycle (16). The increase of ventilation in conjunction with the use of energy for pushing during the second stage of labor can increase oxygen consumption exacerbating maternal fetal oxygen consumption (15).

Cardiovascular function

Cardiac output increases progressively in line with the progress of labor mainly because of labor pain (17,18). The increasing number can be as much as 15-20% above cardiac output before labor during an early first stage and by 45-50% during second stage. It has been estimated that every uterine contraction increases cardiac output by 20-30% higher than during uterine relaxation. The increased cardiac output is partly due to the fact that each contraction, approximately 250-300 ml of blood is passed from the uterus into the maternal circulation. It is also possible that increased sympathetic activity due to labor pain, anxiety and fear may be responsible for increased cardiac output along with progressive delivery (19,20).

Pain due to uterine contractions can also cause increased systolic and diastolic blood pressure. Increased cardiac output and systolic blood pressure that accompany childbirth generally do not cause great harm to healthy maternity women. However this may increase the risk of women suffering from heart disease, preeclampsia, or hypertension (19,20).

Metabolic effects

Increased sympathetic activity is caused by labor pain can lead to increased metabolism and oxygen consumption, decreased gastrointestinal and bladder motility. The pain and anxiety that accompany labor may cause delays in gastric emptying. Increase oxygen consumption, loss of sodium bicarbonate through the kidneys to compensate for respiratory alkalosis due to pain, it's all play a role in the metabolic acidosis which is then also experienced by the fetus.

The stress by labor pain an increase in maternal catecholamine release which causes decreased blood flow (19,20).

Activity of the uterus

Pain and labor stress can affect uterine contractions through increased secretion of catecholamine and cortisol levels, decrease blood flow to the uterus, decreased uterine activity and consequently be affecting labor duration. Pain also results in uncoordinated uterine activity that will lead to prolong labor (19,20).

Abnormalities of these factors either singly or in combination can cause dystocia. The first factor can not be corrected by manipulation during labor. The second and third factors can be corrected by treatment or manual action or forceps. Psychic factors can affect the power and state of the fetus.

Self Hypnosis

Self hypnosis is a process that we are in a state of relaxed, calm, and focused in order to achieve an outcome or a particular purpose. In self hypnosis, we are required to help ourselves. Our mind is a profound unity, which is seen as an everyday act we are only 10% (this is a conscious / conscious mind), while 90% is the basic concept underlying the act. With self hypnosis, we can reach the subconscious which is the concept (3,10,21).

According to Blair (2007) Self-hypnosis is a technique utilized to quiet or bypass the mind's natural filter so Relatively direct communication can take place between the conscious mind and the subconscious ⁽²⁾. Traditional self-hypnosis is, indeed, a wonderful tool for self improvement. Actually, all hypnosis is self-hypnosis because we use self-dependency, including concentration and imagination, to produce a hypnotic effect. One formula proposed by Knight (2000) regarding self hypnosis is Relaxation + imagination + self talk (22,23).

Based on the above formula, that selfhypnosis is a combination of relaxation with imagination, written with positive suggestions to motivate yourself. So here is essentially self hypnosis is one of relaxation, written with imagination and suggestion aimed at himself. Hypnobirthing process works based on the power of suggestion. This process uses positive affirmations, suggestions and visualizations to calm the body, guide the mind, and control its breathing. Pregnant women can do this yourself (self-hypnosis) or through the intermediary of a hypnotherapist (3,10,21).

Benefits of Self Hypnosis in labor

Some of the benefits to be gained in implementing good self hypnosis felt by the mother, fetus, husband / family as well as doctors and paramedics. The benefits are as follows (3,10,21,24):

For mothers: pregnant women can control or reduce the level of pain of childbirth, minimize stress, depression during childbirth period, because the mother is much easier to control his emotions, the mother get a sense of comfort, serenity and happiness for delivery more smoothly. Prevent excessive fatigue during labor, and reduce medical complications during labor. Physiologically a pregnant mother who entered the relaxation hypnosis, mind waves into the alpha waves with a

frequency of 7-14 hertz or deeper into theta waves with a frequency of 4-7 hertz. When the mind gets into these waves it encourages the release of endorphin hormones that help eliminate fear, tension and panic. Martin, AA, et al., (2001) states that by Hypnobirthing method, it can speed up Kala I Labor (\pm 3 hours in primipara and 2 hours in multiparas), reduce the risk of complications, and accelerate the healing process in post partum.

For fetus: fetus feels emotional closeness with their mom's and bonding attachment is stronger, because the hypnobirthing provide subliminal communication. The Fetus also relatively are not a lack of oxygen, feels peaceful and gets a calm vibration because of the endorphins.

For husbands: feel calmer in assisting the birth process, the emotional life of husband and wife is more balanced.

Relationship between Anxiety and Uterine Contractions

The uterine muscles consist of a collection of smooth muscles that are joined together by connective tissue. Some smooth muscle contraction initiation are not by action potential, but by stimulus factors that directly affect the muscle contraction system. The factors that directly affect muscle contraction system (25):

- a. Local networking factors
 1. Lack of oxygen in the tissues resulting in relaxation of smooth muscle
 2. The presence of lactic acid, adenosine and increased of sodium ions will decreases the concentration of calcium ions
- b. Hormonal factors

Most of the hormones in the circulation will affect smooth muscle, among others: norepinephrine, epinephrine, acetylcholine, angiotensin, vasopressin, oxytocin, serotonin and histamine. Some hormone receptors in smooth muscle will open sodium and calcium ions and will depolarize the membrane. The same thing happens after nerve stimulation.

In some situations depolarization arises in the absence of action potential, this depolarization arises from the presence of calcium ions entering the cell and inducing contractions. Sometimes the contraction or inhibition by the hormone does not cause a change in the membrane potential. In this situation these hormones may activate receptors on the membrane, which is not open ion channels, but still cause changes in muscle fibers, such as the release of calcium ions from the sarcoplasmic reticulum, which then induces or inhibits contractions (25).

Other known receptor mechanism to activates of adenylate cyclase enzyme and guanelat cyclase on cell membrane, which stimulates production of cyclic adenosine monophosphate (cAMP) and cyclic guanosine monophosphate (cGMP) has various effects. One of them is to alter the phosphorilase levels of some enzymes that indirectly inhibit contractions. This is includes pumps of calcium ions from sarcoplasm to the sarcoplasmic reticulum, lowering intracellular calcium ion levels and inhibiting contractions (25).

Norepinephrine and epinephrine both secreted by the adrenal medulla have different effects on alpha and beta receptors. Norepinephrine stimulates more alpha receptors than beta receptors, but epinephrine stimulates both types of receptors equally. The relative effects of norepinephrine and epinephrine on organ depend on the receptor type of the organ. If the organ is all receptor beta then epinephrine stimulation will be more effective (25).

The uterus has a Beta 2 (B2) receptor in which, when stimulated, inhibits uterine contractions. Anxiety will be increasing in adrenergic hormone, including epinephrine that will inhibit uterine contractions. If this condition occurs then the delivery time will be longer due to poor uterine contractions (25).

Self Hypnosis and Labor Pain

In the hypnotic state, physiologically of mind in pregnant woman goes into alpha waves with a frequency of 7-14 hertz or deeper into theta waves with a frequency of 4-7 hertz. When the mind goes into this wave encourage spending endorphin hormone (26).

Endorphins are one class of endogenous opioid neuropeptides that inhibit the transmission of pain impulses in the brain and spinal cord. There are four classes of endorphins: enkephalin, endorphin, dynorphin and endomorphin. These substances include neurohormone that works to bind to opioid receptors. The human body, β endorphins are a class of the most common and studied in relation to pain (27-29).

β endorphins is found in significant amounts in the hypothalamus and periaqueductus gray matter (PAG) and slightly in the medulla and spinal cord. β endorphins are said to be much more potent analgesics than enkephalin. Endorphins may cause presynaptic barriers and postsynaptic resistance to pain fibers of type A δ and type C, which are synthesized in the dorsal horn. These fibers undergo presynaptic inhibition with inhibition of calcium in the nerve end membrane. With the inhibition of calcium, it will happen inhibition transmitter release at the synapse (27-29).

The system of endorphin work is to bind opiate receptors with analgesic effects similar to those of exogenous opiates. β endorphins form an intrinsic pain suppression system that works on the central nervous system. The working principle of endorphins is lowered hinders the speed of neurotransmission with neurotransmitter in presynap through pressing the release of acetylcholine and P substance. Further improve the conduction of potassium thereby enhancing the hyperpolarization of the cell membrane, it can inhibit the cell contraction (27-29).

Self Hypnosis and Duration of labor

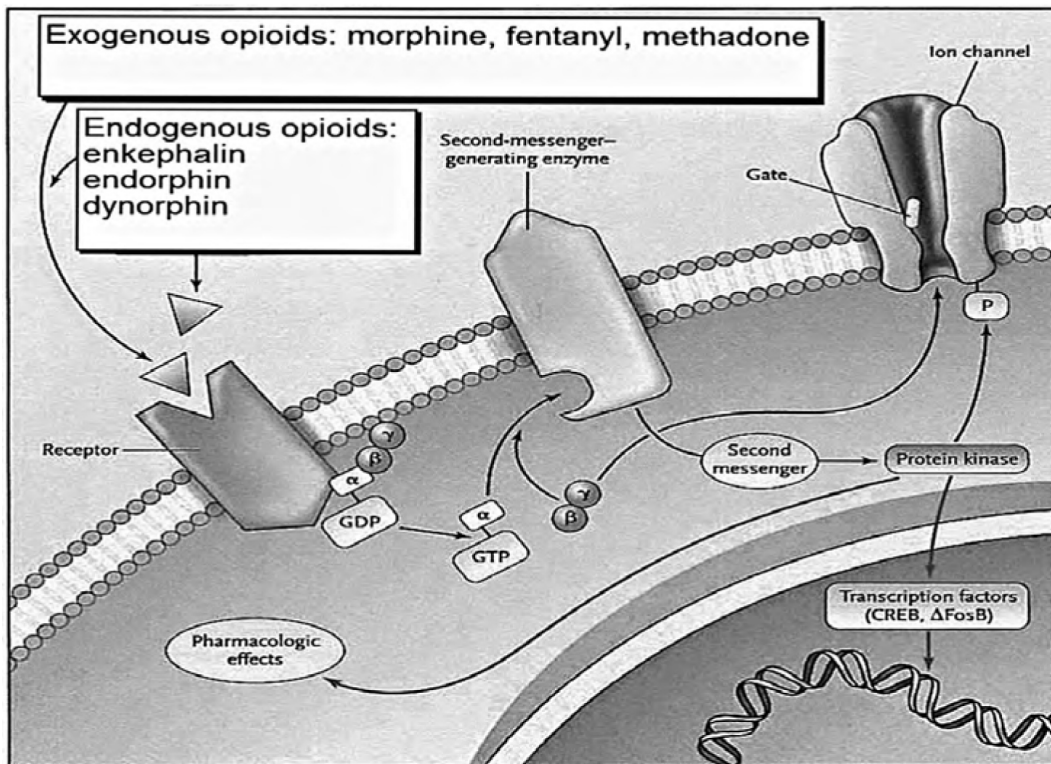


Figure 1: Endorphin work scheme
Source: Stoelting RK (28)

Endorphins are suppressing the release of acetylcholine and P substance. The decline in the production of acetylcholine and P substance, resulting in calcium ions can not enter cells, and potassium remain in the cell, so the cell depolarization does not occur (27–29).

Endorphins also work for the balance of sympathetic and parasympathetic nerves, suppress the production of epinephrine and norepinephrine previously initiated by anxiety, resulting in vasodilation of blood vessels, and redistribution of uteroplacental sirkulasi. A good circulation will produce an adequate contraction. Adequate contractions can accelerate cervical dilatation, so that the first stage of labor go faster (27–31).

CONCLUSION

Childbirth causes great pain in almost all women. Pain may adversely affect the physiology of labor. As a result of pain there may be an increase in excessive adrenaline secretion that causes vasoconstriction, leading to impaired uterine circulation and eventually fetal hypoxia. Excessive pain will cause anxiety. Excessive anxiety also adds to the pain. Pain and anxiety cause the muscles to become spastic and stiff. This causes the birth canal to become stiff and narrow and lacking relaxation. The above circumstances can not be ignored, so there must be an alternative to reduce the pain, one of them by doing self-hypnosis. When hypnosis will happen by-pass or minimize the

role of Critical Factor subject (person being hypnotized) so that the suggestion can more easily into the subconscious mind of the subject. Formula self hypnosis is Relaxation + imagination + self-talk.

In the hypnotic state, physiologically mind pregnant woman goes into alpha waves with a frequency of 7-14 hertz or deeper into theta waves with a frequency of 4-7 hertz. When the mind gets into these waves it pushes the endorphin hormone release. β endorphins present in significant amounts in the hypothalamus and periaqueductus gray matter (PAG) and slightly in the medulla and spinal cord. β endorphin is said to be much more potent analgesic than enkephalin. The endorphin work system is binding to opiate receptors with analgesic effects similar to those of exogenous opiates. β endorphins form an intrinsic pain suppression system that works on the central nervous system. The working principle of endorphins is lowered hinders the speed of neurotransmission with neurotransmitter in presynapse through preventing the release of acetylcholine and substance P. Further increasing the conduction of potassium (potassium) thereby increasing hyperpolarization of the cell membrane, it can inhibit the contraction of the cell. Endorphin hormones also play a role to balance the work of the sympathetic and parasympathetic nerves, resulting in vasodilation of blood vessels, and redistribution of uteroplacental circulation, so that the resulting contraction becomes adequate. Adequate contractions can accelerate the occurrence of cervical dilatation, so the first stage of labor is faster.

Acknowledgments

The accomplishment of this article will not be possible without the support of many parties. Therefore, I would like to address my gratitude. First of all, to God the Almighty, who guided, directed my path up to this point and made all things possible. My deep appreciation should go to the Director of Health Polytechnic of Denpasar and his staff who have given the opportunity to follow this activity. My special appreciation should also go to my family and a long list of friends, who cannot be mentioned one by one. Their supports, motivation, and encouragement have been invaluable and helped support me through the accomplishment of this article.

References

- Wiknjosastro H. Ilmu Kebidanan. Jakarta: Yayasan Bina Pustaka Sarwono Prawirohardjo; 2005. 180-86 p.
- Cyna A, Andrew M, Robinson J, Crowter C, Baghurst P, Turnbull D. Hypnosis antenatal training for childbirth (HATCH): a randomized controlled trial. *BMC Pregnancy and Childbirth*. 2006; Available from: <http://www.biomedcentral.com/1471-2393/6/5>.
- Kuswandi L. Terapi hypnobirthing : melahirkan tanpa rasa sakit. 2007.
- Keogh E, Hughes S, Ellery D, Daniel C, Holdcroft A. Psychosocial influence on women's experience of planned elective cesarean section. *Psychomatic Med*. 2005;68:167-74.
- Tournaire M, Yonneau A. Complementary and alternative approach to pain relief during labor: review. *eCAM*. 2007;4(4):409-17.
- Sadock B, Sadock A, Kaplan H. Anxiety disorder in: comprehensive textbook of psychiatry. Quebecor World Taunton; 2005. 1718-770 p.

- Elizabeth R, Ruth M, Kathryn G, Nigel J. Randomised controlled trial of labouring in water compared with standard of augmentation for management of dystocia in first stage of labour. *BMJ*. 2004;328:314–20.
- Kjaergaard H, Olsen J, Ottesen B, Nyberg P, Dykes A. Obstetrics risk indicators for labour dystocia in nulliparous women: a multi centre cohort study. *BMC Pregnancy Childbirth* [Internet]. 2008; Available from: <http://www.biomedcentral.com/1471-2393/8/45>.
- Palshetkar N. Methods to a pain-free delivery [Internet]. 2009. Available from: <http://www.timeswellness.com/article/>.
- Andriana E. Melahirkan tanpa Rasa Sakit Dengan Metode Relaksasi Hypnobirthing. Jakarta: BIP; 2007.
- Astin JA, Shapiro SL, Eisenberg DM FK. Mind-Body Medicine: State Of The Science, Implications For Practice. *J Am Board Fam Pract*. 2003;16 (2):131–7.
- Jensen M, Barber J, Romano J, Raichle K, Osborn T, Engel J. A comparison of self hypnosis versus progressive muscle relaxatin in patients with multiple sclerosis and chronic pain. *Int J Clin Exp Hypn* [serial online]. 2009;57(2).
- Cyna A, McAuliffe G, Andrew M. Hypnosis for pain relief in labour and childbirth: a systematic review. *BJA*. 2004;93(4):505–11.
- Saunders T, Lobel M, Veloso C, Mayer M. Prenatal Maternal Stress Is Associated With Delivery Analgesia And Unplanned Cesareans. *J Psychosom Obs Gynecol*. 2006;27:141–6.
- Stables D, Jean R. The First Stage Of Labor In : *Physiology in Childbearing With Anatomy and Related Biosciences*. London: ELSEVIER; 2005. 479-99 p.
- Mander R. Pain in Chilbearing and its Control (Nyeri Persalinan alih Bahasa Sugiarto B.). Jakarta: EGC; 2009. 89-94 p.
- Handerson C, McDonalds S. Normal Labor In: *Mayes Midwifery Textbook For Midwives 13 th ed*. London: Bailliere Tindal; 2004. 430 p.
- Johnson R, Slade P. Obstetric Complication And Anxiety During Pregnancy : Is There a Relationship. *J Psychosom Obs Gynecol*. 2003;24:1–14.
- Carol M. The First Stage of Labor: Fisiology and Early Care In : Fraser DM, Cooper MA. *Myles Texbook For Midwives*. In: *Myles Texbook For Midwives*. USA: ELSEVIER; 2003. p. 435–53.
- Enkin M, Renfrew M, Neilson J. *Guide To effective Care In Pregnancy & Childbirth*. 1995. 263 p.
- Kuswandi L AY. *Basic Hypnosis & Hypnobirthing*. Dalam *Basic Hypnosis & hypnobirthing workbook*; 6-8 Maret 2009. Bali, Indonesia: Pro V Clinic (Holistic Health Care); 2009. 7-55 p.
- Knight B. *Self hypnosis: safe, simple, superb*. Canada: Chessnut Press; 2005.
- Blair F. *Self hypnosis: how to hypnotize your self with your eyes open*. Naperville: Sorce Book Inc; 2007. 11-31 p.
- Barber J. *Suggestion for a comfortable delivery*. *Handbook of hypnotic suggestion and metahapors*. Dallas: University of Texas Health Science Center; 1995. 265-96 p.
- Cunningham F, Gant N, Leveno K, Gilstrap L, Hauth J, Wenstrom K. Normal Labor and Delivery In : *Williams Obstetrics 22 ST Edition*. In: *William Obstetric*. USA: Mc Graw-Hill; 2006. p. 409–42.
- James T, Flores L SJ. *Hypnosis: A Comprehensive Guide Producing Deeprance Phenomena*. UK: Cromwel Press; 2000. 1-9 p.
- Vander A, Sherman J, Luciano D. *Human physiology: the mechanism of body function*. Edisi ke-8. New York: Mc Graw-Hill; 2001. 352-62 p.

- Stoelting R, Miller R. Basic of anesthesia. Edisi ke-4. New York: Churchill Livingstone; 2000. 70 p.
- Hartwig M, Wilson L. Nyeri. Dalam: Price SA, Wilson LM, penyunting. Patofisiologi: konsep klinis proses-proses penyakit. Edisi ke-6. In: Patofisiologi. St. Louis, Missouri: ELSEVIER; 2006. p. 447–89.
- Seely R, Stephen T, Tate P. Anatomy & physiology. Edisi ke-6. New York: Mc Graw-Hill; 2003. 364-96 p.
- Huether S, Defries C. Pain, temperature, regulation, sleep, and sensory function. Dalam: MacCance KL, Hueter SE, penyunting. Pathophysiology : the biologic basis for desease in adults and children. Edisi ke-5. In: Pathophysiology : the biologic basis for desease in adults and children Edisi ke-5. St. Louis, Missouri: ELSEVIER; 2006. p. 447–89.

HINDU BIOETHICS: HEALTHY PHILOSOPHY IN *DASAAKSARA*

Ida Ayu Komang Arniati
Hindu Indonesia University

Abstract

Bioethics is a bridge between the science and ethics of humanity derived from cultural and religious norms. Bioethics is a science to maintain or improve the quality of human body health (*bhuana alit*) associated with *Dasaaksara*. *Dasaaksara* are the ten major letters as a symbol of the ruler of the universe (*bhuana agung*). The letters *Dasaaksara* is SA, BA, TA, A, I, NA, MA, SI, WA, YA, which is placed or (*di stanakan*) in the human body by one way through the breathing.

Keywords: Bioethics, Health, *Dasaaksara*.

INTRODUCTION

Background

Globalization is a period marked by changes in people's lifestyles with technological advances. Human life today is experiencing rapid growth in all aspects, whether in social, economic, cultural, political, moral, intellectual, religious, medical, and so on. In this globalization humans are greatly facilitated by tools or machinery and technology, so that in this all-global life has an influence, both positive and negative influences (Arniati, 2016: 81).

One of the negative sides of globalization is the decline of national, cultural and religious values. Examples of negative values of the era of globalization are the declining sense of nationalism towards the State, the diminishing love of the culture, and the diminishing of the divine emotional spirit. Humans seem to be in hypnosis by the development of the era that will gradually remove these values.

The development of the era and the increasingly sophisticated technology that leads to change, one of the occurrences of change is in the biomedical revolution. The biomedical revolution of his progress is remarkable as in the biological sciences, science and technology, medicine, medical equipment technology, bio medical engineering and its application in development especially in the field of health. Health is the science and art of maintaining, protecting and promoting personal and community health. Health development as one of the national development efforts is directed towards achieving awareness of willingness, and the ability to live healthy for every citizen in order to realize optimum health status.

Medical technology is directly related to human life, whereas the life and death of humans is a thing that has a high position in moral values wherever we are. Moral values exist in each religion throughout the world, and in each country applying them differently. One of those moral values is the bioethics of Hinduism: the philosophy of health in *Dasaaksara*.

Bioethics is defined as a science to maintain or improve the quality of life that is centralized in health sciences in the use of *Dasaaksara*. Life has or covers the norms (values of life), culture and religion. Bioethics is a bridge between the science of human knowledge and ethics. Human ethics is derived from the norms, cultures and religions in each human being. Cultural and religious norms are a source of ethical judgment of an action to be taken for the advancement of health science and to improve the quality of life. Cultural and religious norms as guidelines that regulate and limit the activities or actions performed in the health sciences. Health is interpreted as a dynamic situation in which individuals adjust to the changes of the internal environment (psychology, intellectual, spiritual and disease), external environment (physical, social and economic environment) in maintaining or improving health quality.

Health related to religion, human needs to speak or communicate and hear his God. For religious people, it is necessary to pray both personally and collectively in the community. The form of the relationship is of course different but essentially the same awareness of something more than human. The awareness of something more than human is the universe or *bhuana agung*. The universe (*bhuana agung*) is the realm of God (*Idam Sriyam Jagath*). With the universe (*bhuana agung*) human is (*bhuana alit*) can maintain or improve the quality of his health (bioethics) by using the *Dasaaksara* letter or mantra. *Dasaaksara* are the ten major letters as a symbol of the ruler of the universe (*bhuana agung*) associated with the *dewata nawasanga* (nine gods of the direction of the wind) within the human being (*bhuana alit*) (Shiva Tattwa, 2002).

Bioethics related to health science in Hinduism is *Dasaaksara*. *Dasaaksara* are the ten major letters that are symbols of the ruler of the universe (*bhuana agung*) and in the human body itself (*bhuana alit*) is very closely related to *Dewata Nawasanga*. The ten letters (*Dasaaksara*) are SA, BA, TA, A, I, NA, MA, SI, WA, YA, whereas the *Dewata Nawasanga* are attributed to or placed in human bodies i.e. *Mahedewa, Sankara, Brahma, Iswara, Mahaeswara, Vishnu, Sambu and Shiva* (Sanghyang Shiva Griguh, 1990). But placing or incorporating the letters is not just anyone can do, but the yogis often utilize the power of the universe (*bhuana agung*).

Focus Issues

Based on the above background, this paper focuses on the issue of Hindu bioethics relationships to maintain or improve the quality of health in relation to *Dasaaksara*. The focus issue as follows.

1. What is the origin of the letter *Dasaaksara*?
2. How can bioethics maintain or improve the quality of health in the human body (*bhuana alit*) with *Dasaaksara*?

CONCEPTS, THEORETICAL BASIS, AND METHODS

Concepts

To discuss the above problems will be presented by advance some concepts. The concept are the concept of bioethics, Hinduism, health philosophy, and *Dasaaksara*.

The concept of Bioethics.

The term bioethics is still strange to many people. The term bioethics was first used in 1971 by an American expert named Van Renselaer Potter in his book "Bioethics: Bridge to The Future". The word bioethics is derived from the Greek word "bios" meaning life and "ethos" means custom or morals. In plural form, *ta etha* means custom. In Indonesian Dictionary, ethics is good and bad behavior. In terms of ethical philosophy means the science of what is commonly done or the science of customs. Ethics is distinguished in three basic definitions, namely; (a) the science of good and evil and moral rights and duties (character); (b) a set of principles or values pertaining to morals; (c) the value of right and wrong held by a group or society (K Bertens (1997: 6). Based on the above description, ethics is the moral or norm value that becomes the handle for a person or a group to regulate his behavior. The understanding of word moral is very close to ethics. The word moral comes from the Latin *mos* is singular and *mores* in the plural form, in Indonesian Dictionary (1988) equated meaning with the first ethical word that is the values and norms that become the handle for (a) ethics as the values and moral principles used by a person or group as a guide to his conduct, (b) ethics as a set of principles and values pertaining to morality (which is considered good or bad), (c) ethics as a science that studies human behavior from the point of norm and moral values In the exposure to be done, the value and norm in question is the value or teachings in the Hindu is *Dasaaksara* (ten major letters is a symbol of the ruler of the universe (macrocosm).

The concept of Hinduism

Hindu religious concept is a belief and practice of what it believes. Religion provides a way of spiritual expression that provides guidance to its adherents in responding to challenges and questions. Every religion has a guide or scripture to govern the way of life and attitude.

Religion is the most essential inner substance to achieve perfection, happiness and inner-born welfare. So based on the description in front of Hindu bioethics is to maintain or improve the quality of life for a person or group in managing their behavior in accordance with belief in religion and God.

The Concept of Health Philosophy

The concept of philosophy according to Plato is the science to achieve the original truth. Whereas according to Aristotle philosophy is knowledge covering truth in the science of metaphysics, logic, ethics, etc. According to Rene Deskrates, philosophy is a collection of all knowledge where God, nature and society as objects (Salam Burhanuddin, 2003). While the

concept of health is a situation that is not only free from disease but also includes channels of human life aspects include physical, emotional, social and spiritual aspects. Meanwhile, according to WHO (1974) health is a perfect state physically, mentally and socially and not only free from disease or weakness. Furthermore, according to Act No. 23, 1992 health is a prosperous state of the body, soul and social life that allows productive social and economic. So based on the above exposure to the philosophy of health is the achievement of awareness, willingness, and ability to live healthy from the body, soul and social that is enabled to live productively both in the field of social and economic.

The concept of *Dasaaksara*

Dasaaksara comes from the word *dasa* and *aksara*. *Dasa* means ten, and *aksara* means letter. The word *Dasaaksara* means the ten major letters which are the symbols of the ruler of the universe and are closely related to the *dewata nawasanga*. The ten letters unite into *Panca Brahma* (the five sacred letters to create and destroy). *Panca Brahma* becomes *Tri Aksara* (three letters), *Tri Aksara* becomes *Eka aksara*, the letter is “*Om*” (om kara) which symbolize or describe the big world imitations that exist inhuman (*Jnanasidhanta* in *Shiva Tattwa*, 2002). The above description of the concept of *Dasaaksara* is the ten major letters and is a symbol of the universe (macrocosm).

Theoretical Basis

Theories that used to dissect the problem of this paper are the bioethics theory of Bauchamp and Childress namely: (a) respect for autonomy; (b) do good and benefit; (c) does not commit a crime; (d) justice.

Method

The method used in writing is (1) interpretation, this method is related to the attempt to describe as clearly as possible the text, the concept to be discussed; (2) Internal coherence, each thought in one theme is always related to each other; (3) The description, provides an explanation of the theme referred to thoroughly by describing clearly; (4) the use of the author’s language is intended wherever possible to provide complete understanding without leaving a distant meaning to the theme taken.

DISCUSSION

The Origin of *Dasaaksara*

According to the Old Javanese alphabet, the letters of the alphabet are symbolized by: (1) letter *a*, *na*, *ca*, *ra*, *ka* denoted as Hyang Widhi messengers, men and women. Origin of men and women from Aji Saka story named Dara and Sembada; (2) letters *da*, *ta*, *sa*, *wa*, *la* means to carry

messages or tasks that should not be implemented. The task is that Dara maintains the kris of Aji Saka, while Sembada's duty is to return or ask for the kris; (3) the letters *pa, da, ja, ya, nya*, the command is clear, the kris is entrusted no one should take, whereas Sembada is ordered to take the kris, without kris do not return; (4) letters *ma, ga, bha, ha, nga*, that is the reason why the two messengers are fighting tired to defend the task given by Aji Saka until both of them death.

The meaning of the symbol of the above Javanese letters that Aji Saka symbolized by Ida Hyang Widhi or God, Dara is an adult male human, Sembada is an adult female human, Kris is a symbol of *purusa* meaning *purus*, male genitalia. *Saung keris* (kris sheath) brought by Sembada as proof of the messenger of Aji Saka is the symbol *pradana* (vagina / pubic woman). While fighting is intercourse (intercourse) between men and women. The battle that occurred in the kingdom of Aji Saka named Medang Kemulan means out of the genitalia through intercourse struggle. Suddenly there was an adolescent found pregnant and no one claimed responsibility, and so that the if child was born is not said child without father (*anak bebinjat*) then the adolescent is married with a kris. Why kris because the kris is considered a symbol of *purusha* (male). The same thing about the *purusha* (men) and the *pradana* (women) according to Samkhya that the *bhuana agung* or universe and the *bhuana alit* (human) are formed from the unification of *purusha* with *pradana*. *Purusha* is positive or *nirmateri*, without being, eternal, unchanged, while *pradana* is negative of material principle, the real form of the first cause of this universe (Nala, 1989: 53).

Further mentioned letters or alphabets have the existence of place or territory that are a, na, ca, ra, ka place in *wetan* (East) is the *kawitan* or *wiwitan* (beginning) of human form. Da, ta, sa, wa, la symbolized in *lor* (north) the father's genitals through the mother's genitalia and the women pregnant. While ma, ga, ba, pa, ja, ya, nya, it is placed in *kulon* (west) means birth, childbearing. While pa, ja, ya, nya, place in the *kidul* (south) means the father and mother is sleep together. With the birth of this human Kanda Pat's teachings that became a good reference about *Kanda Pat Rare*, *Kanda Pat Bhuta*, *Kanda Pat Gunung Sari* and *Kanda Pat Karakah Sari* and others (Falsafah Aksara Modre, 1990)

According to Javanese literature, the 20 characters when spoken in reverse would be a very powerful reject science. Repellent reinforcement like rejecting *teluh, leak, dresti, pepasangan, sesawangan, rerajahan* and so forth. This is the mantra *nga, tha, ba, ga, ma*, meaning there is no death / *nya, ya, ja, dha, pa*, no supernatural / *la, wa, sa, ta, da*, no war / *ka, ra, ca, na, ha*, no messenger (Falsafah Aksara Modre, 1990)

The link of the 20 characters with Kanda Pat Dewa is presented in the table.

No.	Letter	God	Symbol	Weapon	Vehicle
1.	nga, tha, ba, ga, ma	Icwara	White	Bajra	Elephant
2.	nya, ya, ja, dha, pa	Brahma	Bang/Red	Danda	Swan
3.	la, wa, sa, ta, da	Mahadewa	Yellow	Nagapasah	Dragon
4	ka, ra, ca, na, ha,	Wisnu	Black	Cakra	Garuda

Based on table script 20 (*dwi dasa aksara*) is then born *Dasaaksara*, from *Panca aksara*, so *Tri aksara* and *Rwa bhineda*. As for *Panca aksara* i.e. NA, MA, SI, WA, YA, *Panca Brahma* SA, BA, TA, A, I. As *Rwa Bhineda* is: ANG, AH being *purusa-pradana* (men and women), *akasa-pertiwi* (air and land), *lemah-peteng* (day and night), and *urip-pati* (life and dead). While *Tri aksara* in *Bhuwana Alit* (human) ANG, UNG, MANG namely: (1) ANG is in the heart, as a *bayu* in the form of flame, Brahma; (2) UNG, its place in *ampru*, is in the *sabda* in the form of water, Vishnu; (3) MANG place in *papusuh*, as *idep*, in the form of wind Bayu/Iswara (Buana Kosa).

Bioethics Can Maintain or Improve the Quality of Human Health (Bhuana Alit) With *Dasaaksara*.

In maintaining or improving the quality of health through the human body by *dasa aksara* will be described or described that, in the 18 Balinese script (eighteen) in the human body or *bhuana alit* placed or in script, the following: (1) A is in the sinciput; (2) Na is in both eyebrows; (3) Ca is in the eye; (4) Ra is in the ear; (5) Ka is in the nose, (6) Da is in the mouth; (7) Ta is in the chest; (8) Sa is in the right hand; (9) Wa is in the left hand; (10) La is in the nose; (11) Ma is in the right chest (12) Ga is inside the left chest; (13) Ba is in the navel (14) Nga is in the genitals (15) Pa is inside the ass (anus); (16) Ja is in the legs; (17) Ya is in the spine; (18) Nya is on the tail bone (Falsafah Aksara Modre/Sanghyang Siwa Griguh, 1990)

In addition to using the eighteen letters, the completeness (*pengangge*) modre in *Dasaaksara* also considered to have a place or position in the human body (*bhuana alit*) namely; (1) the modre ulu is in the head (in the brain); (2) Taling is in the right hand; (3) Surang is in hair; (4) Nania is in the back; (5) Wisah is in the left hand; (6) Pepet is in the skull; (7) Cecek is on tongue; (8) Tedong is in the ear; (9) Suku kembang in the mouth, (10) Sayem or ulu ricem is in sinciput (Falsafah Aksara Modre / Sanghyang Siwa Griguh, 1990: 7).

Besides *pengangge* (completeness) modre used or placed in the human body, the encounter of eighteen characters from the end to the base of the human body has a connection or connectedness into *Dasaaksara* namely: (1) A-NYA becomes SA; (2) NA-YA becomes Na; (3) CA-JA becomes Ba; (4) RA-PA becomes MA, (5) KA-NGA becomes Ta (6) DA-BA becomes SI; (7) TA-GA becomes A; (9) SA-MA becomes WA; (10) WA-LA becomes I and YA. The same thing is mentioned in Buana Kosa, Shiva is at the heart of all beings, without beginning, without mid and without end, its existence is eternal, yet the person who attains it has a high level of yoga that has thoughts and knowledge that are free from senses or lust (1991 : 65).

The encounter of this eighteen letter from the tip to the base of the human body and the way of placing or instilling *Dasaaksara* in the human body has to do with the place (stana) of Dewata Nawasanga in the human body, namely: (1) SA is placed in the heart, stana (place of) Iswara; (2) BA is placed in the heart, stana (place of) Brahma; (3) TA is placed in the stomach, stana (place of) Mahadeva; (4) A placed in the bile stana (place of) Vishnu; (5) I placed in the bottom of the heart stana (place of) Shiva; (6) NA placed in the kidney, stana (place of) Sangkara; (7) Ma is placed in the intestine stana (place of) Rudra; (8) WA is in the pancreas, stana (place of) Sambhu; (9) YA, placed a heart hanger, stana (place of) Shiva (Haryati Subadio, 1985: 205).

To place the *Dasaaksara* in the body have many ways, but the author uses only one way from Jnanasiddhanta book compiled by Haryati Subadio (1985: 229-233). The way is described below; How to place or imagine the *Dasaaksara* letter placed or staged in the human body (*bhuana alit*) to maintain the quality of health is by breathing. The essence of health is that it can or can excrete and enter the breath within the human body itself.

The way of breathing is by sitting facing to the East while focusing on the tip of the nose, then doing Sivikarana means calling for the presence of Shiva is in the human body while controlling breathing and still see the tip of the nose. Next draw the pure air through the right nostril until the air reaches the heart, imagine the Brahma dwelling in your heart with his entire badge, three-eyed, four-armed, red-colored, imagine his throne in your heart while saying Om-BA (BANG) Brahma. Then let the pure air out through the left nostril that comes from the bile, imagine Vishnu residing in the gall, dressed in full, three-eyed, four-armed, black while uttering OM-A (ANG), respect to Vishnu.

Next breathe through both nostrils and hold a long breath so that the air gets to the heart. Imagine Iswara residing while saying Om-SA (SANG), respect to Iswara. After that speak the *Dasaaksara*, SA, BA, TA, A, I, NA, MA, SI, WA, YA, and do not hear a sound when reciting the mantras. This is one way to place or imagine the mantra *Dasaaksara* located in the human body (*bhuana alit*), so that health is maintained or the quality of health can be maintained. However one who can carry this out is one who has a high level of yoga and has thoughts and knowledge that can release the senses or lust (Buana Kosa, 1991: 65).

CONCLUSION

Bioethics is a bridge between the science and ethics of humanity derived from cultural and religious norms. Bioethics is a science to maintain or improve the quality of human body health (*bhuana alit*) associated with *Dasaaksara*. *Dasaaksara* are the ten main letters as a symbol of the ruler of the universe (*Bhuana Agung*). The letters *Dasaaksara* is SA, BA, TA, A, I, NA, MA, SI, WA, YA, which is placed or (di stanakan) in the human body by one way through the breathing. But the human who can implement it is a person who reaches a high level of yoga that has the mind and knowledge and can release the senses or lust.

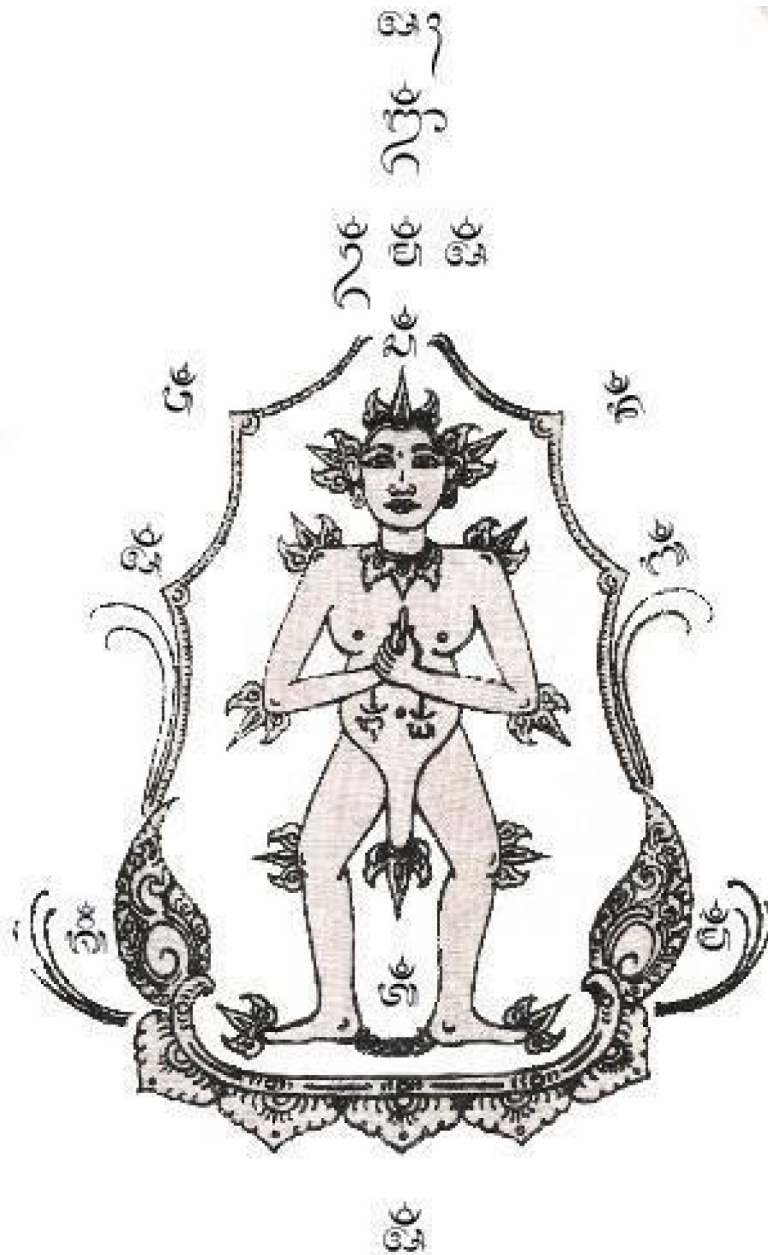


Illustration of human body

References

- Arniati, Ida Ayu Komang. 2016. Hakekat Manusia Perspektif Siwatattwa. Denpasar. Widya Wretta. Vol. II, nomor 2 Oktober .
- Bertens. K. 2010. Bioetika: Asal-usul Tujuan dan Cakupannya. Jakarta: Pusat Pengembangan Etika, Universitas Atma Jaya.
- Ginarsa, Ketut.1967. Gambar dan Lambang. Denpasar: Provinsi Bali, Departemen Pendidikan dan Kebudayaan.
- Pusat Dokumentasi Kebudayaan Bali, 1991. Buana Kosa. Denpasar: Unit Pelaksana Daerah Provinsi Daerah Tingkat I Bali.

(Ida Ayu Komang Arniati)

Pemerintah Provinsi Bali, 2002. Siwatattwa. Denpasar: Proyek Peningkatan Sarana/Prasara Kehidupan Beragama.

Kaler, I Nyoman. 1990. Falsafat Aksara Modre. Denpasar: Ria.

_____.tt. Aksara Modre/Aksara Wayah/Aksara Nawa Sastra.Denpasar: Ria

Muchtadi, T.R. 2007. Perkembangan Bioetika Nasional: Etika Prilaku di Bidang Kesehatan Reproduksi.

Nala, Ngurah, 1991. Ayurveda Ilmu Kedokteran Hindu I. Denpasar: Upada Sastra

Soebadio, Haryati, 1985. *Jnanasiddhanta*. Jakarta: Anggota IKAPI.

Tonjaya, Bendesa, Gede. 1981. Kanda Pat Rare. Denpasar: Ria.

_____.1981. Kanda Pat Bhuta. Denpasar: Ria.

RELIGION AS THE CURE FOR MENTAL DISORDER IN BALI

I Wayan Budi Utama¹, I Wayan Martha², I Gusti Agung Paramita³
Hindu Indonesia University^{1,2,3}

Abstract

Religion actually has the Janus face in which its first face seems to be hard and often causes many casualties. This occurs when the religion might be used as a justification for violence by certain groups to exclude other different groups. Another face of the religion looks melancholy like something cool and reconciling. In this face the religion is often used as the healer “madness” in a society. In Bali, the religion becomes the healer for those who suffer mental distress e.g. through “*malukat*” or “*mabayuh*”. The religion has paved the way for penance as in the form “*guru piduka*” ceremony. It can also provide neutralizer for those who experience trance (*kerauhan*) during rituals in the temple in Bali. These incident and ceremony according to the psychological view are considered to be “mental disorder” or madness. This paper explains the role of religion as a healer in the Hindu society in Bali. The data collection was done through observation, interview, and document study. The data analysis and discussion was done through the descriptive-interpretative, based on the sociology of religion approach.

INTRODUCTION

The growing phenomenon in Hindu society in Bali recently is that more and more people or groups of people who have psychiatric disorders. According to information given by Suryani, the head of Institute for Mental Health, it is estimated there are about 7,000 people experiencing mental disorder. The causes can be as diverse as failing businesses, household problems, and the interesting one; some people are felt being called to become *Pemangku* ‘a temple master’ or in Balinese society known as “*ngiring*” ‘called by the Supreme being to be followers’. This event can happen through a trance process.

The measure used in determining a person’s madness in the classical era is rational. When their behavior is seen as opposed to the common sense, it is stigmatized as insanity – something related to pathology (Foucault, 2002). It is something out of community, “the others” (Jaya Kumara, 2009).

Something called “them” not “us”. The question that then arises is that if the common sense can give a verdict what makes sense and what is not, certainly it can answer why the madness arose. In fact the common sense cannot do it. In other words common sense is unable to explain or answer a single cause as a prerequisite of healing.

In Bali, the local religion provides a healing space for those categorized as experiencing insanity by rational views. The Balinese religion and tradition treat those who are suffering mental illness are stigmatized as 'us' instead of 'them'. How religion plays a role in providing healing to this phenomenon of madness is the focus of discussion in this article.

DISCUSSION

Robertson (1986) argues that one of the most interesting intellectual phenomena of the twentieth century was the enormous interest in studying religion, and at one time there was a broad conformity of opinion that religious belief as traditionally understood strikingly emphasized its intrinsic meaning for some Great citizens of modern society. Paying attention to the development of the study of religion today can be grouped into two approaches.

The first approach is theophysical. This is studying religion as a set of teachings from God listed in the holy books. The religion is seen as a set of beliefs that are sacred and absolute, which governs human relationships with God, man with his neighbor, and man with the natural environment in which he resides. The religious studies like this are very normative or in other words using a textual approach. In this dimension religion is laid down as a moral standard and a benchmark of socio-cultural behavior. Religion in this regard is seen as the center of value orientation that brings the ideological-ideological truths.

Meanwhile, the second approach, religion is explored as a socio-historical reality that grows and develops in the behavioral experience of its adherents. In this approach religion is more interpreted in the context of the life and culture of its adherents. This approach is more contextual or more empirical.

In this practice the textual truth of religion gets its highest value because religious truth is more emphasized on its practice and not just in its normative truth. It must be admitted that not every truth is normatively always the same as religious truth in practice in social life because in reality there is no idea that exists in empirical reality. But at least religion has two important dimensions for human beings, namely to organize human thoughts and attitudes and also to arrange their actions in various aspects.

In an article in social media explained that the phenomenon of trance can be categorized into three. First are those who are pretending to have condition of *kerauhan* 'trance'. In this category, a person is pretending intentionally to achieve certain goals that benefit him. An innocent society is easily deceived by a handful of people by taking advantage of this innocence. Secondly, they are really undergoing the condition of *kerauhan*.

Though it begins rarely, but there are indeed those who are really *kerauhan* in the sense that there really is the *niskala* entity that enters him. Third, those who think they are true *kerauhan* though they are not in that condition. This third group is a purely neuro-psychological phenomenon ranging from a very simple abreaction of the subconscious mind, or more severe dissasociative trance and possession and even schizophrenia (Bali Wisdom, 17 May 2017). In Fauzi's view (2011) schizophrenia can occur because consciousness has been co-opted by material forces and distorted pleasure instincts.

The practice of the local religion in Bali provides accommodation to the previously described “insanity” behavior. Rituals performed such as *piodalan* ‘temple ceremony’, *mebayuh* ‘birthday purification’, *malukat* ‘purification using holy water’ become integral parts of the madness experienced by the community. Every good day to carry out rituals like *puinama* ‘full moon’, *tilem* ‘death moon’, *kajeng kliwon*, *anggara kasih* and so forth; the places to perform healing rituals such as springs (sea, fountains, springs) become the favorite places to visit.

There is one interesting story expressed by a schizophrenic person in Bali, just call him Made Wijaya (not real name). Several years ago he experienced unusual events. He admits that he is often visited by unknown people. According to Made’s story the man said that he was one of the incarnations of a reverend from Java who came to Bali.

The priest was Dang Hyang Nirartha who was also known as Dang Hyang Dwijendra. Since there were voices, Made Wijaya so often associated himself as the incarnation of Dang Hyang Dwijendra. It was experienced every day for several years. From then on Made Wijaya felt to have multi-personality - there are times when he thinks of himself as Dang Hyang Dwijendra.

The treatment efforts have been done, one of them by conducting regular consultations with psychologists. But he is never healed. He still heard strange voices and saw the man who often appears before him. To the extent, Made Wijaya must be taken to the Mental Hospital. After getting into the Mental Hospital, social relations began to change. He was labeled a madman and was considered ‘an abnormal person’.

It can be said socially Made Wijaya becomes ‘the other’ - considered other people who are different from normal people according to the measure of reason. The social pressure he experiences with the stigma of a ‘crazy person’ actually exacerbates his psyche. “Finally I decided not to make contact with other people,” he said.

Indeed, several mental therapies have been done, including following one of the spiritual classes. However, Made Wijaya claimed that he is more comfortable when *ngayah* in Pura Dalem. After *ngayah* in Pura Dalem, Made Wijaya often saw strange things. Not infrequently he even underwent *kerauhan*. Surprisingly, Made Wijaya can guess the events that will be experienced by the people he met. In fact, he claimed to have been possessed by one of the Bhatara who resides in Pura Dalem.

Since then, Made Wijaya actually got special treatment from the community. He is not labeled as mad, but a man who is ‘chosen’ by the gods to send messages down to the people. In the end, Made Wijaya was also known as Jro Tapakan or the person who has the ability to bring and communicate with the Bhatara, including the ancestral spirits.

Here we can see the difference in treatment of the sufferer of ‘madness’. Traditional religion is more accommodative of the phenomenon of insanity, and even gives association space to the symptoms. In contrast to the rational view that makes normal and abnormal dichotomies based on the measure of reason. Something that cannot be explained by common sense is considered abnormal - pathological. It is in contrast to the religions that do not consider people to experience mental disorder as ‘them’, but as ‘us’.

Textually the religion organizes human thinking so that contextually its followers do not get

lost in the world of experience laden with contradictions of values and norms. The combination of religion as textual and contextual truth is the ultimate ideology of a religious ideal in every human society.

However, in an increasingly narrow world due to the rapid development of information and technology, both religion and society have changed. The function of religion in society also experienced shifts that increasingly convincing the farther from its original function because its presence is no longer monopolized by regional identity. Identity can no longer be found within the cultural boundaries of the local community as the flow of goods and people becomes more dynamic.

In the context of this kind of shift the ultimate cultural symbol, no longer as a decisive lead in a society that is obeyed and possessed by force, but becomes a political tool for the struggle of the interests of the parties, both individuals, groups and institutions. Religious symbols, for example, are not only the direction of a practice relating to religiosity, but also to some people, groups or institutions as a tool for the legitimacy of existence and interests. The religion serves to validate the existence and actions that can happen to deviate from the substance of teaching because the image has represented a religious reality itself. It is practiced as part of social control and self-identification for the positioning of individuals, groups and institutions in a series of dynamic and contextual social transactions. Cultural symbols have become a tool for affirmation of the authenticity of groups whose existence is part of the global social system with increasingly sharp contrast of values (Abdullah, 2006).

In line with the above view, Cassanova (2003) assumes that on a global scale in the decade of the 1980s, the religion shows the face of its Janus, as the bearer of not only exclusive, particularistic, and primordial identities, but also inclusive, universal, and transcendent. The religious revival marks the rise of fundamentalism and its role in preventing oppression and the emergence of 'helplessness'. This paradoxical condition of religion has led to various conflicts. That is, religion as the trigger of social conflicts basically lies not in denial of its teachings, but because of the religious practices that are too strict based on the dogmas of his teachings.

Such a strict religious practice leaves no room for the development of different religious ideologies in one religion so that unknowingly religion has shaped its people into a hypocritical society. It is said so because on the one side of religion commands his people to make a personal relationship with God through dogma and rigorous worship. On the other hand, as a result of such practices, it is as if religion forces its people to be indifferent to social life because the life of the hereafter is more important than life in this world.

This double faces of religion according to Nottingham (1992) because on the one hand religion can be a potential focus for the emergence of creative renewal as well as chaos in society. The condition of this religious paradox, as described by Nottingham and Cassanova, according to Soemardjo (2003), the religious phenomenon in the life of mankind is that religion can unite human, but religion can also divide human beings one another. In one religion various nations and cultures can be unified, but in religion one with another religion often leads to divisions, disputes, and even war. Not infrequently also happens that in one religion, in the sense of holding on to the same holy book, because the difference in interpretation also resulted in splits and disputes. This means religion, in addition to unifying the social vision of a society, it also appears that religion has

the potential to trigger social conflict. This social conflict is not only happening in interreligious relations, but also in one religion with different religious beliefs so that internal conflict is so open in every religion.

Briefly it can be said that religion has two distinct and opposite faces, one is being soothing and the other is creepy. Soothing because the religion teaches holiness and union with God in which its teachings always contain the moral theme and aim at salvation. Conversely, creepy because when the religion is released from its core and practiced only as a teaching and therefore less concerned about its contextual world.

From the above explanation it is increasingly apparent that religion is necessary in managing human behavior. This becomes important because of the human experience gained from uncertainty, helplessness and scarcity which is indeed a fundamental characteristic of the human condition. In this case the function of religion is to provide two things. First, it provides a horizon of views about the outsiders unreached by man, in the sense that deprivation and frustration can be experienced as meaningful. Secondly, it provides a means of ritual that enables human relationships beyond their reach, which provide assurance and salvation for humans maintaining their morale (O'Dea, 1985).

To be able to maintain the moral existence of the problems faced, people need religion because according to O'Dea (1985) the religion has at least 6 (six) functions, namely:

1. Religion bases its attention on something beyond human reach involving destiny and well-being, providing for its adherents a support, solace and reconciliation. Humans need moral support in the face of uncertainty, solace when faced with disappointment and reconciliation with society when alienated from its goals and norms.
2. Religion provides a transcendental connection through ceremonies and worship, which can provide an emotional basis for a stronger sense of security and identity.
3. Religion purifies the established norms and values of society, thus positioning the dominance of group goals above individual goals.
4. Religion also has a function to reevaluate institutionalized values and norms, if indeed people need them.
5. Religion performs important identity functions, through the participation of people in religious rituals and prayers, so that they do the significant elements that exist in the identity.
6. Religion is concerned with the growth and maturity of individuals, and the journey of life through the age level determined by the community.

In brief functionally, the religion identifies individuals with groups, helps individuals in uncertainty, entertains disappointment, links them to community goals, strengthens morals, and provides elements of identity.

In relation to the problem of curiosity (especially the third category) which, in rational view, is seen as madness, the religion provides accommodation through rituals and neutralizing efforts such as *mebayuh*, *malukat* and so on. However, the religion also does not take for granted those

who experience the *kerauhan*. Various ways to test the truth is also done by the community. There are preparing bonfires made of coconut shells, preparing *Kris* and other attempts to test the truth of the phenomenon of the *kerauhan*. This helps a lot to reduce the number of those who take advantage of the phenomenon of *kerauhan* for things that are not desirable.

CLOSING

Based on the above description, there can be summary as follows. First, there are three categories of trance in Bali, especially those included in the third category can be regarded as people who experience psychiatric problems (can be said to have madness). Secondly, the local religion in this case is functional in dealing with madness issues through the rituals provided. Thirdly, the local religion in Bali in addition to providing accommodation also provides a way for competence tests against those who lie in the *karauhan*, some by way of preparing bonfires, and other ways that can finally resuscitate the concerned.

References

- Casanova, Jose. 2003. *Agama Publik Di Dunia Modern: Public Religion in the Modern World*. Surabaya: Pustaka Eureka; Malang: ReSIST, dan Yogyakarta: LPIP.
- Fauzi, Ahmad. 2011. *Agama Skizofrenia. Delusi, Ketidaksadaran dan Asal-usul Agama*. Semarang: Lembaga Studi Sosial dan Agama.
- Foucault, Michel. 2002. *Kegilaan Peradaban, Madness and Civilization*. Yogyakarta: Ikon Teralitera.
- Jaya Kumara, I Gede. 2009. *Sarad*. Denpasar: Majalah Gumi Bali no 106 Februari 2009.
- Nottingham, Elizabeth K. 1992. *Agama dan Masyarakat*. Jakarta :Rajawali Press.
- O'Dea, Thomas F. 1985. *Sosiologi Agama*. Jakarta: CV. Rajawali.
- Robertson, Roland. 1986. *Sosiologi Agama*. Aksara Persada Offset.

EFFECT OF EXTRACT LEAVES PANDAN WANGI (*Pandanus amaryllifolius*) ON MUSHROOM CAUSES (*Malassezia furfur*) IN VITRO

I Made Adi Surya Dananjaya¹, Euis Dewi Yuliana²
dewi.yuliana1966@yahoo.co.id²
Hindu Indonesia University^{1,2}

Abstract

Selection of alternative antifungal drugs such as pandan wangi leaf extract to treat pityriasis versicolor or panu disease which is one of the diseases that attack the stratum corneum on the skin and is chronic asymptomatic, is a disease commonly found in Indonesian society. Selected herbal treatment is believed to be safer and less side-effects than pharmaceutical drugs, even if there are slow side effects, as well as to treat resistant fungi against some pharmaceutical drugs. Until now there has been no research on fragrant pandanus as an antifungal although the active ingredients contained as an antifungal as is owned by other herbs. Based on the above, this research is conducted, with the formulation of the problem which poured in two questions (1) How is the effect of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) on the growth of fungi causing panu (*Malassezia furfur*) in vitro? (2) What is the minimal concentration of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) in inhibiting the growth of the fungus causing panu (*Malassezia furfur*) in vitro?

This research was conducted from January 2016 until July 2016. This research uses a complete randomized design, treatment of concentration of Pandanus fragrant leaf extract (*Pandanus amaryllifolius*) consisting of 12 concentrations of Negative Control, 2%, 4%, 6%, 8%, 10%, 12%, 14%, 16%, 18%, 20% and Positive Control are then repeated 3 times so that there are 36 research units.

Based on the result of the research, it was found that not all concentrations have inhibitory effect on the growth of mushroom, the inhibitory power was found from concentration of 12% to 20% concentration, characterized by the formation of inhibit zone on media that had been incubated for 5 days. Based on result of analysis of variance, thoroughly giving of anti fungus test of pandan wangi leaf extract to inhibit the growth of fungus *Malassezia furfur* showed p value equal to 0.000 ($p < 0.005$) starting at concentration 12%, 14%, 16%, 18% and 20%. It shows that pandanus fragrant leaf extracts starting from 12% to 20% concentration gives an effect in inhibiting the growth of *Malassezia furfur* fungus. Based on the result of the research, it can be concluded that (1) Pandan wangi leaf extract (*Pandanus amaryllifolius*) influenced the growth of *Malassezia furfur* at concentrations of 12%, 14%, 16%, 18% and 20%. (2) The minimal concentration of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) capable of inhibiting the growth of *Malassezia furfur* is at a concentration of 12%.

Keywords: Extract, Pandan Wangi Leaves, Panu Mushroom, In Vitro.

INTRODUCTION

Pitiriasis versikolor or panu is one of the superficial fungal infections that attack the stratum corneum on the skin and is asymptomatic chronic that is commonly found in Indonesian society (Radiono, 2001). Treatment of pitiriasis versicolor can be done systemically or topically. Topical treatment or localized drug administration of the skin is primarily intended for patients with minimal lesions. The use of pharmaceutical drugs such as ketoconazole 2% in the form of shampoo is reported to be more effective with relatively easy use. Systemic treatments such as itraconazole are recommended for cases that are unresponsive to other treatments (Radiono, 2001).

However, the use of pharmaceutical drugs is still a lot of obstacles, including expensive drug costs and not all areas available, as well as drug resistance due to inadequate use such as short-term, intermittent, low-dose long-term treatment (Hapson and Rahmawati, 2008 In Suryaningrum, 2011). By looking at it the selection of pharmaceutical drugs sold in the market is gradually reduced and the selection of alternative medicines derived from plants is selected as a substitute.

Selection of alternative antifungal drugs from this herb for several reasons. These natural medicines are safer and are believed to have less side effects than pharmaceutical drugs, even if there are slow side effects. Also to overcome the fungi that have been resistant to some pharmaceutical drugs (Herman, 2001 in Suryaningrum, 2011). Herbal extracts of some plants have been tested for antifungal activity. Based on bibliographical data it is known that some plants contain essential oil and essential oil which have been isolated from some medicinal plants as antifungal (Soeratri, 2005).

Research conducted by Raharjo et al. (2012) proves that the content of flavonoids and saponins in ethanol extract of moringa leaves can have an antifungal effect on *Malassezia furfur*. While in research conducted by Prayitno (2015) using methanol extract from red rhizomes containing secondary metabolites such as essential oils, alkaloids, saponins, and tannins proven to inhibit the growth of the fungus *Malassezia furfur*.

According to Sugati and Jhonny (1991), alkaloids, saponins, flavonoids, tannins, polyphenols, and dyestuffs are also owned by fragrant pandanus. Guzman and Siemosna (1999) suggested that the pandanus fragrant leaves contained essential oil (some ppm), consisting of 6-42% sesquiterpenhydrocarbons and 6% were linalools only as monoterpenes. Sukandar, et al. (2007) reported pandan wangi plants producing essential oils having chemical components of 3-allyl-6-methoxy phenol, 3-methyl 2 (5H) furanons, 1,2-benzenadicarboxylic diethyl ester and 1,2,3-27 propanetril ester acid Dodecanoate. However, until now there has been no research on fragrant pandanus as an antifungal although the active ingredients contained as an antifungal as is owned by other herbs.

Based on the above, the research conducted to find out how the effectiveness of pandan wangi extract (*Pandanus amaryllifolius*) against *Malassezia furfur* which is the cause of Pitiriasis versikolor, which is formulated in two questions (1) How the influence of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) against the growth of fungi cause Panu (*Malassezia furfur*) in vitro? (2) What is the minimal concentration of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) in inhibiting the growth of the fungus causing panu (*Malassezia furfur*) in vitro?

RESEARCH METHODS

This research was conducted from January 2016 until July 2016. The making of pandan wangi leaf extract (*Pandanus amaryllifolius*) was done at Udayana University's Biotechnology Study Program Laboratory and the experiment was conducted at STIKes Wira Medika Bali Laboratory. This study used a complete randomized design, treatment of concentration of Pandanus fragrant leaf extract (*Pandanus amaryllifolius*) consisting of 12 concentrations of Negative Control, 2%, 4%, 6%, 8%, 10%, 12%, 14%, 16 %, 18%, 20% and Positive Control then repeated 3 times so that there are 36 research units.

The population of this study is pandan wangi leaves (*Pandanus amaryllifolius*) obtained from traditional markets Darmasaba Badung regency. The sample used in this research is pandan scented leaves of all traders in traditional markets Darmasaba Badung regency as much as 2 kg of pandan perfume leaves from 5 traders, got the total amount of 10 kg of pandan wangi leaves. The next stage 10 kg of fragrant pandan leaves extracted so as to produce ethanol extract Pandan perfume leaf (*Pandanus amaryllifolius*) thick.

Data from the results of this study in the analysis using variant analysis, in this case the first test of shapiro wilk normality and homogeneity to know the data distributed normal and homogeneous. Normal and homogeneous data were then analyzed by One Way Anova test. The analysis was done by using SPSS program (Statistical Package for the Social Sciences 16.0)

RESULTS AND DISCUSSION

Results

Effect of Anti-Fungal Test Extraction Pandan Wangi Leaf Extract in Inhibiting Mushroom Growth Malassezia furfur

Testing of pandanus fragrant leaf extract to the fungus causing panu (*Malassezia furfur*) conducted on July 10, 2016 until July 20, 2016, obtained the following results:

Table 3.1 Measurement Data of Inhibition Zone Pandan Wangi Leaf Extract Against Mushroom Cause Panu *Malassezia furfur*.

No	Treatment	Repeating	Zone of Result	Result
1.	Control Negative	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	
2.	P1 (2%)	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	

No	Treatment	Repeating	Zone of Result	Result
3.	P2 (4%)	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	
4.	P3 (6%)	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	
5.	P4 (8%)	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	
6.	P5 (10%)	I	0,00	Negative
		II	0,00	Negative
		III	0,00	Negative
	Average:		0,00	
7.	P6 (12%)	I	2,00	Positive
		II	1,90	Positive
		III	1,95	Positive
	Average:		1,95	
8.	P7 (14%)	I	2,25	Positive
		II	2,15	Positive
		III	2,15	Positive
	Average:		2,18	
9.	P8 (16%)	I	2,35	Positive
		II	2,45	Positive
		III	2,40	Positive
	Average:		2,40	
10.	P9 (18%)	I	2,60	Positive
		II	2,70	Positive
		III	2,75	Positive
	Average:		2,68	
11.	P10 (20%)	I	2,90	Positive
		II	3,00	Positive
		III	3,00	Positive
	Average:		2,96	
12.	Control Positive	I	5,00	Positive
		II	4,80	Positive
		III	4,95	Positive
	Average:		4,91	

Based on Table 3.1 The results of each measurement with three repetitions on each treatment found that not all concentrations have inhibitory power to the growth of fungus, at concentrations of 2%, 4%, 6% to 10% concentration not found inhibition zone while starting from concentration 12% to 20% concentration has inhibitory power characterized by the formation of drag zone on media that has been incubated for 5 days. The entire measurement of this inhibitory zone is then tested statistically by using the analysis of variance.

Based on the result of analysis of variance (One Way Anova test) attached at Attachment 2 thoroughly giving anti fungus test of pandan wangi leaf extract to inhibit the growth of fungus *Malassezia furfur* showed p value of 0.000 ($p < 0.005$) starting at concentration 12%, 14%, 16%, 18% and 20%. It shows that pandanus fragrant leaf extracts starting from 12% to 20% concentration gives an effect in inhibiting the growth of *Malassezia furfur* fungus.

*Minimally Inhibitory Concentration of Leaf Pandan Wangi Extract on Mushroom Growth *Malassezia furfur**

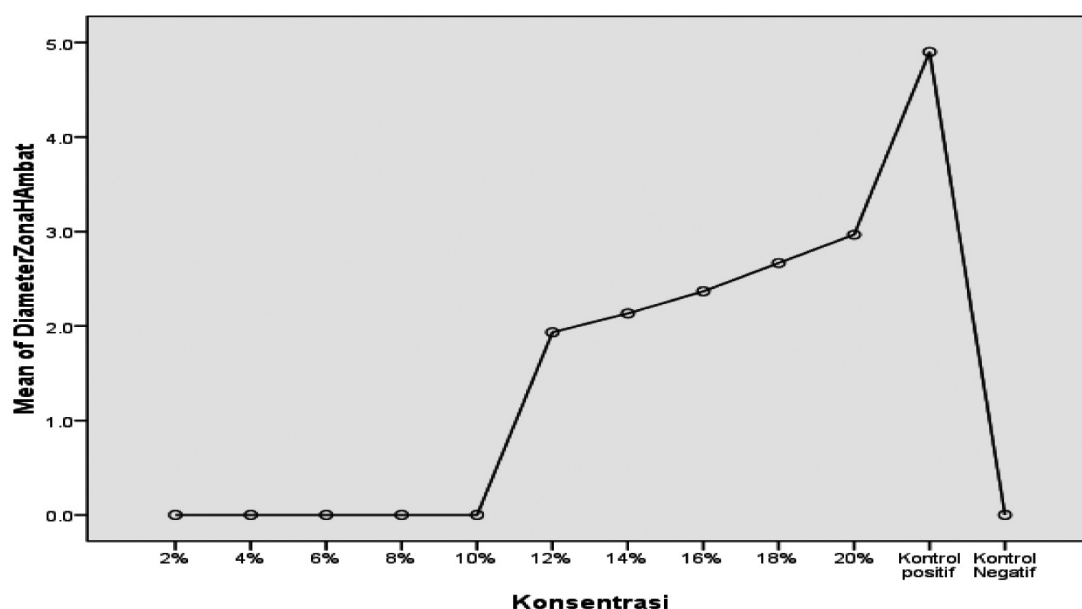


Figure 3.1 Graph of Flat Zone Extract of Pandan Wangi Leaf Extract on Growth of Fungus Causes of Panu

Based on Figure 3.1. Showed treatment with concentration of 2% until treatment with concentration of 10% has not indicated any obstacles while the mean of inhibition zone formed at some concentration of pandanus fragrant leaf extract start at concentration 12% average of drag zone formed that is equal to 1,93 mm, At a concentration of 14% of the inhibitory zone average that is 2.13 mm, at a concentration of 16% of the inhibition zone average that is 2.36 mm, at a concentration of 18% the average inhibit zone is 2.66 mm and at a concentration of 20% The

average drag zone formed is 2.96 mm. The positive control results showed that the inhibitory power obtained from antibiotics and negative control results showed no inhibitory power because no treatment was given. The inhibitory zone formed is a clear area that is around the treatment and there is no growth of fungal colonies.

Based on the above results obtained the concentration of 12% is the lowest concentration of pandanus fragrant leaf extract that has been able to inhibit the growth of fungus *Malassezia furfur* while the concentration of 20% pandan wangi leaf extract is the concentration with the widest inhibition zone in inhibiting growth in the range of concentration from 0 to 20% concentration. Treatment with concentration of 12% up to 20% concentration can be categorized as weak to the resistance resistance of fungus *Malassezia furfur* growth when viewed from the mean of drag zone diameter, but pandan wangi leaf extract has been able to inhibit the growth of mushroom at certain concentration. The difference in inhibitory zone diameter of each concentration is due to the difference in the amount of active substance contained in the concentration. The greater the concentration, the greater the component of the active substance contained therein so that the inhibit zone formed also differs per concentration.

Against the growth of *Malassezia furfur*. The 20% concentration has the greatest inhibitory effect on the growth of *Malassezia furfur* ie with the inhibition zone of 2.96 mm.

Looking at the mean of the inhibitory diameter, according to Setyaningsih (2008) that if the diameter of the resistance zone is 5 mm or less, the inhibitory activity is categorized as weak, 5 to 10 mm is categorized, 10 - 19 mm is categorized as strong, and 20 mm or more is categorized as very strong . Thus, this shows that pandanus fragrant leaf extract is a potent antifungal as a basic ingredient of antibiotics although classified as weak category but has been proven to inhibit the growth of fungus *Malassezia furfur* with concentration of extracts ranging from 12% concentration.

The result of antifungal activity of pandan wangi leaf extract showed that there was inhibition activity on *Malassezia furfur* fungus growth. The existence of bioactive compounds contained in pandan wangi leaf extract will diffuse to the media so that is around the paper discs that cause the effects of growth suppression and even deadly fungus *Malassezia furfur*. This inhibition is indicated by the formation of drag zones formed around the test disc paper. After contact between the extract and the test inoculum, the drag zone will form around the disc paper when the tested extract contains a compound capable of inhibiting the growth of microorganisms and test microorganisms also sensitive to the compounds contained in the extract (Prescott et al, 2005).

Antifungi compounds have various mechanisms inhibition of fungal cells. An antifungal inhibition may be caused by attachment of the compound to the cell surface or the diffusion of the compound into the fungal cell (Kanazawa et al, 1995).

An antifungal agent in an extract can inactivate the function of the genetic material, by interfering with the formation of nucleic acids (DNA and RNA) (Asrori et al., 2012). Disruption of the formation of nucleic acids will lead to inhibition of the transfer of genetic information which will inactivate or damage the genetic material resulting in disruption of the activity of fungal cells.

Rohmawati (1995) in Susanna et al. (2003) said pandan wangi leaf extract has chemical content of bitter compounds in the form of polyphenols, flavonoids, saponins, essential oils, tannins and alkaloids. Prayitno, (2015) states that essential oil is one of the secondary metabolites that have antifungal activity has a working mechanism by disrupting the permeability of the fungal cell membrane. The permeability disturbance of the mushroom cell membrane is played by one of the essential components of essential oils namely β -acarone. The mushroom cell membrane that has undergone such permeability disturbance then dies from intracellular fluid leakage. Flavonoids in addition to having antioxidant activity also has activity as antifungi by destroying the permeability of cell membranes that can interfere with the process of fungal metabolism (Robinson, 1995). Saponins are known to have an antimicrobial, antifungal and protective effect against insects. Saponins have a high level of toxicity against fungi. The fungicidal activity of *Trichoderma viride* has been used as a method to identify saponins. The mechanism of action of saponin as antifungal is related to saponin interaction with sterol membrane (Morrissey, 1999 in Suryaninggrum, 2011). As an antifungal, alkaloids cause cell membrane damage. Alkaloids will bind strongly with ergosterol to form a hole that causes cell membrane leakage. This results in permanent damage to cell and cell death in fungi (Setiabudy and Bahry, 2007).

The mechanism of inhibition of fungal growth in the activity test is also played by a class of phenolic compounds (in this case including tannin compounds) and saponins. Tannin and saponins are soluble in water and contain hydroxyl functional groups (-OH), making it easier to enter into cells and form complexes with cell membrane proteins. Phenolic compounds interact with cell membrane proteins through an adsorption process involving hydrogen bonding by bonding to the hydrophilic part of the cell membrane. The protein-

Phenolic compounds formed with weak bonds, so that it will soon experience decomposition followed by the penetration of phenolic compounds into the cell membranes that cause the precipitation and denaturation of cell membrane proteins. Damage to the cell membrane causes a change in the permeability of the membrane, resulting in lysis of the mushroom cell membrane (Parwata and Dewi, 2008).

Based on the ability of the substances contained in pandanus fragrant leaves that have antifungal properties is proving this research in accordance with the results obtained pandanus fragrant leaf extract effect on the growth of fungal cause panu (*Malassezia furfur*). The results of this study when compared with some previous research that uses extracts from natural ingredients that have extract content that is almost equal to the content of pandan wangi.

The results of this study when compared with that done by Gupita (2011) proved cinnamon essential oil has an antifungal activity against *Malassezia furfur* since the concentration of 6.25%. In the fragrant pandan leaves also contain essential oils that proved to have antifungal activity since the concentration of 12%, when compared with cinnamon essential oils inhibit the growth of fungal pandan leaf extract is still weaker with the inhibitory zone zinc essential oil flavor of 2: 1 with extract Pandanus leaves perfume. Results of research conducted by Setyarini and Krisnansari (2011) proved galangal extract containing essential oils, flavonoids and phenols as an antifungal against *Malassezia furfur* since 1% concentration. In pandan scented leaves also contain essential oils, flavonoids and polyphenols that have proven antifungal activity since the concentration of 12%, when compared with galangal extract the ability to inhibit the growth of fungal pandan leaf

extract is still weaker with the comparison zone extract galangal 12: 1 with extract Pandanus leaves perfume. Research conducted by Gama (2011) on the use of chinese leaf extract as an inhibitor of growth of *Malassezia furfur* with alkaloid, saponin, tannin and flavonoid content obtained extract with 50% concentration has been able to inhibit the growth of *Malassezia furfur* on *Pityriasis versicolor*. On the leaves

Pandan perfume also contain alkaloid, saponin, tannin and flovonoid which have proven to have antifungal activity since 12% concentration, when compared with extract of galangal ability to inhibit fungus growth of pandan wangi leaf extract still stronger with comparison of drag zone extract of pandan wangi 4.2: 1 with chinese leaf ketepeng extract. A study conducted by Prayitno (2015) on the use of red rhizome extract with essential oils, alkaloids, saponins, and tannins on the growth of *Malassezia furfur* and extracted with extract concentration of 60% has been able to inhibit the growth of *Malassezia furfur*. In pandan wangi leaves also contain essential oil content, alkaloid, saponin, and tannin which have proven to have antifungal activity since 12% concentration, when compared with red rhizome extract of jerangau ability to inhibit the growth of pandan scent of pandan leaves extract is still stronger with comparison of inhibition zone extract 5: 1 fragrant pandan leaves with red rimpang jerangau extract.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the result of the research, it can be concluded that:

1. Pandanus fragrant leaf extract (*Pandanus amaryllifolius*) influenced the growth of *Malassezia furfur* at concentrations of 12%, 14%, 16%, 18% and 20%.
2. The minimal concentration of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) capable of inhibiting the growth of *Malassezia furfur* is at a concentration of 12%.

Suggestions

1. More in-depth research on the isolation and characterization of active chemical components indicating the antimicrobial properties of pandanus fragrant leaf extract (*Pandanus amaryllifolius*) is needed.
2. Further research is suggested to use higher concentrations so it is expected to get more optimal results and need further pharmacological test of pandan wangi leaf extract (*Pandanus amaryllifolius*).

References

Gama, M.P.2011.Perbandingan Ekstrak Daun Ketepeng Cina (*Cassia Alata*, Linn.) Dengan Ketokonazol 2 % Dalam Menghambat Pertumbuhan *Malassezia Furfur* Pada *Pityriasis*

- Versicolor* Secara In Vitro. Fakultas Kedokteran Universitas Diponegoro. Semarang
- Gupita, W.C. 2011. Perbandingan Efektivitas Minyak Atsiri Kayu Manis (*Cinnamomum Zeylanicum*) 6,25% Dengan Ketokonazol 2% Secara In Vitro Terhadap Pertumbuhan *Malassezia Furfur* Pada Pitiriasis Versikolor. Fakultas Kedokteran Universitas Diponegoro. Semarang
- Guzman CC and Siemosma SS. 1999. *Plant Resources Of South-East Asia*. Spices No.13. Bogor.
- Kanazawa A, Ikeda T, Endo T. 1995. A novel approach to mode of action of cationic biocides morphological effect on antibacterial activity. *J. Appl. Bacteriol.* Japan.
- Parwata, O.A dan Dewi, PS. 2008. Isolasi dan uji aktivitas antibakteri minyak atsiri dari rimpang lengkuas (*Alpinia galangal* L.). *Jurnal Fakultas Kimia Universitas Udayana*. Denpasar
- Prayitno, Y.H. 2015. Uji Aktivitas Antifungal Ekstrak Metanol Mentah Rimpang Jeringau Merah (*Acorus Calamus* Linn.) Terhadap Pertumbuhan *Malassezia Furfur* Secara In Vitro. Fakultas Kedokteran Universitas Tanjungpura. Pontianak
- Prescott, L.M, Harley JP, Klein DA. 2005. *Microbiology*. Edisi ke-6. McGraw-Hill. Amerika Serikat.
- Radiono S. 2001. Pitiriasis Versikolor. In : Budimulja U, Kuswadi, Bramono K, Menaldi SL, Dwihastuti P, Widaty S, editors. *Dermatomikosis Superfisialis : Pedoman untuk Dokter dan Mahasiswa Kedokteran*. Balai Penerbit FK UI. Jakarta.
- Raharjo, B, Erwiyani, A.R, Susana, M.A.S.D. Uji Aktivitas Anti jamur Dan Bioautografi Ekstrak Etanol Daun Kelor (*Moringa oleifera* Lamk.) Terhadap *Malassezia furfur*. TIKES Ngudi Waluyo Ungaran.
- Robinson, Trevor. 1995. *Kandungan Organik Tumbuhan Tinggi*. ITB. Bandung
- Setiabudy R, Bahry B. 2005. Obat Jamur. Dalam : Gunawan SG, Setiabudy R, editors. *Farmakologi dan Terapi*. 5th ed. Balai Penerbit FKUI. Jakarta
- Setyarini, PS dan Krisnansari, D. 2011. Perbandingan Efek Antifungi Ekstrak Lengkuas (*Alpinia Galanga* Linn) Dengan Ketokonazol Pada Isolat *Malassezia Furfur*. Fakultas Kedokteran dan Ilmu-Ilmu Kesehatan Universitas Jenderal Soedirman. Purwokerto
- Sugati, S. dan Johnny, R.H. 1991. *Inventaris Tanaman Obat Indonesia*. Badan Penelitian & Pengembangan Departemen Kesehatan RI. Jakarta.
- Sukandar, D, Dinnu, Z dan Septyani. 2007. Laporan Penelitian: *Eksplorasi Potensi Kimia Minyak Atsiri Pada Daun Tumbuhan Pandan Wangi*. UIN Syahid Jakarta
- Susanna, D, Rahman, A dan Prawenang, E.T. 2003. Potensi Daun Pandan Wangi Untuk Membunuh Larva Nyamuk *Aedes Aegypti*. Universitas Indonesia.
- Suryaningrum, E.R. 2011. Efek Antifungi Perasan Kulit Jeruk Purut (*Citrus hystrix*) Terhadap Pertumbuhan *Trichophyton mentagrophytes* Secara *in vitro*. Fakultas Kedokteran Universitas Sebelas Maret. Surakarta
- Soeratri, W, Yuliani, R.D, Ifansyah, N dan Isnaeni. 2005. Aktivitas Antifungi Krim Minyak Atsiri Lengkuas (*Alpinia galanga* (L.) Swartz) Terhadap *Candida albicans*. Fakultas Farmasi Universitas Airlangga.

CAMPUHAN WATER FOR HEALING

Ida Bagus Dharmika
gusdharmika@gmail.com
Hindu Indonesia University

Abstract

Campuhan is a very popular term among Hindus ie, meeting or mixing two or more streams of water, can be between freshwater flow with fresh water, fresh water with sea water, sulfur water with lakes and other. Hindus believe that in this watershed meeting area is a very sanctified place, this area is often held important meetings of religious people. It is believed by the Hindus people that this area exerts an influence on the coming of holy thoughts and ideas that implicate the sacred actions that ultimately give effect to the welfare of the people. The Maha Rsi past was very concerned about this holy place, here he got the idea and the holy mind and then established the holy place (*temple*) as a holy citadel of Hindus.

The sanctity of *campuhan* is greatly felt by the people, religious activities carried out in this place both large and small scale such as, *ngangkid*, *nganyut*, *melukat*, and other spiritual activities related to health, especially health mind. Benefits if we bathe in *campuhan* water then *mala-mala* (bad energy) contained in us will be cleaned, pregnant women are also good bathing in the water mixed because the child who was conceived will be born with healthy and holy, as well as for those who get the stuttering disease should be bathed, For those who have nightmares should also bathe into *campuhan*, and those who get the disease '*buduh*' (psychosomatic) should be taken to *campuhan* to be bathed on the full moon and on the *Kajeng Kliwon* day. For women who are menstruation is prohibited to bathe in *campuhan*. The more streams meet then the place is certainly good for healing.

Religious people give great attention to the existence of this *campuhan* water that is preserved by all the people of today. The cosmic vibrations of the universe emanating through this camp are greatly beneficial to Hindus, which is why people choose certain days to purification. The people who perform the march are not only Hindus but other people also do the marching, including Caucasians also do it.

This phenomenon reminds us that the civilization of water has been built by our elders since ancient times, he is very respectful of the nature of water, and in the implementation of life always attention to the existence of water, Hindus in various religious activities always give attention to the existence of water. In order for the sanctity and cleanliness of the *campuhan* water to remain awake, Maharsi Manu (Manawa Dharmasastra, IV: 52) reminds us: "should not spit, urinate, and feces into the river water. Nor should it throw dirty words into the river, nor blood, poison, and other dirt".

Keywords: Campuhan Water, Healing

INTRODUCTION

Campuhan is a very popular term among Hindus ie, meeting or mixing two or more streams of water, can be between freshwater flow with fresh water, fresh water with sea water, sulfur water

with lakes and other. Hindus believe that in this watershed meeting region is a very sanctified place, this area is often held important meetings of religious people, and in this area also often held the healing process of various diseases suffered by humans. It is believed by the Hindus that this area exerts an influence on the coming of holy thoughts and ideas that implicate the sacred actions that ultimately give effect to the welfare of the people. The Maha Rsi past was very concerned about this holy place, here he got the idea and the holy mind and then established the holy place (temple) as a holy citadel of Hindus.

In the Kakawin Dharma Sunya quoted by Agastia in the book of Nirartha Prakreta there is so described: *“ambek sang kawi siddha suddha kadi sagara gumawanga teka nirmala; iccha nispriya sara ning kelengenan yatika pasamudaya ning rasa; tattwajana wekas nikang paramasastra sira ta pinakadipandita; saksat lingga nikang sarat pinaka dipa yasa nira huwus prakasita”*. The mind of a perfect Kawi, purified mind is like an unflattering rush, his constant, unshakable feeling, a source of beauty and a sense of belonging; The ultimate knowledge and literary essence (*parama sastra*) are therein, therefore he is also called the main priest, like the whole world, and as a devotee of his devotion which has spread everywhere. A kawi as well as a priest like that can bring literary works in society (*sang sampun kretatwa mangkana wedang mijilakena kawitwa ring sabha*).

Pura Campuhan Ubud is a place chosen by Hindu figures as the place that finally produced the charter of Campuhan Ubud that we inherited until now. The spirit of a vision far ahead in the context of his time and driven by the lofty desire and realize the lack of guidance to Hindus in the past, on Friday *Paing Wara Sinta, penanggal* ‘days’ 9 *sasih* ‘month’ 5th years *Caka* 1883 or on 17 November 1961 the leaders Hinduism in the homeland, especially in Bali has held a meeting called “*Dharmacrama*” at Campuhan Ubud, Gianyar regency, Bali. *Dharmacrama* attended by the *Sulinggih* (Priest) and the “*Walaka*” (Leader of the Hindus not *Sulinggih*) lasted until Thursday *Pon Wara Landep*, also coincides with the *Purnama sasih* 5th or November 23, 1961.

Dharmasrama initiated by the Hindu Religious Council, *Parisada Hindu Dharma* (at that time named *Parisada Hindu Bali*) established several decisions which were later known as “*Piagam Campuhan Ubud*”. In part A, point II of the charter is set up, among others, “from now on, desire to build *pangadyayan* dormitory as a place to study *dharma*”. Item II of the *Campuhan Ubud* Charter is the starting point or milestone of the establishment of Hindu Religious College under the name “*Maha Widya Bhawana*” or what is now called the Hindu University of Indonesia (Unhi). The lofty ideals of *Parisada Hindu Dharma* can be realized two years later on October 3, 1963, coinciding with the day of *Purnama Kartika* (*Purnama Sasih* 4th). On this historic day was born the first Hindu Religious Higher Education Institution in this archipelago. *Purnama Kartika* is always associated with the beauty of the atmosphere, the flowers are blooming, the smell of scent spread everywhere, natural beauty condition that is sorely missed by the yogic literature.

HEALTH WATER

The sanctity of *Campuhan* is very much felt by the people, a variety of religious activities carried out in this place both large and small scale such as, *ngangkid, nganyut, melukat*, and other spiritual activities related to health, especially the health of mind. Religious people give great attention to the existence of this water that should be preserved by all the people of today. The

cosmic vibrations of the universe that emanate through this camp is very beneficial to the Hindus, which is why people choose certain days to do that. People who do not just the Hindus but the other people also do and the business including tourist also do it.

This phenomenon reminds us that the civilization of water has been built by our elders since ancient times, he is very respectful of the nature of water, and in the implementation of life always give attention to the existence of water, Hindus in various religious activities always give attention to the existence of water. In order for the sanctity and cleanliness of the mixed water to remain awake, Maharsi Manu (*Manawa Dharmasastra*, IV: 52) reminds us: “*should not spit, urinate, and feces into the river water. Nor should it throw dirty words into the river, nor blood, poison, and other dirt*”.

Nevertheless, the rapid development of the population demands increased water supply, the increasing water demand also causes the water quality to decline. It is in this mixed area that it contains many interests of society, state and government, hooks linking each other to it. The area as well as the sacred place has in fact become a source of unresolved conflict, the conflict which then arises also because of the different views of the natural area. The view of eco-biocentrism that holds the principle of diversity of cultural values and ecosystems is opposed to the view of “shallow ecology” which is widely embraced by modernist “enlightenment” notions, humans apart from the natural environment, because humans have their own environment (anthropocentrism).

In the course of this never-ending conflict the paradigm of mastering, subjugating nature much more quickly develops in the model of society’s view than the paradigm of protecting, being friendly, conserving nature. Humans position themselves to control nature, modern humans see that nature can provide all human needs without any limit. The further impact of such paradigm development is that everywhere natural wrath such as floods, droughts, hurricanes, erosion / abrasion, fire, disease outbreaks that are principally caused or, are feedback from human activities (anthropogenic).

Awareness that nature is our best friend, we must return to the local wisdom that has guided our attitudes and behaviors so long as it deserves the attention, so good thoughts and ideas always come from the shrine. Waterfalls have a very important function and meaning for Hindu societies, various religious ritual activities, healing rituals performed in this elected place. Places of worship (*temple*) *Sad Kahyangan*, *Dangkahyangan*, *Swagina*, territorial to a genealogical temple were erected at the site with various rituals of worship done which led the community to be prosperous and prosperous. In the literary text (Rg Weda, 8.6.28) is mentioned; “*Upahware girinam samgatha ca nadinam, dhiya wipro ajayata* (In a quiet place (*upaware*), in the mountains, and at rivers meetings (*campuhan*) are the rulers are maharsi (wise) to get clear and pure thinking. A serene sanctuary, where there are so many religious activities practiced from *melukat*, *nganyut*, *tirtayatra* (holy water trip), meditation to healing/healing activities, this place really provides the energy of life for humans.

The Maha Rsi had always held a holy journey to these water meeting places, he held *tirtayatra* as well as doing literary yoga, *darmayatra* (holy trip) and *dharmatula* (discussion/dharma talk) with the community on various issues of human life. In the historical record of religion in Bali recorded Rsi Markandya, Mpu Kuturan and Dang Hyang Nirartha are very concerned about this

sanctuary (*campuhan*), because in this place he got the idea, the holy mind to make Bali is a holy island.



Figure 1 and 2. *Campuhan*

In this context he positions the natural environment as a part of human life, humans are part of the natural environment, humans are part of the cosmos, and humans must always keep to be sustainable (eco-centrism).

Benefits if we bathe in water *campuhan* then mala-mala contained in us will be cleaned, pregnant women are also good bathing in the water mixed because the child who was conceived will be born with healthy and holy, as well as for those who get the stuttering disease should be bathed, For those who have nightmares should also bathe into *campuhan*, and those who get the disease *buduh* 'psychosomatic' should be taken to *campuhan* to be bathed on the full moon and on the day *Kajeng Kliwon*. For women who are coming months / menstruation is prohibited to bathe in *campuhan*. The more streams meet then the place is certainly good for healing.

ETHICS CONFLICT IN DEMAND

However, in this era of modernity the ethos of eco-biocentrism is faced with the ethics of "shallow ecology" which is widely embraced by modernist ideals of "enlightenment", humans apart from the natural environment, because humans have their own environment (anthropocentrism). Another view that also agrees with the anthropocentrism view is the view of existentialism. According to this understanding, man and nature are separate from one another, thus bringing this understanding towards homelessness, alienation and isolation in the context of human and natural relationships (Barry, 1999: 84). The separation and alienation of man from the natural world is the condition of modern man. Modernization and modern society have created a world that is meaningless, which is indifferent to humanity and human destiny. Existentialist beliefs are a very anthropocentrism and thus its thinking is focused on human understanding of human life in society with little reference to public relations and the environment. Such existentialist ideas are then used by critical social theorists to read and analyze modernity on a practical level (Awang, 2006: 35).

Modernism brings us face to face with the notion of eco-centrism that we run all this time. In the present era many efforts have been made in this *campuhan* area to meet the needs of profane

human beings, ranging from hotels, villas, restaurants that simply make the distance with the *campuhan* (anthropocentrism). Water that flows in this camp is getting dirty because the waste is discarded arbitrarily by humans, in the understanding of human modernity as an actor who can regulate nature, making distance with nature. Understanding to create a sacred place in the mountains, sea, rivers, *campuhan* that we have been running in Bali has also been snatched by the construction of recreational places, hotels, restaurants that movements more disciplined, sophisticated and capital large. We are not surprised that the *campuhan* sanctuary has become an area for politics, debating worldly matters. The arena of our shrine is really used to debate, the conflict between eco-centrism and anthropocentrism.

CONCLUSION

Breaking up the habitus that has grown so great in society must be done with the moral movement, sanctions, and efforts of the authorities. Maintaining the quality of water mixed so that still can be utilized by humans who are born lately is a very important business for us who live today. These efforts can be started by not throwing garbage, dirt and other pulpits carelessly to the *campuhan*. Socialize to the next generation to be able to understand and believe how kasiat water *campuhan*, this is an effort in the learning process that can be done continuously, both at home, school and community. These glorious efforts must be based on the attitudes and behaviors of *nekengtwas*, *lascarya*, *tan wirosa mawang rodra*, *tan ujar angangsul mawang wakcala*, and so forth attitude and other noble behavior. So much of the activity of the youth is done during the holy day of *Galungan*, from the activity of worship, activity in *Bale Banjar*, then not lose and should be run is when the *Galungan* village children come to the *campuhan* to take bath, to offer the *canang* 'offering' because where they get ideas and sacred thoughts.

References

- Awang, San Afri. 2003. *Politik Kehutanan Masyarakat*. Yogyakarta: Center for Critical Social Studies (CCSS).
- Dharmika, Ida Bagus 2007. *Kearifan Lokal Masyarakat Desa Adat Tradisional Dalam Pengelolaan Hutan* (laporan penelitian hibah bersaing). Denpasar: Fakultas Ilmu Agama Unhi.
- Clifford Geertz. 2003. ***Pengetahuan lokal***. Yogyakarta: Rumah Penerbit.
- Suatama, Ida Bagus. 2004. *Fungsi dan Makna Air Dalam Penyembuhan Adhyatmika Duhka Kajian Teologi dan Tradisi Hindu di Bali* (Tesis). Denpasar: Program Magister (S2) Unhi.
- Sonny Keraf. A 2002. ***Etika Lingkungan***. Jakarta: Penerbit Buku Kompas.

HUMANISTIC EDUCATION CAN REDUCE STUDENTS' STRESS

Ni Made Indiani

indianimade@gmail.com

Hindu Indonesia University

Abstract

The content of the school curriculum in Indonesia is congested and felt burden to students. A student who just attended school or stepped into a higher classroom usually feel stress. This because the conditions that is usually used to changed to a new condition that has not been known so often disturb the comfortable of students, then, lead to students' stress. Stress can be caused potentially by one's personal life, the environment, and the environment-life linkages. Positive stress will motivate students to be more active in learning while negative stress can make students get sick physically as well as psychological pain. The aim of this paper is to discuss how to overcome the stress which is experienced by students. The teacher should understand each student who has different abilities and has his/her own uniqueness. Therefore humanistic education is very helpful to decrease students' stress, namely by providing education and teaching them with joyful learning, giving full attention when learning takes place and surely supported by good facilities at school.

Key Words: humanistic education, stress, joyful learning, good facilities.

INTRODUCTION

The curriculum of education in Indonesia has several times changed from the so-called curriculum 75, curriculum 84, Competency Based Curriculum (KBK), and curriculum 13. Substitution of the curriculum aims to make quality improvements in accordance with the demands of the times and achievement models embodied in the form of learning is also different. Variations of learning models that are packaged and implemented by every educational institution to make the parents must be clever to choose schools not to get caught in the campaign labeled international as it is called international school. Often we also hear that kindergarten children should be able to read, write, and count, so that many people protest that childhood (kindergarten students) is the period of children to learn to know new friends, to know their teacher, the school and the environment around the school. Regulatory changes, school policies, or class turnover, turnover of friends, etc. often lead to stressful children, who initially only recognize the home environment, and are introduced to a rather broad environment of school and school environments that are very dynamic. The process of education does not occur in a vacuum, but takes place within a certain environment that is the educational environment. There are three kinds of educational environments, the home environment which is often referred to as the first environment, the school environment as the second environment, and the community as the third. Educational

interactions that take place in schools are influenced by the school environment, but the home and community environments still have an impact, even though not directly. If the child is not ready to face changes in the situation from the first environment, to the second environment or the third environment, there will be changes inside the child in the form of symptoms of insomnia, abdominal pain, headaches and even no appetite. Deterioration in health of students may affect learning ability and academic performance as well as goal achievement (Aldubai,et.al. 2011). These are often called stress.

The prevalence of perceived stress seems to be high among medical students, which tends to affect not only their academic performances but also all aspects of health (Shaikh, B.T.et.al.2004).

Stress can be experienced by everyone whether he is a man, woman, old, young, worker, manager, housewife, teacher, student and others. A person can experience stress due to a new atmosphere in his life. In other words, many people do not like the changes because the security and comfort are disturbed, further more, the changes come suddenly and unprofitable in a certain time. However, time goes on and the process of completion of a job demands a better result and good in quality. Then, stress is discribed as the experience of opportunities or threats that people perceive as important and also perceive they might not be able to handle or deal with effectively (George George and Jones, G., 1996).

DISCUSSIONS

The Nature of Stress

Stress can be experienced by someone because of the opportunities and threats that can not be solved effectively. Opportunities can also cause stress because they can not meet the targeted demands, while the feeling of being threatened causes one to lose the opportunity to move to a better place due to the limited ability both knowledge and skill. Previous researchers have found high levels of stress among medical students. The overall prevalence of stress was 31.2% in 3 British universities, 41.9% in a Malaysian medical school, and 61.4% in a Thai medical school (Aldubai,et.al. 2011). Thus stress can arise because of different point of view of each person. On the other hand stress can also encourage a person or increase a person's motivation that has a positive impact on behavior. For example, someone who waits for a reward for winning an Olympic race, then this positive stress will drive him to improve his performance to be even better. Meanwhile, if a student experiences stress due to failure or disability then this negative stress can be dangerous if not dealt with immediately. The description may be illustrated as inverted U as shown in Figure 1 below.

Speaking of the problems of education and stress experienced by students, it can be said that stress according to George and Jones, (1996) can be sourced from: 1) inside individuals (personal stressors); 2) work or school (job-related stressors); 3) individual relationships as group members or members of school organizations (group and organization-related stressors); 4) and stress can also increase from the relationship of individuals (students) to the living environment as a whole (work-life linkaged). Personal stressor can be caused by personal problems such as those related to daily physical and emotional activities, such as sudden changes in schedule, substitute lessons

An Inverted U Relationship between Stress and Performance

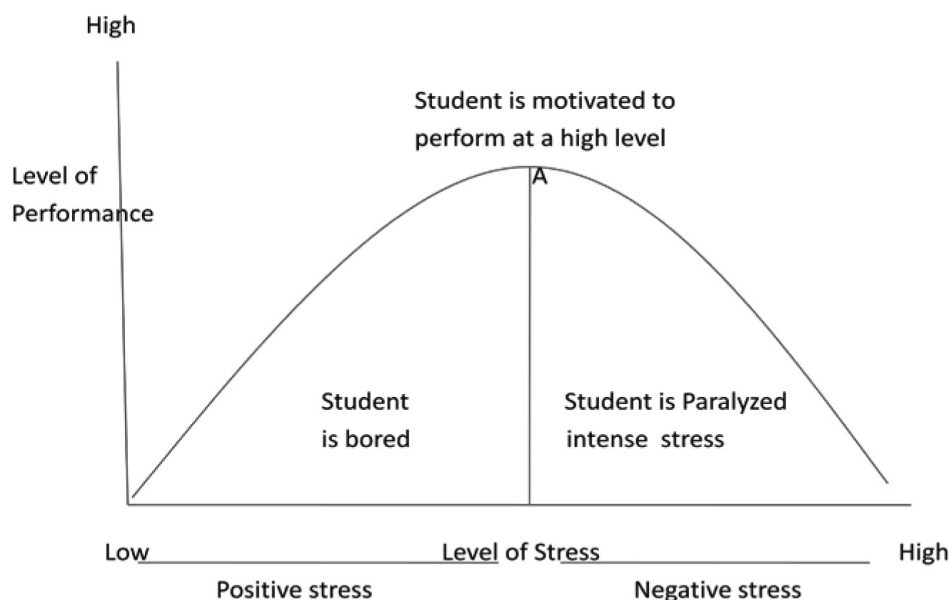


Figure 1. Relationship between stress and performance (George and Jones, 1996).

and the like. Stress which is experienced by students can lead to changes in behavior, attitude, or daily performance in school. Job or (schooling) related stressor can be caused by confusing school regulation, uncertainty, too many tasks, or less assignments sometimes make students get bored, uncomfortable classroom, the pressure to earn good grades. Group and organization –related stressor can be caused by differences in language, culture (cross culture understanding) resulting in misunderstanding and often resulting in conflict between friends. While stress may be arising from the relationship between work / school and student life linkaged can be a dilemmatic situation between school tasks and tasks at home or with other activities making it difficult for him to find a solution.

Humanistic Educations

Educational interactions that take place in schools have been planned systematically and thoroughly in a curriculum. Because of such a plan, then the interaction of education in schools referred to as the interaction of formal education. The interaction of education at home and society is called informal and non-formal education. Teachers as formal educators in schools are not only required to understand the development and ability of students, but are also required to understand the entire educational situation.

The interactions created in conditions of educational situations must be in accordance with the psychological condition of the students and also the educator. The interaction of home education differs from that in school, the interaction of children with teachers at the primary school level is

different from that at the junior high school level. The psychological condition of each individual is different, because of his or her developmental level, his socio-cultural background, as well as the factors brought from his birth. Psychological conditions can be interpreted as conditions of human psychophysical characteristics as individuals, expressed in various forms of behavior in their interactions with the environment (Sukmadinata, 1998). Similarly, each student's intelligence is also different. Slavin (2008) explains briefly that intelligence is the ability to deal with abstractions, problems solving and learning.

Starting from the diversity of students in one school, a teacher should carefully choose the methods and techniques of learning in the classroom to make teaching learning process more colourful, joyful and not make students get stress because of too much burden subjects matter and bring home a homework. Education from a humanist perspective will focus on the development of logic, independence, empowerment, creativity, skills, and attention to interpersonal relationships. Respecting differences and democracy are humanistic ways to co-exist as living beings (Veugelers, 2011). Educators and education personnel in schools need to provide a safe and humane atmosphere, and according to Aloni (2011), the importance of successful educators to build interpersonal trusts, to make students feel that teachers are always around to guide them and pay attention to student development achieved at school. Without this trust, the student will assume his teacher is a stranger, enemies, and even hated so that he will automatically hate his subjects as well.

Purkey and Novak (1996) say that education will invite success if the way of thinking and doing is based on the belief that: 1) the students have the ability, the value, responsible, therefore should be given treatment in accordance with the portion; 2) learning is a collaborative activity and cooperation between students and teachers; 3) a process is the product of an activity; 4) students have unlimited potential; The potential will have the best results if there are places, policies, programs and processes that are designed by professional people intensively and effectively. Basically the idea of humanism refers to the virtue of human values, that is, to place a rational individual in his high position and as the source of the ultimate value. In Aristotle's view (Sonhadji, 2012) human beings perform rational activity and every rational activity has a certain purpose or goodness.

One way to be able to implement humanist education is constructivistic learning, namely by giving students freedom to interpret events, objects, or by linking to reality, the reality surrounding them. Thus learning will be fun and meaningful because it is unique and individualistic. Constructivist learning puts more emphasis on process. Freedom is an important element in the learning environment (Degeng, 1998). Constructivist teaching will promote diversity through the structuring of a fun, contextual and meaningful learning environment. Students have a learning achievement goal in their own way. When referring to Carl Rogers's opinion that the function of the teacher is as a learning facilitator preparing a learning situation that leads students to fun but meaningful learning; Students can learn how to learn. Stimulus can come from outside but the initiative to learn and to find something come from the students, not on the target set by the teacher. The role of teachers is to hone students' intellectual and emotional intelligence. Teachers should have empathy, caring for, prizing students, authentic, and genuine in the classroom. If teachers are ready to assist students as motivators, tutors, then the students feel safe and can learn with pleasure so that the level of stress experienced may reduce even disappear.

School Facilities and Infrastructure

In detail has been explained about the facilities and infrastructure in Permendiknas No. 24 of 2007 or Government Regulation of the Republic of Indonesia no. 19 of 2005 on National Education Standards concerning facilities and infrastructure as stipulated in Chapter VII Article 42 that 1) Each educational unit should equip facilities which consist of educational equipment, educational media, books, and other learning resources, consumables and other equipments to support learning process regularly . 2) Each educational unit is required to have infrastructure such as land, classroom, leadership room, educator room, administrative room, library room, laboratory space, workshop room, production unit space, canteen, power and service installation, gymnasium , places of worship, recreation room, and other space / places needed to support a regular and continuous learning process.

By trying to fulfill the facilities and infrastructure required by the government, there are adequate facilities that can help, educators / teachers in digging the potential, talents and interests of hidden students so as to create a conducive academic climate. In addition to designing enjoyable learning, facilities in the form of facilities and infrastructure of adequate and ready-made schools, then an educator able to guide, direct, deliver and develop the potential students as optimal as possible, including to help students who has been already experiencing stress due to pressure or changes came from personal stressor, schooling related stressor, or others. Stoops, et.al (1980) says that the existence of school is helping to maximize students' potential, but students can not develop their full potential if schools ignore their health problems. Therefore schools should improve the nutrition and health conditions of students by providing clean, healthy, and clinical / UKS canteen facilities equipped with medics such as doctors and psychologists or Counseling Guidance. Sports facilities and recreation room, places of worship are also very necessary to support the physical and mental health of students.

How to Overcome Stress

It is important for a teacher to pay attention to the academic and non-academic progress of every student in his class, including the problems faced by the students that result in delays in achievement. One way is to listen to their stories, listen to complaints, and also the problems they are facing. According to Arifin (2010), when we listen, especially in a professional capacity then we are trying to meet the needs of others to be understood. Furthermore Robbins (2002) explains that ... as an active listener, you try to understand what the speakers want to communicate rather than you want to understand. Finally as an active listener, you take responsibility for completeness.

The strategy to overcome the stress according to George & Jones (1998) there are two namely: 1) problem-focused coping strategies that is the steps people take to deal with the stress of the stress. If the cause of the problem is already known by the individual the following step is, focus on : a) the time management, reschedule daily activity short term as well as long term; b) getting help from a mentor, can be effective problem-focus coping strategy for dealing with stressor such as role conflict, role ambiguity, overload, underload, challenging assignments and promotions; c) doing role negotiation, can also be effective means of problem-focus strategy for students who are stressing due to work - life linkages. While the problem - focused coping strategies

by organizational can be readiness to help students who are experiencing stressful, for example by giving more attention, to redesign vision and mission of the school (if it is necessary), provide a certain role, joyful learning, group discussion, decrease assignments, enough homeworks. This is a school management effort to deal with students who feel stressful so often experience disruption in achievement.

Other way to deal with stress with 2) emotion - focused coping strategies, means that the individual who is experiencing stressful should adjust his / her emotions by doing a) exercises; b) meditation; c) social support; and d) clinic counseling. While participants of the school as organization will provide facilities such as, preserve sport facilities, meditation room, give enough time to have gathering, and also consultation room to do counseling.

CONCLUSIONS

- 1) Stress can be experienced by someone if opportunities and threats can not be managed effectively. Stress is an individual experience and it depends on a somebody's point of view, perception, ability and experience that can result in physical pain, psychological, and behavior. Potential stress sources are individual personal life, work / school, relationships with the organization (school), and relationships with the overall environment associated with the individual.
- 2) How to deal with stress can use the approach (1) problem-focused coping strategies with a) individual way: that is self-conscious with time management, asking for help from senior or mentor, and negotiating. b) the organizational way of the school preparing strict rules, certain, a reliable teacher, humanist, take care of joyful learning, pay attention or listen to student learning problems, the provision of adequate facilities and infrastructure. (2) emotion - focused coping strategies with a) individual ways: ie they should be more likely to do exercises, meditation, social support, and clinic counseling. b) organizational way ie the school management should prepare good and complete classroom, the sports room, meditation room, place of worship, and also prepare counseling guidance.

Acknowledgements

I say many thanks to God -Ida Sanghyang Widhi Wasa-, this short article entitled Humanistic Education Can Reduce Students' Stress can be completed in accordance with the time set by the international seminar committee. This paper is very short and limited, therefore criticism and suggestions for the completion of the contents of this paper is highly recommended. Acknowledgments are conveyed to the Rector who has a brilliant idea to organize this seminar and I also appreciate to the seminar organizers (the committees) who have contributed to the successful implementation of international seminar on June 10, 2017 at Universitas Hindu Indonesia Denpasar Indonesia.

References

- Aldubai, S.A.R. et.al. 2011. Stress and Coping Strategies of Students in A Medical Faculty in Malaysia. *Malaysian Journal of Madical Sciences*. July-September; 18 (3) 57-64.
- Aloni, N. 2011. Humanistic Education: From Theory to Practice. In Veugelers, W. (ed) *Education and Humanism. Linking Autonomy and Humanity*. Sense Publishers. Rotterdam/Boston/Taipei.
- Degeng, I.N.S. 1998. Mencari Paradigma Baru Pemecahan Masalah Belajar Dari Keteraturan Menuju Kesemerawutan. Pidato pengukuhan Guru Besar dalam Bidang Ilmu Teknologi Pembelajaran pada Fakultas Ilmu Pendidikan. Disampaikan pada Sidang Terbuka Senat Institut Keguruan dan Ilmu Pendidikan Malang. 30 November 1998. Dalam *Kumpulan Pidato Pengukuhan Guru Besar Universitas Negeri Malang*. Jilid 1. Pendidikan, Pembelajaran dan Manajemennya. Malang: Universitas Negeri Malang.
- George, JM & Jones, GR. 1996. *Understanding and Managing Organization Behavior*. United States of America: Addison-Wesley Publishing Company.
- Harper & Row. 1977. *Carl Rogers And Humanistic Education*. (On line). www.sageofasheville.com/pub.
- Peraturan Pemerintah Republik Indonesia No.19 Tahun 2005 tentang Standar Nasional Pendidikan.
- Permendiknas No. 24 Tahun 2007 tentang Sarana dan Prasarana Untuk SD/MI, SMP/MTs/SMA/MA.
- Purkey, WW. And Novak, JM. 1996. *Inviting School Success: A Self-Concept Approach to Teaching, Learning, and Democratic Practice*. Third Edition. (on-line) <http://eric.ed.gov/?id=ED387459>.
- Robbins, S.P. 2002. *The Truth About Managing People And Nothing But The Truth*. Prentice Hall
- Rood, J. 2010. *Leadership in Early Childhood*. Terjemahan : Arifin. Kepemimpinan Paud. Yogyakarta : Aditya Media.
- Shaikh, B.T. et.al. 2004. Students, Stress, And Coping Strategies : A Case of Pakistani Medical School. *Education for Health*. Vol.17 No.3 November. 346-353.
- Slavin, R.E. 2008. *Psikologi Pendidikan. Teori Dan Praktek*. Edisi Kedelapan. Jakarta: PT Indeks.
- Sonhadji, A. 2012. *Manusia Teknologi, dan Pendidikan Menuju Peradaban Baru*. Malang: Penerbit UM Press.
- Sukmadinata, N.S. 1998. *Prinsip dan Landasan Pengembangan Kurikulum*. Jakarta: PPLTK.
- Veugelers, W. 2011. Introduction : Linking Autonomy And Humanity. In Veugelers, W. (ed). *Education in Humanism. Linking Autonomy and Humanity*. Sense Publishers. Rotterdam/Boston/Taipei.

SCREENING FOR EXOPOLYSACCHARIDE - PRODUCING LACTIC ACID BACTERIA ISOLATED FROM GOAT MILK

N.W. Nursini¹, I.B.A.Yogeswara²

nursini_2811@yahoo.com¹

Faculty of Health Science and Technology, Dhyana Pura University^{1,2}

Abstract

The aim of this study was to investigate lactic acid bacteria isolated from goat milk as an exopolysaccharide – producing bacteria. In this study 84 LAB isolates are gram positive, negative catalase, homofermentatif and cocci cell shape. Eighty four isolates were grown in Sucrose Yeast Extract Peptone (SYP) which is a modified medium from Glucose Yeast Extract Peptone (GYP), where glucose in medium is substituted with sucrose. The formations of EPS were observed in the surface of the medium which is indicated by ropy phenotype around the colony. The diameter of the ropy phenotype was measured using calipers. Four LAB isolates were able to synthesized EPS are GMB 28, GMA 13, GMC 9 and GMC 12. Ropy EPS derived from four isolates have a yellowish – colored, transparent and feculent, with an 11-98 mm of diameter.

Keywords: lab, goat milk, exopolysaccharide

INTRODUCTION

Exopolysaccharide (EPS) is a polysaccharide produced and excreted from microbes. EPS has long been reported to have potential for applications in the pharmaceutical, health and food industries. Some EPS that has been widely used in the field of health include β -glucan, β -mannan, xanthan, curdlan, gellan and dextran. Xanthan and dextran are two examples of EPS that has been a commercial product for many years. In food, EPS has the benefit of being a stabilizer, thickener, emulsifier, gelling agent, and has good water binding ability so as to keep the texture soft for storage (Malik *et al.*, 2008; Patel *et al.*, 2012).

Some types of BAL can synthesize exopolysaccharide (EPS) which is a polysaccharide polymer secreted by cell-derived microorganisms. Generally EPS is produced by LAB group *Lactobacillus*, *Streptococcus*, *Leuconostoc* and *Lactococcus* (Paulo *et al.*, 2012; Ibarburu *et al.*, 2015). This biopolymer is composed by one type of monosaccharide (homopolysaccharide) and some are composed by two or more monosaccharides (heteropolysaccharides) (Mozzi *et al.*, 2008).

Exploration of EPS-producing BAL is increasing, because by producing EPS is one of the antioxidant activity performed by probiotic bacteria in order to maintain the balance of intestinal microflora in the gastrointestinal tract. If the balance of intestinal microflora is disturbed, then the balance between free radicals and antioxidants is also disrupted whose impact is oxidative stress

(Basileios *et al.*, 2011). Several studies have been conducted in this regard, among others, Mende *et al.* (2011) states *Streptococcus thermophilus* produces EPS which is utilized through a fermentation process. *Lactobacillus* spp isolates of Sumbawa horse milk produced EPS which was utilized by *B. breve* JCM1273 (Sujaya *et al.*, 2012). Feldmane *et al.*, (2013) states that EPS produced by stater in yogurt can improve the texture, flavor and pH of yogurt. Prasanna *et al.*, (2013) states that stater-producing EPS helps maintain yogurt shelf life. Patel and Prajapati (2014) suggests EPS can be isolated from various sources, one of the benefits in processing food products is derived from the BAL, because it is safe to consume. Based on the above description can be seen the importance of natural EPS utilization in food products that can be derived from BAL, it is necessary to conduct research that aims to explore the potential of BAL capable of producing EPS from various source.

MATERIALS AND METHODS

Microorganisms, media and growth conditions

The microorganism used in this study is a collection of UPT. Laboratory of Biosciences and Biotechnology, Udayana University which is isolated from goat's milk. Screening EPS lactic acid bacteria was grown on MRS broth, MRS agar and GYP (glucose, yeast extract and peptone). Growth of LAB is done at 37°C for 24-48 hours.

Confirm Lactic Acid Bacteria Isolated from Goat Milk

The LAB confirmatory test was performed by catalase test, gas production test of glucose and morphology metabolism results. The catalase test was taken with 1 ose, made smear on the object glass, dropped with 2 drops of 10% H₂O₂, and observed gas bubbles formed on the preparation. Positive results are shown by the formation of oxygen gas bubbles resulting from the degradation of H₂O₂ by catalase enzymes (Hadioetomo, 1990, Soemarno, 2000). Lactic acid bacteria gives negative results on this test (Sujaya *et al.*, 2008).

The gas production test of the glucose metabolism results is carried out with a hot needle (*hoot-loop*) inserted into the suspension of LAB isolates on MRS broth media. Positive results are shown by the formation of carbon dioxide gas resulting from glucose metabolism (Sperber and Swan, 1976). The homofermentative LAB gave negative results in this test, whereas heterofermentative LAB showed positive results in this test (Sujaya *et al.*, 2008a).

The morphology of LAB isolates can be known by gram staining. Lactic acid bacteria isolates were taken 1 ose needle removed on the object glass, fixed on bunsen fire, and waited until dry, then gram stained with gentian violet, lugol, alcohol and safranin, dried over with suction paper without rubbing the dosage, and observed under a microscope with 1000x magnification. Gram positive bacteria appear purple, while Gram-negative bacteria is red under a microscope. The LAB group is a Gram-positive bacteria, which binds gentian violet dye very strongly and looks purple in a microscope (Lay, 1994).

Screening of EPS- Producing LAB

Screening of EPS producing by LAB using Sucrose Yeast Extract Peptone / SYP medium is a modified Glucose Yeast Extract Peptone / GYP medium (Kozaki, *et al.*, 1992) in which the

use of glucose is replaced by sucrose. The composition of the medium is as follows: 20.0 g/L sucrose; 10.0 g/L yeast extract; 10.0 g/L peptone; 5.0 g NaCH₃COOH.₃H₂O; 5.0 ml of a mineral solution containing (per ml): 40.0 mg MgSO₄.7H₂O; 2.0 ml MnSO₄.4H₂O; 7.0 mg FeSO₄.7H₂O; 2.0 mg NaCl; 10.0 ml of a solution containing 50.0 g/L Tween 80 and 12.0 g/L agar (Kozaki, *et al.*, 1992). Medium is sterilized by autoclave at 121°C for 15 minutes, then the media is poured into a sterile petri dish. Pre-prepared lactic acid bacteria of goat milk isolates were washed with 0.85% NaCl solution twice, then inoculated using straight ose into agar medium (modified GYP medium). The inoculated medium was then incubated in the incubator for 24-48 hours at 37°C and observed the formation of EPS on the surface of the media to be marked by ropy formation around the colony. The ropy diameter is measured by the sliding term (Sujaya *et.al.*, 2012).

Data analysis

The data obtained in this study were analyzed descriptively and presented in the form of tables and drawings.

RESULT AND DISCUSSIONS

Results of confirmation of EPS-producing LAB

Based on confirmation tests conducted from 103 isolates that existed before, only 84 isolates were alive. All isolates belong to homofermentatif with cell shape which is dominated by *coccus* form with single configuration, four and chain. The confirmation test results can be seen in Table 1

Table 1 Confirmation test for LAB

No.	Isolate	Confirmation test LAB			
		Catalase	Gas	Gram	Morphology
1	GMA 3, 4, 5, 6, 13, 15, 17, 19, 20, 46, , 47, 50	Negative	Negative	Positive	Coccus
2	GMB 1, 3, 4, 6, 7, 9, 11, 13, 15, 16, 18, 20, 21, 22, 23, 24, 25, 26, 28, 46				
3	GMC 4, 7, 19, 12, 16, 20, 22, 24, 25, 27, 28				
4	GMD 3, 5, 6, 7 8, 9, 11, 14, 15, 19, 20, 22, 25, 26, 27, 28				
5	GME 1, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30				

In the catalase test, all the isolates did not produce gas bubbles after they were dropped with H₂O₂ solution, and these results indicated that all isolates were negative catalases. This characteristic is a desirable characteristic, as it is one of the characteristics of LAB as reported by Suskovic *et al.* (2001) that BAL is a group of bacteria without catalase enzyme (negative catalase).

The catalase test is a test aimed at determining the ability of a bacteria to produce a catalase enzyme, the enzyme needed to break down H_2O_2 into water and O_2 (Ahmed and Kanwal, 2004).

The homofermentative lactic acid bacteria are a group of LAB that only produce lactic acid as a product in the fermentation process of sugar. While the heterofermentative group will produce other products, such as ethanol and CO_2 gas, in addition to lactic acid in the process of fermentation of sugar (Suskovic *et al.*, 2001). From the results listed in Table 3.1 it can be concluded that all isolates isolated from goat's milk were homofermentative LAB groups. Lactic acid bacteria commonly used for probiotics is a homofermentative group because this group in the sugar fermentation process mostly produces acid products (acetate and lactate) which have been known to inhibit the growth of pathogenic bacteria in the gastrointestinal tract (Sujaya *et al.*, 2008a). Cell morphology can be seen in Figure 1.

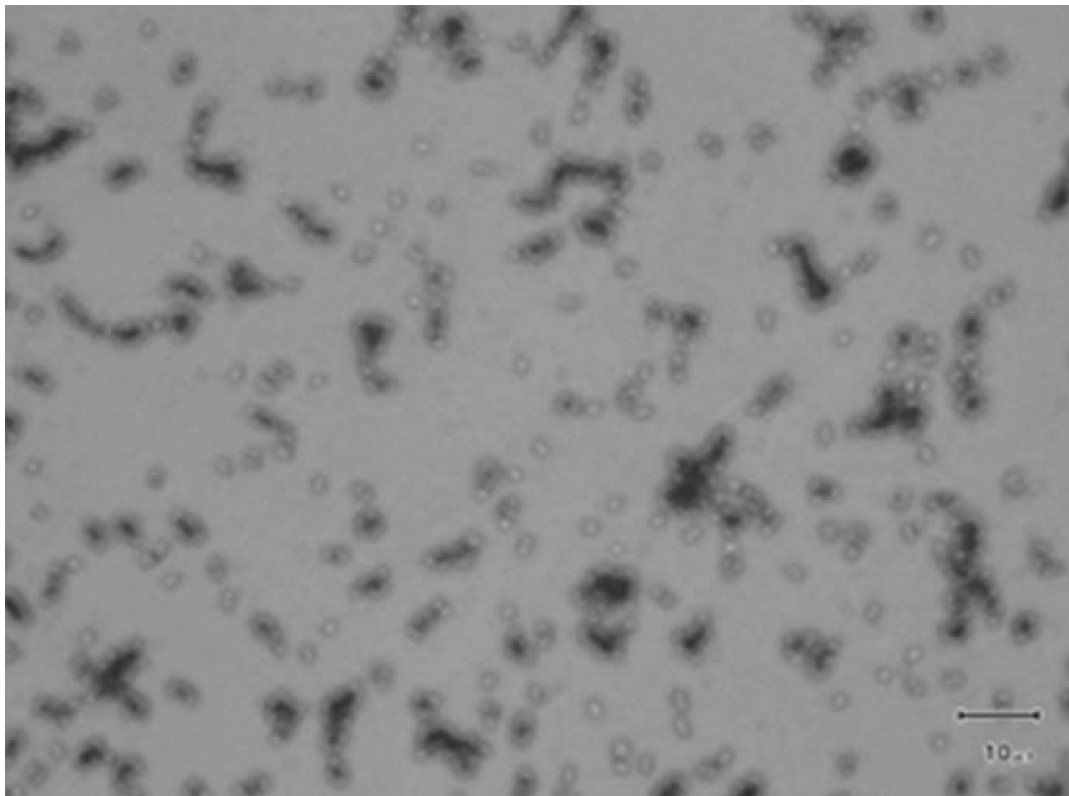


Fig. 1 Morphology cell

Results of EPS Screening

Based on the screening results from 84 isolates tested only 4 isolates produced EPS. The isolates are GMA 13, GMB 28, GMC 9 and GMC 12. The resulting EPS characteristics can be seen in Table 2 and Figure 2.

Table 2. EPS Characteristics of LAB Goat Milk Isolate

No.	Isolate	Characteristics
1	GMA 13	Ropy EPS derived a yellowish – colored, transparent, ropy covered the entire petri surface (diameter 98mm)
2	GMB 28	Ropy EPS derived a yellowish – colored, feculent, 11mm ropy diameter
3	GMC 9	Ropy EPS derived a yellowish – colored, transparent, ropy covered part of petri surface (48mm diameter)
4	GMC 12	Ropy EPS derived a yellowish – colored, feculent, ropy covered part of petri surface (48mm diameter)

Exopolisarida is produced by the microbes to the outer cells commonly found on the exterior of the bacterial structure. EPS is connected to a cell in capsule or ropy form that is present in the cell surface. EPS has wide varieties as well as complex chemical structures, and has antimicrobial properties. Exopolisakarida generated most of the microbes classified as heteropolysaccharide. Heteropolysaccharide itself has a different nature, the nature of the heteropolysaccharide depends on the monosaccharide composer and the bond between the monosaccharides. Heteropolisaccharides are synthesized with polymerisase precursors formed in cytoplasmic cells (Vijayabaskar *et al.*, 2011; Nudyanto and Zubaedah, 2015).

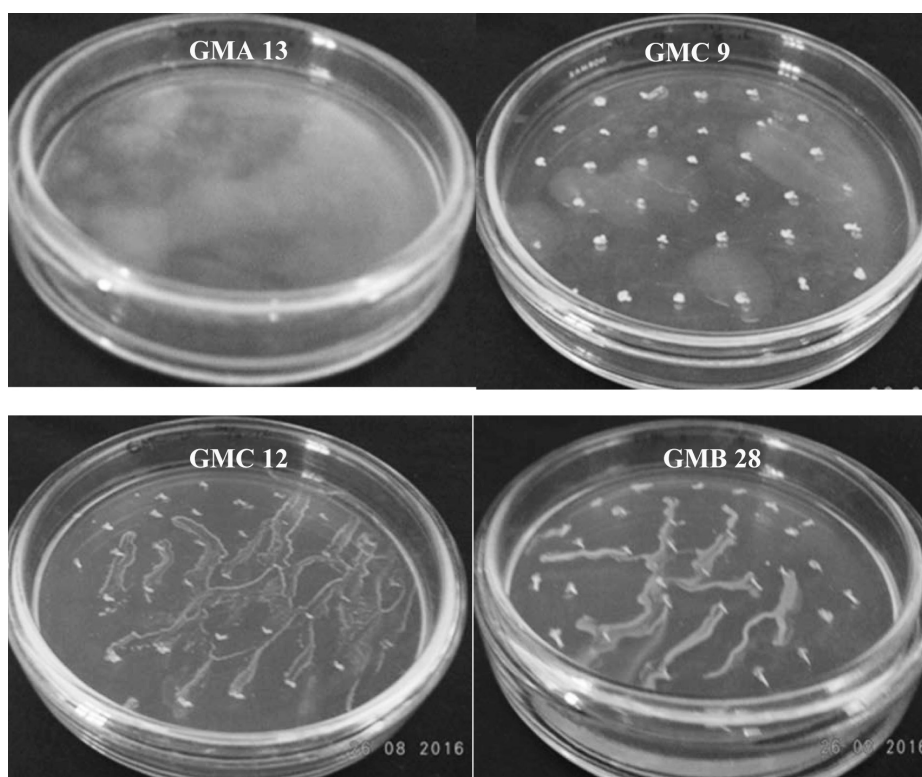


Fig. 2. EPS Characteristics of BAL Goat Milk Isolate

The differences between homopolysaccharide and heteropolysaccharide are not only reflected in the chemical nature and linkage bonds but in synthetic enzymes and site of synthesis. The precursor repeating units of heteropolysaccharide are formed intracellularly and isoprenoid glycosyl carrier lipids are involved in translocation of the precursors across the membrane for subsequent polymerisation extracellularly, whereas homopolysaccharides syntheses require specific substrate such as sucrose (Nwodo *et al.*, 2012). To know the exopolisakarida group and component of sugar composing the exopolysaccharide. is usually done more research.

CONCLUSIONS

Based on the results of the research, there were 4 isolates isolated from EPS producing goat milk. Four LAB isolates were able to synthesized EPS are GMA 13, GMB 28, , GMC 9 and GMC 12. Ropy EPS derived from four isolates have a yellowish – colored, transparent and feculent, with an 11-98 mm of diameter.

References

- Ahmed, T. and R. Kanwal. 2004. Biochemical Characteristics of Lactic Acid Producing Bacteria and Preparation of Camel Milk Cheese by Using Starter Culture. *Pakistan Vet. J.*, 24(2): 87-91
- Basileios, G., Spyropoulos, Evangelos, P., Misiakos, Constantine F., Christos, N., Stoidis. 2011. Review: Antioxidant Properties of Probiotics and Their Protective Effects in the Pathogenesis of Radiation-Induced Enteritis and Colitis. *Dig. Dis. Sci.*: 56: 285–294.
- Feldmane, J., P. Semjonovs and I. Ciprivica. 2013. Potential of Exopolysaccharides in Yogurt Production. *International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering Vol:7, No:8 p* : 424-426.
- Hadioetomo, R.S. 1990. *Mikrobiologi Dasar Dalam Praktek, Teknik dan Prosedur Dasar Laboratorium*. PT Gramedia. Jakarta.
- Ibarburu, I., A. I. Puertas, I. Berregi, M. A. R. Carvajal, A. Prieto and M.T. Duenas. 2015. Production and Partial Characterization of Exopolysaccharides Produced by Two *Lactobacillus suebicus* Strains Isolated from Cider. *J. Elsevier*, 214 : 54-62
- Kozaki M, Uchimura Y, Okada S. 1992. *Manual for isolation and identification of lactic acid bacteria*. Japan. Asakura Shioteng.
- Suskovic, J.B. Kos., J. Gorwta and S.Matosic. 2001. Role of Lactic Acid Bacteria and Bifidobacteria in Synbiotic Effect. *Journal Food Technology Biotechnol*, 39(3) : 227-235.
- Lay, B.W. 1994. *Analisis Mikroba di Laboratorium*. Jakarta: PT. Raja Grafindo Persada. hal: 33-35.
- Malik,A., D. M. Ariestanti, A. Nurfachtiyani, dan A. Yanuar. 2008. Skrining Gen Glukosiltransferase (GTF) dari Bakteri Asam Laktat Penghasil Eksopolisakarida. *Makara Sains* 12 (1) : 1-6.
- Mende, S., S. Thomas, C. Mentner, D. Jaros and H. Rohm. 2011. Addition of Purified Exopolysaccharides from Lactic Acid Bacteria Affects the Rheological Behavior of Acid Milk Gels. *J. Annual Transactions of The Nordic Rheology*, 19.
- Mozzi, F., E. Gerbino, G. Font de Valdez and M.I.Torino. 2008. Functionality of Exopolysaccharides Produces by Lactic Acid Bacteria in an in vitro Gastric System. *Journal of Applied Microbiology*, 107: 56-64.

- Nudyanto, A. dan E. Zubaedah. 2015. Bakteri Asam Laktat Penghasil Eksopolisakarida dari Kimchi. *Jurnal Pangan dan Agroindustri* 3 (2): 743-748.
- Nwodo,U. E.Green and A. I. Okoh. 2012. Bacterial Exopolysaccharides: Functionality and Prospects. *Int. J. Mol. Sci.* 2012, 13, 14002-14015
- Patel, S. , A. Majumder and A.Goyal. 2012. Potentials of Exopolysaccharides from Lactic Acid Bacteria. *Indian J Microbiol (Jan-Mar 2012)* 52(1):3-12. DOI 10.1007/s12088-011-0148-8
- Patel, A., J.B. Prajapati, O.Holst and A. Ljungh. 2014. Determining Probiotik Potential of Exopolysaccharide Producing Lactic Acid Isolated from Vegetables and Traditional Indian Fermented food Products, *J. Science Direct*, 5: 27-33.
- Paulo, M.E., M.P.Vasconcelos, I.S.Oliveira, H. M.J.Affe, R. Nascimento, I.S. Melo, M.C.A.Roque and S.A. Assis. 2012. An Alternative Method for Screening Lactic Acid Bacteria for The Production of Exopolysaccharides with Rapid Confirmation. *J.Cienc. Tecnol. Aliment*, 32 (4): 710-714.
- Prasanna, P.H.P., A.S. Grandison and D. Charalopoulos. 2013. Microbiological, Chemical and Rheological Properties of Low Fat Set Yoghurt Produced with Exopolysaccharide (EPS) Producing Bifidobacterium Strains. *J. Elsevier*, 52: 15-22.
- Sujaya, I.N., N.M.U. Dwipayanti., N.L.P. Suariani., N.P. Widarini., K.A. Nociantri., dan N.W. Nursini. 2008. Potensi *Lactobacillus* spp. Isolat Susu Kuda Sumbawa sebagai Probiotik. *Journal Veteriner*. 9 (1) : 33 – 40.
- Sujaya, I.N., N.P.D. Aryantini, N.W. Nursini, C.I.D. Cakrawati., N.L.M.E. Juliasari, N.M.U. Dwipayanti dan Y. Ramona. 2012. Eksopolisakarida dari *Lactobacillus* sp. Isolat Susu Kuda Sumbawa dan Potensinya sebagai Prebiotik. *Jurnal Veteriner* 13 (2) : 136-144.
- Vijayabaskar, P., S. Babinastarin, T.Shankar. 2011. Quantification and characterization of exopolysaccharides from *Bacillus subtilis* (MTCC121). *Adv. Biolog. Res.*, 62, 71-76.

NEW AGE TOURISM IN BALI: NATURE RELIGION AND SELF SPIRITUALITY

Dewa Putu Oka Prasiasa
oka.dewaputu@yahoo.com
STIMI Handayani Denpasar - Bali

Abstract

The New Age movement has grown to considerable proportions in recent years as people have become dissatisfied with traditional religion and as life in Bali societies has become too frenzied and materialistic. People have begun turning to alternative forms of spirituality and health that rely heavily on nature and self-transformation. Adherence requires inner transformation. These inward journeys are manifest in physical pilgrimages to ancient cultural sites, natural that are based on harvesting earth energies and mystical encounters with spirits and extra terrestrials areas, and spas or other healing destination in Bali, believed to be endowed with sacred powers that can cure the mind, body, and soul. These spatial-religious expressions are reflected in the tours purchased and guidebooks acquired. Owing to their status as centers of earth power or cosmic energy, several tourism destination in Bali have developed as major spiritual centers. Several tourism destination in Bali have emerged in recent years with the growth of this postmodern tourism. As a result of New Ager's reliance on indigenous culture and natural sites for their own spiritual pilgrimages, the most looming concerns are environmental degradation, commodification of culture, and commercialization of religion.

Keyword: healing, spiritual, postmodern, commodification, tourism destination

INTRODUCTION

Since the mid-twentieth century rapid modernization and technological growth in the western world have brought with them fast-paced consumer societies, where people get caught in a time crunch feeling stressed and burned out. Few people in the developed world have time to relax and appreciate nature, develop personal interest, and improve their mental and spiritual health (Lengfelder and Timothy 2000; Schor 1993). At the same time, for various reasons there has been a wave of dissatisfaction with some aspects of traditional organized religion, resulting in breakaway sects, changes in theological viewpoints, transformations of politico-religious view, and varying levels of adherence (Allitt 2003; Houtman and Mascini 2002). These two factors, the frenetic pace of contemporary life, and varying levels of commitment to traditional religion, have caused people to seek alternative lifestyles and spiritual worldviews, particularly in the Bali.

Several spiritual philosophies, or religious orders, focus not on an individual god or multiple gods, but rather channel devotion to the earth and the realm of nature. These so-called 'nature-

religions' or 'earth religions' advocate respect for the universe and harmonious human-ecology relationships (Hooper 1994; Ibrahim and Cordes 2002). Animism, the belief that spirits inhabit everything in nature (plants, minerals, air, mountains, water, earth, fire, and animal). Nature-based belief systems focus on human as part of nature, not separate from it. From this viewpoint, humans do not have dominion over the earth, should they control it. Instead, they are simply one part of a larger system where in all things on the earth, including the earth itself, interact, have spirit, live and are capable of feeling. Such belief systems are common in indigenous societies throughout the world and are believed to be one of the oldest forms of worship.

The New Age movement may be seen as both a form of nature religion and self-spirituality. It embraces the oneness of humanity, nature, and the cosmos and is essentially animist in perceiving that the earth and the cosmos are a live and conscious (Albanese 1990; O'Neil 2001). For New Age adherents, nature promotes spiritual growth and provides mystical oneness, mysteries beyond the ordinary, and transcendence beyond the limitations, structure, and laws of the physical world. According to Ivakhiv (1997) New Ageism is a way of gaining personal meaning in life and effecting self-transformation by living a simpler, more ecologically oriented lifestyle. New Agers endorse the use of chants, meditation, *yoga*, astrology, fortune telling, palm reading, channeling spirit beings, past-life regression, extraterrestrial communication, out-of-body experiences, acupuncture to achieve their goals of self-transformation and holistic living. The body is viewed in energy terms, and a healthy body will allow a free flow of life energy. It involves holistic, vegetarian, organic, and naturopathic approaches to eating and health care and criticizes conventional medicine.

This self-centered approach to spiritual living does not, as traditional religion does, bind people to larger social groups or require submission to a higher authority. In fact, according to Tucker (2002:50), "it does just the opposite ... New Agers mostly reject the social world and any kind of authority beyond the self." Tucker goes on to note that this worldview creates a fairly distinct demographic associated with the movement.

DISCUSSION

New Age Spirituality and Tourism

New Agers and nature and self-religionists comprise a major world market for tourism. Millions of New Age trips are taken every year and typically involve activities and tourism destinations that teach people to become more aware of themselves, spiritually tuned, and less materialistic. With the growth in New Age spirituality and the noteworthy levels of travel that follow, a growing number of tour operators have discovered this valuable market during the past twenty years. According to Associated Press (2002), likewise, several US States have begun to realize the potential economic impact of this lucrative niche and are trying to promote themselves as centers of spiritual energy and important tourism destinations for New Agers. For instance, they have attempted to lure travelers to the state's native and energy sacred sites to discover themselves and receive enlightenment.

As noted earlier, New Age travel is very place-oriented. During the counter-culture of the 1960s and early 1970s, many people began to adopt elements of mysticism and spiritual

philosophies, into their “alternative lifestyle.” A Strong interest grew in “earth mysteries,” including theories of sacred geography and geometry, which focused on powerful energies and unseen forces at ancient places. According to one perspective, powerful archeological site are aligned with one another, representing linear, prehistoric power line, which radiate earth’s energies. These ancient places “became important to some groups who viewed prehistoric monuments as living places imbued with sacred energy and not as relics from a completed past” (English 2002:8). New Age spiritualists, site of ancients ritual are among the most important tourism destination because they are believed to have been built in accordance to the energies of nature.

Essential to spirit travel is the “sacred site” -sometimes known as a “power place”- a spot endowed, for a variety of reasons, with a special dollop of genius loci. There may be mysterious geological features, such as artesian wells or anomalous currents, enchanted groves or cliffs with strange carvings. Perhaps Druid sorcerers are burried there, or Incan kings and queens, or Pythian sibyls, or a great saint or bodhisattva. Maybe there are pyramids, monasteries, dolmens, sacred serpent mounds. Whatever the reason, these site -including Delphi, the Egyptian Pyramids, Machu Picchu, parts of the American Southwest and the entire island of Bali, to name a few- are seen as cracks in the universe where the external is revealed (Hooper 1994:72).

New Age tourism is also uniquely defined by the activities and types of trips undertaken, combining many elements of cultural, religious, nature-based, and health tourism (Gee and Fayos-Sola 1997). Most New Agers are deep tourist in the sense that they do not simply go to see a place, lay out on the beach or take picture they participate and become part of the destination through meditation, prayer, and other rituals (Attix 2002; Ivakhiv 2003; Reisinger 2006; Timothy 2002). This is evident in tour packages that cater specifically to the needs of New Agers.

At least four types of New Age tours or activities can be identified: education, health, spiritual growth/personal development, and volunteer. Educational tourism, or “edutourism” as Strutt (1999) calls it, entails travelling for the purpose of learning and getting hands on experience. Many of these focus on photography, art, kayaking, gardening, weaving, music and dance, and studying ancient languages. These “alternative vacations” educate and allow people to develop specific skills and “are aimed at immersion rather than observation” (Strutt 1999:27).

Health holidays, or “holistic tourism” focus on activities such as *yoga* and spa treatments, nature hiking, reflexology, meditation, and aromatherapy. Unlike most forms of mass tourism that focus on escapism, holistic holiday emphasize getting travellers to engage with their inner selves and reconcile internal discord through deeper personal and spiritual experiences (Lange 2001; Smith 2003; Timothy 2002). These fitness and healing tours operate on the notion that good physical health leads to strong spiritual health (Cogswell 1996).

While all forms of New Age travel ultimately aim to increase spiritual growth, there are various types of journey that concentrate more overtly on the spiritual elements. Specific rituals and activities, such as attending seminar and workshop in Nusa Dua, praying with Besakih Temple, meditating in Candidasa, or undergoing a ceremonial death and rebirth inside one of the Matahari Terbit beach are common example. Package tour of a more spiritual nature are often guided by experienced New Age authors, or other revered persons and teach people to slip into deeper dialogue with nature, to receive earth’s powers and show the best way of live their lives. According Smith (2003), the fourth form of New Age organized travel involves volunteering in

service-oriented endeavors, primarily in the developing world. Teaching people to read, practice personal hygiene, build house, and grow vegetables are typical volunteer activities.

New Age Destinations

Ivakhiv (2003:99) suggests that New Age travelers can be divided into “mere tourist” and “genuine pilgrims,” the difference being that the mere tourist plan to return home rather quickly, while the genuine pilgrims drift from place to place, seeking longer-term spiritual connections. The latter form of New Age travel, Ivakhiv argues, gives rise to the development of networks of healing centers, spiritual communities, retreats, and places of New Age commerce. These “pilgrim-migrants” are an important part of the economic and social life of the community and outside of work spend much of their time hiking, meditating, seeing psychics and other spiritual counselors, chanting, channeling spirits, and conducting rituals inside stone circles (medicine wheels).

While not all tourists to Sedona are New Agers, many of the four million visitors each year are, and they seek out the same activities as the pilgrim-migrants who live there now. Allen (1999) refers to Sedona as the “New Age Lourdes,” and in popular lexicon it is commonly referred to as the “Capital of New Age Tourism”. According to Page Bryant, the famous Sedona psychic, vortexes are the “point at which energy currents meet or become coagulated into funnels of energy” (Ivakhiv 1997:373). Likewise, McGivney and Archibald (1997:46) describe vortexes as “natural power spots where psychic energy gushes from the earth like a geyser” and are usually manifested in areas “tremendous natural beauty created by the elements of land, light, air and water” (Andres 2000:12).

Tours in Sedona focus overwhelmingly on the vortexes and the potential for extraordinary/extraterrestrial experience (Ivakhiv 1997, 2003). The town is saturated with tour companies that offer four-wheel drive, off-road tour to sacred shrines, areas of intense energy flows, and mystic canyons. Likewise, dozens of businesses offer palm and tarotcard reading, past-life interpretation, spirit channeling, spas and naturopathic healing. Encampment activities include drumming circles, medicine wheel ceremonies, sweat lodges, and lectures by well-known New Age promoters and self-proclaimed shamans.

The New Age movement in Japan is known as “World of the Spiritual” and essentially follows the same practices and belief systems as those of North American and European New Age, although with slightly more influence from China and India. In tourism terms, followers of the World of the Spiritual also tend to travel in search of truth and spiritual enlightenment. While they do sometimes travel to other parts of the world, most of their worship takes place in Japan and other parts of East Asia. One example is Tenkawa Benzaitensha, a famous pilgrimage site of the World of the Spiritual and an old shrine located in the mountains of Yamato in central Japan. Like Sedona, it attracts thousands of spiritual mediums and psychics, eccentric artists, and young people on spiritual quests (Shimazono 1999).

Machu Picchu is a popular destination for New Agers from the world over who value its ancient role as a ceremonial site (as some scientists believe) and an abode of Inca high priests and holy Virgins of the Sun (Barnard 1993). New Age pilgrims believe that the white granite of Machu Picchu vibrates with earth energy. Meditation, ancient medicine rituals, fire ceremonies,

water purification rites, healings, and pipe ceremonies with indigenous leaders are among the most popular activities.

a. **Controversy in New Age Tourism**

Perhaps more than any of the other spiritual and religious worldviews discussed, the New Age faction has seen tremendous conflict and experienced the most controversy in tourism destination societies in Bali. The majority of this controversy has focused on the social impacts of New Age behavior and tourist activities. Such concerns have grown in spite of the movement's emphasis on social (e.g. cross-cultural tolerance). The root of the problem lies in the fact that the movement is so young, beginning in earnest only in the 1950s, and that it has no formal organizational structure at its roots. The group's relative youth, therefore, means that there are no sites New Agers can truly claim to be their own no ancient monuments, temples, or shrines built early on by adherents and passed down through the centuries. Neither are there areas of natural significance that are not already under the control of public land agencies, indigenous groups, or private individuals.

It is a common practice for New Age spiritualists to leave crystals, rock arrangements, fire remnants, candles, and other offerings at sites they consider powerful or sacred. In Sedona, medicine wheels are made by the faithful as a way to channel earth's energy, much to the dismay of the National Forest Service, which controls much of the land surrounding the town and which New Agers consider holy. This 'religious graffiti' (Ivakhiv 2003) or 'ritual litter' may contribute to the deterioration of cultural and natural sites. At some locations, the soil is rather thin above archeological relics, yet worshippers build fires on them. Likewise, candles are often placed too closely to heat-sensitive limestone (Powell 2003).

At most New Age venerated spots of archeological importance there have been problems associated with worshippers chipping away at the stones to take bits and pieces with them as sacred souvenirs. This is an especially severe problem at Pemuteran (Buleleng Regency) and Candidasa (Karangasem Regency), although some of the more influential believers are beginning to discourage this type of behavior. The biggest complaint, by the Balinese is the commercialization or commodification of their spiritual heritage for non-indigenous use and profiteering. Aldred (2000:330-336) provides a great deal of insight into the controversies surrounding the New Age utilization of Native American spiritual heritage. For example, New Age paraphernalia are now being marketed in mass quantities and promoted as 'Native American sacred objects.'

Many New Age shamans claim to be able to contact Indian spirits and perform Native rituals. They write best-selling books and lead expensive workshops and claim they can instruct people how to perform Native American spirituality, earning large sums of money, while many Native people still live below the poverty line (Aldred 2000). The commercialized practices of these self-proclaimed New Age shamans, or "Shake and Bake Shamans" or "Plastic Shamans," as they are derogatorily known to many Native Americans, are offensive, particularly when they claim to be "authentic." According to Aldred (2000:336) their claim is founded on the idea that everyone has a right to such tradition, because spirituality and truth cannot be owned. Spirituality is not something which can be 'owned' like a car or house. Spiritual knowledge belongs to all humans equally.

The final controversial element of tourism in this context relates to the commercialization of spirituality. Observance of New Age is underscored by a lifelong inner journey for spiritual health

and enlightenment, best realized through travel and consumption of various tourism product and services. As such, “seeking” which takes on a very physical and spatial form, is the primary mode of participation. Whereas in other religions, a church or other organization forms the structural element of spiritual life, in New Age practice, commercialism itself is seen as the organizational element that guides the New Age (Redden 2005). This, according Redden, is realized in material terms through the selection and consumption of commoditized goods and services through New Age Businesses, such as tour operator and merchandisers. Thus, the foundation on which New Ageism is based, involves the commercial promotion of ideas and practices. According Redden (2005) in words, spiritual products “be they objects or service (such as a weekend’s training), are sold for a fee.”

CONCLUSIONS

The New Age movement has grown to considerable proportions in recent years as people have become dissatisfied with traditional religion and as life in Bali societies has become too frenzied and materialistic. People have begun turning to alternative forms of spirituality and health that rely heavily on nature and self-transformation. New age religion is defined by a complex and distinctive assortment of activities, ritual, behaviors, and material cultures, borrowed from the ancient traditions of pagans, animists, indigenous societies, and other nature-and self-oriented creeds. This unique approach to spiritual systems manifest itself in various ways in the context of tourism.

Adherence requires inner transformation that are based on harvesting earth energies and mystical encounters with spirits and extraterrestrials. These inward journeys are manifest in physical pilgrimages to ancient cultural site, natural areas, and spas or other healing tourism destination, believed to be endowed with sacred powers that can cure the mind, body, and soul. These patial-religious expressions are reflected in the tours purchased, guidebooks acquired, tourist object and activities undertaken.

Owing to their status as centers of earth power or cosmic energy, several tourism destination in Bali have developed as major spiritual centers. The most visited among New Agers are Ubud (Gianyar Regency), Pemuteran (Buleleng Regency), Candidasa (Karangasem Regency) and are many other places that are equally important New Age Tourism Destination.

Several controversies have emerged in recent years with the growth of this postmodern tourism worldview. As a result of New Agers’ reliance on indigenous culture, archeological relics, and natural site for their own spiritual pilgrimages, the most looming concerns are environmental degradation, commodification of culture, and commercialization of religion.

acknowledgements

I would like to say thank you to Mrs. Dewa Ayu Diyah Sri Widari for support this research. Special thanks to Head of STIMI Handayani for facilitating this research, and Prof.Dr. I Ketut Suda, M.Si with information International Seminar in UNHI. Finally and more personally, we both would

like to thank our wife who have put up with our absences during the final months of the research preparation. Your patience and understanding are truly appreciated thanks for shouldering so much responsibility alone during our late nights on the computer.

References

- Albanese, C.L. (1990). *Nature Religion in America: From the Algonkian Indians to the New Age*. Chicago: University of Chicago Press.
- Aldred, L. (2000). Plastic Shamans and Astro turf sun dances: New Age commercialization of Native American spiritualily. *American India Quarterly* 24(3), 329-352.
- Allitt, P. (2003). *Religion in America since 1945: A History*. New York: Columbia University Press.
- Andres, D. (2000). *What is a Vortex? A Practical Guide to Sedona's Vortex Sites*. Sedona Arizona: Meta Adventures.
- Associated Press. (2002). New Mexico to unveil spiritual essence tourism campaign. *Arizona Republic* 14 April.
- Attix, S.A. (2002). New Age-oriented special interest travel: An exploratory studi. *Tourism Recreation Research* 27(2), 51-58.
- Barnard, C.N. (1993). Machu Picchu: city in the sky. *National Geographic Traveler* 10(1), 106-113.
- English, P. (2002). Disputing Stonehenge: law and access to a national symbol. *Entertainment Law* 1(2), 1-22.
- Gee, C.Y. and Fayos-Sola, E. (1997). *International Tourism: A Global Perspective*. Madrid: World Tourism Organization.
- Hooper, J. (1994). The transcendental tourist. *Mirabella* 5(8), 71-73.
- Houtman, D. and Mascini, P. (2002). Why do churches become empty, while New Age grows? Secularization and religious change in the Netherlands. *Journal for the Scientific Study of Religion* 41(3), 455-473.
- Ibrahim, H. and Cordes, K.A. (2002). *Outdoor Recreation: Enrichment for a Lifetime*. Champaign USA: Sagamore.
- Ivakhiv, A. (1997). Red rocks, 'vortexes' and the selling of Sedona: environmental politics in the new age. *Social Compass* 44(3), 367-384.
- Ivakhiv, A. (2003). Nature and self in New Age pilgrimage. *Cultural and Religion* 4(1), 93-118.
- Lange, D.P. (2001). Yoga-plus vacations. *New Age* 18(1), 38-41.
- Lengfelder, J. and Timothy, D.J. (2000). Leisure time in the 1990s and beyond: cherished friend or incessant foe?. *Visions in Leisure and Business* 19(1), 13-26.
- McGivney, A. and Archibald, T. (1997). Wizards of odd. *Backpacker* 25(8), 44-51.
- O'Neil, D.J. (2001). The New Age movement and its societal implications. *International Journal of Social Economic* 28(5), 456-475.
- Powel, E.A. (2003). Solstice at the stones. *Archeology* 56(5), 36-41.
- Redden, G. (2005). The New Age: toward a market model. *Journal of Contemporary Religion* 20(2), 231-246.
- Reisinger, Y. (2006). Travel/tourism: spiritual experience. In D. Buhalis and C. Costa (eds). *Tourism Business Frontiers: Consumers, Products and Industry*. Oxford: Butterworth Heinemann.
- Shimazono, S. (1999). New Age movement or new spirituality movement and culture?. *Social Campass* 46(2), 121-133.

- Smith, M. (2003). Holistic holidays: tourism and the reconciliation of body, mind and spirit. *Tourism Recreation Research* 28(1), 103-108.
- Strutt, R. (1999). Pack your bags and learn. *New Age* 16(7), 17-20.
- Timothy, D.J. (2002). Sacred journey: religious heritage and tourism. *Tourism Recreation Research* 27(2), 3-6.
- Tucker, J. (2002). New Age religion and the cult of the self. *Society* 39(2), 46-51.

INNER HEALING CONCEPT AND ITS APPLICATION IN HIGHER EDUCATION

Putri Anggredi
gekca@gmail.com
University of Mahendradatta

Abstract

Optimism is an important attitude for every student, to be strong and creative in facing the competition and life challenge. Moreover, the challenge of students in the future is getting bigger. Not just physical and material challenges, but also psychic challenges to be faced with emotional and intellectual abilities. Good emotion is required for students to have an optimistic attitude or confidence in their ability to overcome obstacles. How to show the attitude does not give up, abstinence, and not easily discouraged when faced with difficulties. An optimistic attitude will help the student to stay focused on reaching the goal. In addition, optimistic help students adapt to the environment that could be difficult. An optimistic student is regarded as a person with good self-esteem and self-concept because he is able to accept his shortcomings and use his strength to find alternative solutions to various obstacles that confront him in college.

Keywords: inner healing, optimistic, college.

INTRODUCTION

Education is the foundation and hope of parents and the community in the intellectual life of the nation. Higher education is one of the highest levels of education after secondary education, which includes (diploma programs, undergraduate programs, master programs, doctoral programs, professional programs, and specialist programs) held by private universities or state universities (PTN) Based on the culture of the Indonesian nation, so it has an important role in developing the quality of human resources (HR).

In the era of globalization, information, and interdependence as it has been, is, and will take place. The role of universities is very important in developing human resources to achieve the desired goals and optimism of the future desired by each individual in facing various problems and demands that occur in the development of the era in this era of globalization.

When student enrollment has been opened, they are determined to take courses in college. So they have a sense of optimism for the future high towards the chosen majors. However, as the course progresses, there are still many emerging issues that may hinder future optimism and their learning motivation.

Optimism is not a basic characteristic that is brought from birth, but is learned and shaped from the environment. Students begin to grow an optimistic attitude by learning as well as interacting with parents, lecturers and the people closest.

The first four years of college life are considered important times in the formation of this optimistic attitude.

Some students do tend to be more difficult to help than other students. Therefore, before trying to provide assistance to students, the first thing to do is to find the cause, why the potential students can not be fully explored.

Emotional problems relate to changes in circumstances or situations in the household due to the death of a close family member, divorce or a traumatized event. Students become desperate because of certain diseases that healing takes a long time. Emotional problems like these should be handled with care. Or if in doubt, can ask the help of psychologists or academic advisors on campus.

Some students do not even know where to go and what college does. They lose motivation or do not feel what the benefits of college. Explaining about a career or type of work in the community might help. They do not have to make firm decisions about what to do next. They are quite aware, that education is to achieve certain goals or to be able to work in certain areas.

One effective way that parents reuse is punishing children for bad grades. In this case, it should be completely separated between campus problems and family conflicts. It could be that the child gets a bad score because there is a conflict in the family. If this is the case, do not punish the child. Instead consult with an educational expert or psychologist.

It's hard to lead a student who can not feel what it's worth to do well. Students who are ostracized by their parents prefer to listen to advice and advice of their friends in learning rather than being ruled by their parents.

The most effective action is to invite students to take the goals they want to achieve in the future and focus only on the subjects they like. Implant and develop a sense of confidence and highlight the ability of students. Sometimes, students may be forced to move to another college, to avoid the bad influence of his friends.

Students see and observe us constantly. For example, apart from parents, professors like it or not. The good news we can teach him by doing. Practice to think more optimistic. If the student is successful, do not think it is not important with modest humility, but give yourself credit for a job well done. If it happens better, do not exaggerate and consider it a disaster.

DISCUSSION

According to Harris (2012), parents can make children affected by "spell bad attitude" projected through the eyes of parents and seen by the child. So if we consider our child rebels will be a rebellious child in every word of his parents.

That is why, as a parent, must be careful in assessing the attitudes and abilities of children. Moreover, children are part of the community. In the future, they will play a role in the development of life of nation, state, and even world. Therefore, the establishment of a child is very important to note.

The term optimism in a foreign language is often referred to as optimism by Scheier and Carver (in Rottinghaus et al, 2005) in the form of images of feelings or expectations that something good will happen in the future.

Optimism is concerned with the picture of the future to be achieved. Individuals who have future optimism tend to have a description of the goals can be a target that can be achieved so that the individual makes a real effort in achieving the desired goals (Valentino, 2007).

According to Shapiro (in Nurtjahjanti & Ika, 2011) future optimism is a tendency to look at things in terms of good condition and expect the most rewarding results.

McCann (in Putrianti, 2007) explains that optimism about the future is a psychological force that causes a person to have a common hope that they will gain success through hard work.

While Seligman (in Suharsono, et al, 2004) says that what is meant by future optimism is the individual belief that bad events or failures are only temporary, do not affect all activities and not necessarily self-caused but can be situations, fate or others.

Reinforced by Seligman (in Kasmayanti, 2012) explains that individuals who are optimistic about the future assume that adverse events are temporary and can be addressed, specifically, and externally. Aspects that affect future optimism according to Ubaydillah (2007), divided into 3 (three) namely: 1) Cognitive Aspects; Effective Aspect; And Connective Aspects.

Motivation is a psychological process that reflects the interaction between attitudes, needs, perceptions, and decisions that occur in a person (Fadloli, 2011).

Meanwhile, according to Suryabrata (2004), motivation is a state contained within a person who encourages him to perform certain activities in order to achieve a goal.

Wingkel (in Chrisnawati, 2007) says that learning motivation plays an important role in providing passion or enthusiasm for learning.

According Dariyo (2004), that motivation is the motivation of a person to learn something to achieve a goal. A person will have a high motivation to learn when he realized and understand the goals to be achieved in the future. When a person understands his ideals well, then he will be encouraged to become more active in learning.

According to Dalyono (in Wijaya, 2013) strong weakness of one's learning motivation also influence the success of learning.

Student learning motivation is the impulse that arises in a person consciously or unconsciously to perform actions with a specific purpose, and effort that can cause a particular person or group moved to do something because want to achieve goals (in Kholifudin, 2011).

The aspects that can influence the learning motivation according to Uno (2008) & Hamzah (in Adriani, 2011) are 2 (two) things: 1) Intrinsic Aspects (the desire and desire succeed, the drive and the need for learning, And future goals); 2) Extrinsic Aspects (awards in learning, interesting activities in learning, and a conducive learning environment).

Demoralize Current Students

The modern era is characterized by various changes in society. This change is caused by several factors, namely: the development of science and technology (science and technology), human mental, technique and its use in society, communication and transportation, urbanization, changes of hope and demand. All of these have mutual influence and have mutual consequences in society, and this is what then leads to a change of society.

This change leads to a change of mentality (moral). In particular, among the younger generation (in this case students) has seen a shift in values and trends on certain aspects. Unfortunately, the modern era is only marked by the hedonistic lifestyle (worldliness) and the glamour culture (just for having fun). The moral behavior of the younger generation has exceeded the limits of the norm. Portrait of opaque young generation today: drunk, thuggery, free sex, brawl between students, involved drugs, and so forth. This condition is called demoralization, which is the process of moral moral destruction of the young generation.

There has been a shift in the value of life of some students from studying and working to enjoy life and enjoy the work. In other words the lack of internalization of Tri Dharma Higher Education among students. Consequently, students prefer to protest demands that governments abandon policies that are perceived as detrimental to society rather than work to overcome challenges that could be useful to the people.

Creative and moral students should have more sensitivity in the form of real and direct action as a form of community service.

In the world of moral college has never been socialized to students formally or enter into the course specifically. Substantial morals in MPK are personality development courses including Pancasila Education, Civic Education and Religious Education. This tends to make students less understand the importance of morality in their academic life and as an application in society later.

Students In Addressing the Influence of Globalization

Globalization is one of the great challenges that must be faced by the Indonesian nation, not least by students throughout Indonesia. Speaking of globalization, our minds must be focused on information and communication technologies sourced from science.

Agent social of change or agent of social of control, so far very good attached to student. The title is given to the student for his service and sacrifice in the struggle to respond behind all forms of public anxiety that come from the ruling elite.

We can not deny that globalization leads the students to living conditions under the shadow of apathy, individualism, materialism, and global hedonism. Rarely do students try to think about the issue of democracy, religion, or how the concept of advancing the nation in this era of globalization. They prefer to be invited to have fun for a moment's personal interest, such as recreational activities. Thus, the hedonist, individualist, and so on mentality must be changed to the identity of students who have high ideals. If contemplated, Indonesian students must equip with the science of religion because the planting of religious values and morality becomes the basis of the formation of morality of the nation. And it certainly can ward off the negative effects of globalization. In addition, students must be critical and should be faced directly on the issues of democracy. In this era of globalization, students will face severe challenges. Competition will not only happen with domestic graduates, but also with abroad. Globalization demands quality human resources. Actually, globalization for students is a process to reach maturity and realize themselves as students who are able to compete in the era of the times. Therefore, a student must be an intelligent person, critical, dynamic, and empathetic in the face of competition in this era of globalization. That is a student who is able to use his mind well, not easily believe in a truth, able to put himself in various situations and conditions, and students who always pay attention to others. Be a student who can be a figure that can be emulated by other students.

Formation of Student Character

The formation of a student is strongly influenced by the environmental conditions in which he grows and develops. Home in the family sense, is the main place that most determine the basic shape and character of a child.

The atmosphere, harmony and nurture felt by the child become the foundation in the mental and soul formation of a child, whether the child will be strong, weak, independent, tough, sportive, and so forth.

In this case, the parents are responsible for determining the direction of a child's life. Then the next place is the school / campus which is the "second home" for the child, where the child gets most of the lessons and life experiences.

This is where children generally find their true identity when they jump in the midst of a wider society, and here too they discover the "world" that will forge and hone their skills toward a further phase of life.

Currently character education is a major issue in the world of education, not least in the scope of universities. In addition to being part of the process of moral formation of students as a nation, character education is expected to be the success of the nation's civilization.

With the establishment of a good character it will open the way for students when plunge into the world of work. Because the global world today demands professional workforce and has a special character. As a student special characters such as creative, responsive, and responsible must be owned.

The demands of independence make students have no control from outside parties. To create self-control against the influence of negative characters that may affect the basic character of students, it is necessary education about the formation of characters on campus.

Students as individuals should carry their own character. A student should have a character like not easily give up, respect others, be honest, polite, empathetic, sensitive to the environment and have a strong leadership spirit and understated. With the provision of further character education is expected to create a workforce of personality and have superior competitiveness in the world of work. From the side of the nation's pride, the formation of a characterized society is expected to encourage parallels with other developed and developed nations.

CONCLUSION

The student challenge in the future is getting bigger. Not just physical and material challenges, but also psychic challenges that must be faced with emotional and intellectual abilities. Good emotion is required for the child to have an optimistic attitude or belief in the ability to overcome obstacles. How to show the attitude does not give up, abstinence, and not easily discouraged when faced with difficulties.

The presence of this optimistic attitude to stay focused on efforts to achieve goals. So the student does not drop out (DO) lecture in the middle of his journey or stop for achievement.

In addition, optimism will help students to more easily adapt to the environment that could be difficult. An optimistic person is regarded as a person with good self-esteem and self-concept because he is able to accept his shortcomings and use his strength to find alternative solutions to the various obstacles.

Education is the place where students work. The essence of education is to form a whole person. Wholly means not behaving like an animal, in other words behaving according to the mind and conscience. Behaving according to reason, mind and conscience means based on moral values. It requires moral education that specifically refers to the soft skills of the students as the basis for academic behavior.

Implementation of appropriate solutions to overcome the demoralization of students is the establishment of religious values so as to cultivate faith in each religion, providing sufficient knowledge as a reference in action, and the last is the experience of students who have high work ethos in order to work for the community.

Reference

- Adriani, HNS. 2011. Relationship Motivation Learning and Achievement Academic Undergraduate Students Nursing High School of Health Sciences Dian Husada Mojokerto. *Journal of Nursing*, Volume 01, Number 01, January-December 2011.
- Chrisnawati, HE. 2007. The Influence of Using STAD Teaching Method (Student Teams Achievement Division) to Problem Solving Skill of Private SMK (Engineering) Students in Surakarta in

- terms of Student Motivation. *MIPA*, Volume 17, Number 01, January 2007, 65-74.
- Fadloli. 2011. Tutorial Model of Accreditation Program of Tutor I (PAT-UT) I and Student Team Achievement Division (STAD) in terms of Student Motivation. *Journal of Open and Distance Education*, Volume 12, Number 01, September 2011.
- Kasmayanti. 2012. *Optimism of Adolescent Persons with Disabilities due to Accidents*. Ahmad Dahlan University. Retrieved on May 31, 2017.
- Kholifudin, MY. (2011). Efforts to Improve Learning Motivation and Learning Outcomes of Physics Through Teaching Model Teaching Teachers In Grade XII Students IPA 2 SMAN 2 Kebumen 2009-2010 Lessons. *JP2F*, Volume 2, Number 2, September 2011.
- Nurtjahjanti, H & Ika ZR. 2011. Relationship of Hardness Personality with Future Optimism in Indonesian Women Worker Candidate (CTKI) Women at BLKLN Disnakertrans Central Java. *Journal of Psychology*. Undip, Volume 10, Number 2, October 2011.
- Putrianti, FG. (2011). The Success of Women's Career Dual Roles Viewed from the Husband's Support, Optimism and Indigenous Coping Strategies. *Journal of Periodic Scientific Psychology*, Volume 09, Number 1, May 2007.
- Rottinghaus, et al. 2005. The Career Inventory: A Measure of Career Related Adaptability and Optimism. *Journal of Career Assessment*, Volume 13, Number 1, February 2005. Sage Publications.
- Suryabrata, S. 2004. *Educational Psychology*. Jakarta: PT. Raja Grafindo Persada.
- Ubaydillah, AN. 2007. *Optimistic Keys to Success*. Jakarta: PT. Perspective of Communicative Media.
- Valentino, R. 2007. Relationship Between Optimism Will Be Future with Achievement Motivation for UII Medical Faculty Students. *Publication manuscript*.
- Wijaya, NR. 2013. *Relationship Between Learning Motivation with Student Results on PPKn Subjects in SMPN 7 Jakarta*. Retrieved on May 7, 2017.
- Harris, B. 2012. *Confident Parents Remarkable Kids*. Jakarta: PT. Elex Media Komputindo.
- Olivia, F & Ariani, L. 2010. *Inner Healing @School*. Jakarta: PT. Elex Media Komputindo.

PRE CONCEPTIONAL CARE IN AYURVEDA: THE PLAN FOR A HEALTHY SOCIETY

Resmi V Rajagopal¹, Laxmi Priya .Dei²

resmirajagopal999@gmail.com¹

2nd year MS Scholar. IPGT &RA Jamnagar, India¹

Prof & HOD PTSR DEPT, IPGT &RA Jamnagar, India²

Abstract

Pregnancy is a beautiful phase in women's life. Life of women is not complete until and unless she gets pregnant and gives birth to a healthy offspring. Pregnancy should not be risky both for mother and child, extra care needs to be given to the woman even from the planning for a pregnancy. India is one of the 6th country accounts for 50% of the worlds maternal mortality. Incidence of congenital anomalies effect 1 in 33 infants and results in approximately 3.2 million birth defects in every year. The medical world is worried about the increasing rate of inborn defects in the new born, which is posing a challenge to a progressing healthy society. So the medical world has extend the pre-conceptual care in Antenatal care.

INTRODUCTION

Preconception care is the biomedical, behavioural and social health interventions to couples before the conception occurs. It aims at improving their health status, and reducing behavioural, environmental factors that contribute to poor maternal and child health outcomes. it brings health benefits to the adolescents, women and men, irrespective of their plans to become parents. It is important that women are informed of what they can do before they become pregnant to ensure that their baby has an optimal chance of healthy prenatal development [1].

Maternal under nutrition and iron-deficiency anemia increase the risk of maternal death, accounting for at least 20% of maternal mortality worldwide. In 2010, 58 000 newborn babies died from neonatal tetanus [2]. Up to 35% of pregnancies among women with untreated gonococcal infections result in low birth weight infants and premature deliveries, and up to 10% result in perinatal death .

Eliminating smoking before or during pregnancy could avoid 5–7% of pre-term related deaths and 23–24% of cases of sudden infant death syndrome (SIDS)[3]. The above data strictly recommends the need of proper counselling though out pregnancy and should be a planned pregnancy.

MATERIALS AND METHODS

Systematic evaluation of all the Medical literatures, Ayurvedic text books, compilations, Research papers, thesis and abstracts. Expert opinions are also considered.

DISCUSSION

Ayurveda has mentioned the care and attention given to women in various phases of her life in detail. And a person without a progeny is described as a tree without any shadow or fruits. [4]. Care should be given before marriage for a healthy progeny even right from the menarche. The detailed *rajaswala paricharya* (do's and don'ts during menstruation days). *Susrutacharya* described the minimum age of male and female for marriage respectively 25 and 16. Since both partners are full of valour and vigour at this age, the child also posses the same qualities. Below this age if either she will not conceive or if at all conceives she will have intrauterine death of fetus if child born it will not live long or will have weak organs [5].

The couples are adviced to do the purifactory procedures as they provide high quality gametes. The coitus done with a women who did overeating, hungry, thirsty, frightened results in teratological effects [6]. *Acarya caraka* clearly mentioned that the peacefull mind is the prime factor for conception. And the coitus is contraindicated in twilight, mid night or late night etc as it produce the low quality gametes. She should be from another family. This describes about the consaginous marriage and can avoid genetic disorders dominent and dormant in the family carrying over to next generation. High rate of this marriages increases the frequency of autosomal recessive disorders.

The lady should be devoid of any congenital anomalies. All the *Acharyas* strictly advocate to avoid coitus on first three days of ovulatory period or atleast 7 days from the first day of menstruation. And conceiving on 12th day produces the baby with maximum qualities. After menstruation 4th day onwards the couple being purified by the detoxification with use of oleation, sudatory measures, emetics, purgatives and brought to normal dietetic should be given evacuative enema and nutritive enema. After these purifying methods man should use ghee and milk while woman should take sesame oil and black gram. [7].

The progeny will have the state of mind that which the couples have at the time of coitus, they should be calm and cool reciting vedic chants which can create positive vibrations in the body. Through out the pregnancy she should be attend with the husband and those who provide her the maximum comforts. Pregnancy should be by choice not by chance.

Proper preparation of the parents is the basic need for healthy progeny. Antenatal care, right from the preconception to full term delivery will certainly play a key role in getting healthy progeny. Planning for a Healthy Baby Starts before Pregnancy. The health of a baby is highly related to the health of parents. The most critical time for development occurs right after conception; often before mothers know they are pregnant.

Pre conceptual counselling extended to: [8]

a) Reduce maternal and child mortality

- b) prevent unintended pregnancies
 - c) prevent complications during pregnancy and delivery
 - d) prevent stillbirths, preterm birth and low birth weight
 - e) prevent birth defects
 - f) prevent neonatal infections
 - g) prevent underweight and stunting
 - h) prevent vertical transmission of HIV /STI s
 - i) lower the risk of some forms of childhood cancers
 - j) lower the risk of type 2 diabetes and cardiovascular disease later in life.
- Managing maternal health conditions:
e.g., Sexually Transmitted Infections (STIs), diabetes, obesity
 - Taking a multivitamin daily has been shown to reduce the risk of certain birth defects.
 - Women planning a pregnancy or who could become pregnant should take a daily multivitamin containing 0.4-1.0mg of folic acid
 - **Folic acid** promotes the development of the baby's brain stem
 - It is recommended that all woman of childbearing age regardless of pregnancy intentions, be informed about the benefits of taking a multivitamin containing folic acid
 - If all women of childbearing age consume enough **folic acid**, it is estimated that as many as half of certain birth defects can be prevented, such as:
 - Neural tube defects
 - Heart defects
 - Limb defects
- Modifying risk factors:
e.g., Medication use, alcohol and tobacco use.
- Gaining too much weight during pregnancy or being overweight before pregnancy puts women at risk of: [9]
- High blood pressure.
 - Gestational Diabetes.
 - Increased risk of Type 2 Diabetes and obesity later on in life for both mother and child.
 - Stillbirth, miscarriage and preeclampsia.
 - Increased risk of birth defects (*i.e. neural tube defects*).
 - High birth weight baby.
 - Complications during labour and delivery.
- The benefits of regular exercise before, during, and after conception include: [10]
- Healthier pregnancy.
 - Faster and easier labour; less need for induction.
 - Returning to pre-pregnancy weight faster.
 - Improved mood and sleep
 - Reduced weight gain during pregnancy

- Fewer pregnancy discomforts such as backaches and swelling
- Decreased depression and anxiety
- Control of gestational diabetes
- Appropriate weight management.

- The following immunizations are recommended to be up to date prior to conception: After getting immunized a woman should wait at least one month before becoming pregnant.
 - Rubella.
 - Chickenpox.
 - Hepatitis B.

- If Hepatitis B is detected before pregnancy, the mother can be treated to ensure the baby will not be infected
 - If Hepatitis B is detected during pregnancy, treatment should begin to protect any babies becoming infected should she become pregnant in the future
 - Treatment should start for the baby to reduce the baby's chance of getting Hepatitis B, beginning within two days of birth

- STI during pregnancy can lead to fetal death, physical, and developmental disabilities.
 - Women and their partners should be encouraged to be tested for STIs regularly, including HIV, and if positive, receive treatment for the benefit of their own health and that of future pregnancies
 - Some STIs can be treated and some cannot. Steps can be taken to reduce the chance of passing on an infection from mother to baby.
 - These diseases are transmitted through blood or body fluids and infected mothers can pass it on to their babies

- Smoking heavily during pregnancy increases the risk of:
 - Miscarriage
 - Babies being born too small and too early
 - Sudden Infant Death Syndrome (SIDS)
 - Asthma and other respiratory problems later in child's life

- It is important that certain health conditions are well managed before pregnancy to help promote and begin a healthy pregnancy.

- These include:
 - Asthma
 - Diabetes
 - Heart Disease
 - High Blood Pressure
 - Hypothyroidism
 - Epilepsy

CONCLUSION

This helps to screen the high risk cases and improves the fertility rates. The physical, mental, social, and spiritual well being of the person, proper nutrition of the mother during pregnancy and practice of a wholesome regimen, play a prime role in achieving a healthy offspring.

Some health problems can be passed through the genes of a mother or father to a baby. Genetic Counseling: may help to reassure and help with making informed decisions about getting pregnant by determining the probability of certain conditions. Certain workplace toxins have been associated with reduced fertility, still birth, miscarriage, low birth weight, and birth defects which should be avoided wisely. Women should be kept away from the chemicals used in their workplaces and also excess stress. By keeping attention from the early phases we can develop a generation with higher physical, psychological and spiritual goodness.

References

- ¹Pre conceptional care: Maximizing the gains for maternal and child health by WHO. Department of Maternal, Newborn, Child and Adolescent Health. www.who.documents.com
- ²Pre conceptional care: Maximizing the gains for maternal and child health by WHO. Department of Maternal, Newborn, Child and Adolescent Health. www.who.documents.com
- ³Pre conceptional care: Maximizing the gains for maternal and child health by WHO. Department of Maternal, Newborn, Child and Adolescent Health. www.who.documents.com
- ⁴Ashtanga hrdaya Uttarsthan , vajeekran chapter Choukamba Orientalia Varanasi
- ⁵Susruta samhita sareersthan 10 th chapter verse no: 53 Choukamba Orientalia Varanasi.
- ⁶Caraka Samhita Sareersthan 8th chapter verse no: 6 Choukamba Orientalia Varanasi.
- ⁷Caraka Samhita Sareerasthan 8th chapter verseno: 4-7 Choukamba Orientalia Varanasi
- ⁸Pre conceptional care: Maximizing the gains for maternal and child health by WHO. Department of Maternal, Newborn, Child and Adolescent Health. www.who.documents.com
- ⁹Pre conceptionalcare power point presentation by Saskatchewan prevention institute copyright 2010.
- ¹⁰Pre conceptionalcare power point presentation by Saskatchewan prevention institute copyright 2010.

THE SUPER HEALING POWERS OF GARLIC

I Wayan Redi Aryanta¹, I Putu Sudiartawan², Ni Luh Gede Sudaryati³
redi_aryanta@yahoo.co.id¹
Hindu Indonesia University^{1,2,3}

Abstract

The secret ingredients of garlic that makes it such good vegetable medicine are: vitamin A, B, C; calcium, potassium, and iron; and the antioxidants, carotenes, germanium, and selenium plus garlic's 33 sulfur-compounds, especially the volatile amino acid allicin. Allicin is quickly converted into a number of biologically active compounds, including ajoene, diallyl sulfide (DAS), and diallyl disulfide (DADS) when garlic is crushed, chopped, or chewed. DAS and DADS are considered to be the principal compounds in garlic that may play a role in the prevention of cancers, such as esophageal, stomach, colon, prostate, and breast cancers. Ajoene and other products of allicin have been known to be associated with anticancer, anticlotting, antifungal, antibacterial, antiviral, antihypertensive, antioxidant, and cholesterol-lowering effects. Ajoene may reduce the risk of heart attacks by preventing the formation of blood clots. There are two basic types of health benefits associated with the sulfur-compounds. First are the benefits associated with sulfur itself, where it is well-known to play a critical role in the health, especially in connection with cellular detoxification system, the health of the joints and connective tissue, and oxygen-related metabolism. Second are the benefits associated with *unique forms* of sulfur in garlic, especially allicin and its breakdown products (diallyl sulfides and diallyl disulfides). In the presence of other sulfur-containing groups called thiols, these sulfides can also release free hydrogen sulfide (H₂S). This H₂S may be involved in the cardiovascular benefits of garlic since it appears able to work synergistically with nitric oxide (NO) in optimizing blood vessel elasticity. Prostaglandin A in garlic has a healing effect on high blood pressure, and eliminates angina pain and headaches without the frequently occurring side-effect of hypertension drugs. Garlic inhibits the activity of liver enzymes and influences the way fat are metabolized, making it useful in treating gastric ulcers, and increasing blood insulin levels in diabetics. An antibacterial, antifungal, and antiviral properties of garlic help prevent or fight infection. In connection with cardiovascular benefits of garlic, the vinylidithiins, diallyl polysulfoxides, and sulfur-containing compound called thiocremone have been most closely associated with the anti-inflammatory activity of garlic in cardiovascular system. Right alongside of this anti-inflammatory support is the antioxidant (glutathione, selenium, and vitamin C) support provided to the heart and blood vessel through consumption of garlic.

Key words: garlic, super healing,, vitamin, mineral, allicin, garlic's 33 sulfur-compounds, antioxidants, health benefits, cancer, heart attacks, diabetics, cholesterol, detoxification.

INTRODUCTION

Garlic (*Allium sativum*, Linn.) has been cultivated for thousands of years in diverse regions of the world and has become a staple in cuisines across many continents. China is by far the world's

largest commercial producer of garlic, with 20 million tons of production in 2014. In that same year, India was the second largest producer with about 1.25 million tons, and South Korea, Egypt, and Russia rounded out the top five countries for garlic production. Between 50-75% of all garlic consumed in the U.S is currently grown in China. Mexico and Argentina are also important sources for garlic imports into the U.S. At present, the U.S. serves as the number one import market for fresh garlic worldwide. Within the United States, 80-90% of all garlic comes from California.

Garlic has a more than 7,000-year-old history of human consumption and use. Few foods have been enjoyed for such a long period of time and in so many different parts of the world as garlic. The sulfur-compounds in garlic serve as its spotlight nutrients. In addition, garlic is an excellent source of manganese and vitamin B6; a very good source of vitamin C and copper; and a good source of selenium, phosphorus, vitamin B1 and calcium. Intensely aromatic and flavorful, garlic is used in virtually every cuisine in the world. When eaten raw, it has a powerful, pungent flavor to match the truly mighty garlic benefits. Garlic is particularly high in certain sulfur-compounds that are believed to be responsible for its scent and taste, as well as its very positive effects on human health. It is one of the most common ingredients in Balinese dishes, but apart from imparting flavor to food, it also has immense medicinal properties. Herbalists and folk healers have used garlic to treat myriad diseases for thousands of years. Ancient Egyptian healers prescribed it to build physical strength, the Greeks used it as a laxative, the Chinese traditionally used it to lower blood pressure, and Balinese traditional healers (*Balian Usada Bali*) used garlic to treat cough, colds, flu, colic, and rheumatic. In France, during the early 18th century, gravediggers drank wine containing crushed garlic to protect themselves from the plaque.

Louis Pasteur, the great 19th-century French bacteriologist, was the first to demonstrate garlic's antiseptic properties, information that was put to use during World Wars I and II by the British, German, and Russian armies to prevent infections. Since then, numerous studies have confirmed that garlic can be effective against bacteria, fungi, viruses, and parasites. Many proponents of herbal medicine prescribe garlic to help prevent colds, flu, and other infectious diseases. Recent publications indicated that there were more than 5,100 peer-reviewed articles that evaluated garlic's ability to prevent and improve a wide spectrum of diseases.

Eating garlic regularly has been linked to reducing or even helping to prevent four of the major causes of death worldwide, including heart disease, stroke, cancer and infections. It was recognized that garlic is one of several vegetables with potential anticancer properties. This article will discuss the nutritional profile and health benefits of garlic.

DISCUSSION

Nutritional Profile of Garlic

The sulfur compounds in garlic serve as its spotlight nutrients. According to The George Mateljan Foundation (2017), in the world's healthiest foods, these compounds include sulfur-containing amino acids and peptides (cysteine, methionine, S-allylcysteine, S-allylmercaptocysteine, glutathione, S-ethyl cysteine, N-acetyl cysteine), thiosulfinates (allicin, allyl sulfinates, methyl allyl sulfinates), sulfoxides (alliin, garlicins, methiin, isoalliin), sulfides, diallyl sulfides and polysulfides

(hydrogen sulfide, diallyl sulfide, diallyl disulfide, diallyl trisulfide), vinyl dithiols (1,2-vinyl dithiol, dehydrovinyl dithiols), and ajoenes (E-ajoene, Z-ajoene). In addition, based on World's Healthiest Foods Rating (from 18.00 g raw garlic), garlic is an excellent source of manganese (15%) and vitamin B6 (13%), a very good source of vitamin C (7%) and copper (6%), and a good source of selenium (5%), phosphorus (4%), vitamin B1 (3%) and calcium (3%).

Based on the chemical composition, garlic (per 100 g) contains 95 calories, 23.10g carbohydrates, 4.5g protein, 0.2g fat, 0.22mg vitamin B1, 15mg vitamin C, 134mg phosphorus, 42mg calcium, 1.0mg iron, and 71g water (Thomas, 1989). On the other hand, garlic also contains bioactive compounds, such as allicin, alliin, allinase enzyme, germanium, sativine, sinistrine, selenium, scordinine, and methylallyl trisulfide.

In connection with the nutritional value of garlic, Chattopadhyay (2017) reported that garlic (per 100g) contains energy (149 kcal), carbohydrates (33.06g), protein (6.36g), total fat (0.5g), dietary fiber (2.1g), vitamin B6 (1.235mg), vitamin A (9 IU), vitamin C (31.2mg), manganese (1.672mg), calcium (181mg), phosphorus (153mg), lutein-zeaxanthin (16ug), and B-carotene (5ug). Garlic has been used as good vegetable medicine due to its vitamin A, B, and C; its calcium, potassium, and iron; and the antioxidants, carotenoids, germanium, and selenium plus the countless biologically active compounds agents. The most important are garlic's 33 sulfur compounds, especially the volatile amino acid allicin (Goulart, 1995).

Dietitian (2017) reported that garlic is high in a sulfur compound called allicin, which has potent medicinal properties. Nutritionally, garlic (28g) contains 23% manganese, 17% vitamin B6, 15% vitamin C, 6% selenium, 0.6g fiber, 42 calories, 1.8g protein, 9g carbohydrates, decent amounts of calcium, copper, potassium, phosphorus, iron, and vitamin B1.

Health Benefits of Garlic

'Let foods be your medicine'. Those are famous words from the ancient Greek physician Hippocrates, often called the father of Western medicine. He actually used to prescribe garlic to treat a variety of medical conditions. Modern science has recently confirmed many of these beneficial health effects.

There are more than 5,100 peer-reviewed articles that evaluated garlic's ability to prevent and improve a wide spectrum of diseases (Anon., n.d.). All of those article's publications revealed that eating garlic regularly has been linked to reducing or even helping to prevent four of the major causes of death worldwide, including heart diseases, stroke, cancer, and infections.

Garlic for heart disease

According to the Centers for Diseases Control and Prevention, heart disease is the No.1 killer in the United States, followed by cancer (Anon.,n.d.1). Many studies have demonstrated garlic's heart-healing ability over the last few decades. A recent study similarly concluded that garlic can help reduce high blood pressure and the risk for heart disease (Cook, 2017).

The anti-clotting properties of 'ajoene', one of the breakdown products of allicin in garlic, may reduce the risk of heart attacks by preventing the formation of blood clots (Reader's Digest,

2004; Anchan, 2015). Nordqvist (2015) reported that diallyl trisulfide, a component of garlic oil, helps to protect the heart during cardiac surgery and after a heart attack as well as could be used as a treatment for heart failure. Several studies suggest that garlic makes platelets (the cell involved in blood clotting) less likely to clump together and stick to artery walls, therefore acting as an anticoagulant and so reducing the risk of heart attacks ((Lewin, n.d.).

The active sulfur compounds in garlic, such as allicin and its breakdown products can reduce blood pressure and lower the levels of LDL (low density lipoprotein) cholesterol (bad cholesterol), which may lower the risk of heart disease (Dietitian, n.d.2; Reader's Digest, 2004).

Garlic for cancer

The most consistent cancer prevention results from intake of garlic involve cancers of the digestive tract. The sulfur compounds (like diallyl disulfide) in garlic seem consistently helpful in lowering the risk of squamous cell carcinoma (one type of cancer) throughout the upper aero-digestive tract. Included in this region is mouth, pharynx, larynx, and esophagus (The George Mateljan Foundation, 2017). According to Beliveau and Gingras (2007), diallyl sulfide and diallyl disulfide, which are both fat-soluble molecules, are generally considered to be the principal compounds found in garlic that may play a role in the prevention of cancers, such as esophageal, stomach, colon, lung, breast and prostate cancers. Beside to prevent breast cancer, sulfur compounds in garlic, especially diallyl sulfide also play a role in preventing skin cancer (Magee, 2000).

Garlic seems particularly effective in protecting against cancers caused by nitrosamines, a class of chemical compounds with very high carcinogenic potential. By preventing the formation of nitrosamines, potent carcinogens that interact with DNA, the phytochemical compounds in garlic reduce the risk of these compounds triggering mutations in DNA and thus causing cancer. Anchan (2015) stated that diallyl sulfide found in garlic inhibits the transformation of PhIP (a type of compound that has been associated with increased incidence of breast cancer) into carcinogens. In addition to their action on carcinogenic substances, the sulfur compounds (diallyl sulfide and ajoene) in garlic may also directly attack tumor cells and destroy them through apoptosis. Servan-Schreiber (2008) also reported that sulfur compounds in garlic directly attack and destroy cancer cells of colon, breast, lung, and prostate, as well as leukemia.

Several population studies show an association between increased intake of garlic and reduced risk of certain cancers, including cancers of the stomach, colon, esophagus, pancreas, and breast (Barrett, 2012). Garlic's organosulfur compounds, including diallyl disulfide, diallyl trisulfide, ajoene, and S-allylmercaptocysteine have been found to induce cell cycle arrest when added to cancer cells during in vitro experiments (Anon., n.d.). Some researchers reported that allicin in garlic has the ability to inhibit different types of tumors and lower the risks of esophageal, stomach, and prostate cancers (Cook, 2017).

Goulart (1995) stated that serious garlic eaters have a lower rate and risk of stomach and colon cancer. In relation to this report, researchers in China indicated that cancer deaths in garlic-loving countries are almost 10 times lower than elsewhere (the dose that does it is seven cloves a day). Other studies in China found that people who eat raw garlic at least twice a week have a 44%

lower risk of developing lung and prostate cancers. On the other hand, scientists at the Medical University of South Carolina reported in the journal *Cancer* that organo-sulfur compounds (diallyl sulfide, diallyl disulfide and diallyl trisulfide) found in garlic have been identified as effective in destroying the cells in glioblastomas, a type of deadly brain cancer (Nordqvist, 2015).

Vegetables, including garlic, provide a rich source of antioxidants and fiber, in addition to helping lower the production of polyamines in the digestive tract. Several are super beneficial as cancer fighters for Blood Type O, A, B, and AB. The sulfur compounds that give garlic its strong flavor have now been shown to protect against cancer by neutralizing carcinogens and slowing tumor growth (D'Adamo and Whitney, 2004).

Garlic for high blood pressure and high cholesterol

An interesting phenomenon of garlic is that has been shown to help control high blood pressure. The mechanism of this phenomenon is that garlic's polysulfides promote the opening of widening of blood vessels and, hence, blood pressure reduction (Anon. n.d.1). Other studies (Anon.n.d.2) also have shown that garlic can benefit the health of circulatory system or to help control high blood pressure. This benefits may come from the production of hydrogen sulfide gas, which is produced when red blood cells take the sulfuric compounds from garlic. The gas can help expand the blood vessels, which can help keep the blood pressure steady. Garlic therapy has a healing effect on high blood pressure without the frequently occurring side-effects of hypertension drugs. The magic ingredient appears to be garlic prostaglandin A (1995).

According to Chattopadhyay (2017), garlic contains an active substance called allicin, and it is this substance that is believed to have the ability to lower the risk of hypertension or high blood pressure. This is due to allicin can relax blood vessels and reduce the damage and pressure that affect the blood at the same time. The second reason garlic can effectively prevent high blood pressure is due to its ability to stimulate the production of nitric oxide synthase and hydrogen sulfide that help to relax blood vessels. On the other hand, Anchan (2015) reported that allicin in garlic blocks the activity of angiotensin II (a protein that is responsible for increase in blood pressure) and helps in reducing blood pressure. Beside that, the polysulfides present in garlic are converted into a gas called hydrogen sulfide by red blood cells that helps dilate the blood vessels and helps control blood pressure.

Human studies have found garlic supplementation to have a significant impact on reducing blood pressure in people with high blood pressure. Supplement doses must be fairly high to have these desired effects. The amount of allicin needed is equivalent to about four cloves of garlic per day (Dietitian, n.d.).

An alternative source of garlic that is odorless and rich in antioxidant is aged garlic extract (AGE). The well-standardized and highly bioavailable supplement is produced by prolonged extraction and aging of organic fresh garlic at room temperature. The process converts unstable compounds, such as allicin, to stable substances and produces high levels of water-soluble organosulfur compounds that are powerful antioxidants. These include S-allylcysteine (SAC), AGE's major component, and S-allylmercaptocysteine. Among other compounds present are low amounts of oil-soluble organosulfur compounds, flavonoids, selenium, and saponins. Recent research has been

found that SAC has the ability to lower LDL cholesterol by deactivating 3-dehydroxy 3-methylglutaril-CoA (Borek, 2006). Nordqvist (2015) also reported that the garlic extract supplements reduced high cholesterol levels in the patients with hypertension. A recent Australian study has been found that consuming dried garlic powder or taking garlic supplements regularly for 8 to 12 weeks can reduced as much as 8% LDL cholesterol level in the blood (Chattopadhyay, 2017).

Garlic for infections

Garlic's powers as an antibacterial and antifungal agent have been known and utilized since

1947. According to researchers at Boston University School of Medicine, garlic has the effectiveness of 1% penicillin against Streptococcus, Staphylococcus, fungus, and yeast infections as well as numerous strains of the flu. In fact, it not only kills existing bacteria but it inhibits further bacterial growth. And Whereas penicillin inhibits only gram-positive bacteria, the allicin in garlic counteracts both gram-positive and gram-negative strains, and in smaller doses than most antibiotics (Goulart, 1995). Reader's Digest (2004) reported that garlic contains compounds that act as powerful natural antibacterial, antiviral, and antifungal agents. It has been shown to inhibit the fungi that cause athlete's foot, vaginal yeast infections, and many cases of ear infection. It may be as effective against certain fungi as antifungal medications. Laboratory study have shown that garlic extract can neutralize *Helicobacter pylori*, the bacterium that causes most ulcers.

Nordqvist (2015) reported that diallyl sulfide in garlic was 100 times more effective than two popular antibiotics in fighting the *Campylobacter* bacterium, one of the most common causes of intestinal infections. Garlic's antimicrobial, antiviral and antifungal properties can help relieve the common cold as well as other infections. Garlic's allicin in particular is believed to play an important role in this vegetable's antimicrobial powers (Anon., n.d.1). In relation to the power of allicin in garlic as antiviral and antibacterial components, Chattopadhyay (2017) informed that this biologically active compound blocks the pathogens that cause cold, and kills the germs that cause ear infection and subsequent pain.

Garlic's antibacterial properties may reduce the frequency and number of colds, help in treating throat irritations, reduce the severity of upper respiratory tracts infections, and promote expectoration in chronic bronchitis (Anchan, 2015). According to Dietitian (n.d.), allicin present in garlic is believed to bring most of the health benefits, including helps to prevent and reduce the severity of common cold and flu. Traditionally, Balinese healers (Balian Usada Bali) use garlic to heal cough, cold and flu (Nala, 1993). Taking 2-3 cloves of raw garlic or cooked garlic a day or sipping some garlic tea (with a touch of honey or ginger to lift up the taste) is not only going to relieve the stubborn cold and flu but also build the immunity (Anon., 2016). Recent research found that raw garlic showed potency against *H. pylori* (the antibiotic-resistant bacteria linked to conditions like stomach ulcers), while other researches found that garlic was effective against bacteria linked to urinary tract infections, even when antibiotics failed, and against drug-resistant infections like *Staph. aureus* and *E. coli* that can cause systemic infections of the blood, heart, spinal cord or bone (Cook, 2017).

Garlic for Alzheimer's disease and dementia

Alzheimer's disease is a form of dementia that can rob people of the ability to think clearly, perform everyday task and, ultimately, remember who they even are. Garlic contains antioxidants, especially active compound S-allyl-L-Cysteine (SAC) in aged garlic extract (AGE) that can support the body's protective mechanisms against oxidative damage that can contribute to these cognitive illnesses (Anon., n.d.1).

Recent evidence suggest that midlife risk factors for cardiovascular disease, such as high cholesterol, hypertension, and inflammation, are important risk factors for dementia in later years, with high cholesterol and hypertension showing a consistent association with increased risk of Alzheimer's disease (AD) and vascular dementia, pathological conditions whose frequency increases with age. The broad range of cardiovascular protection afforded by aged garlic extract (AGE) may be extended to protective effect on the brain, helping reduced the risk of dementia, including vascular dementia and Alzheimer's disease. AGE has potential to protect the brain against neurodegenerative conditions. Mechanisms include lowering cholesterol, inhibiting inflammation, reducing homocysteine, preventing oxidative brain injury following ischemia, protecting neuronal cells against apoptosis (programmed cell suicide triggered by oxidative stress) by inhibiting caspase 3, and preventing Abeta-induced neurotoxicity (Borek, 2006).

Garlic for diabetes

Garlic has the ability to help diabetics. Eating garlic, especially age garlic extract has been shown to help regulate blood sugar levels, potentially stop or decrease the effects of some diabetes complications, as well as fight infections, reduce LDL cholesterol and encourage circulation (Anon., n.d.1; Cook, 2017).

Anchan (2015) reported that garlic plays an important role to help diabetics. Mechanisms include increasing insulin release and regulating blood sugar level in the body.

Garlic for detoxification

Garlic may be used to detoxify – an extremely important method everyone should be doing to clean the body of toxins. While the benefits of garlic for liver health and beyond are many, one reason for superior effects has to do with the fact that garlic contains numerous sulfur-containing compounds that are known to activate the liver enzymes responsible for expelling toxins from the body. Another lies in the presence of both allicin and selenium that play an integral role in the protection of the liver from damage. It is also important to note that many cancers are thought to be caused by damage DNA, which could be the result of exposure to environmental toxins. One study conducted at the Fred Hutchinson Cancer Research Center found that eating a teaspoon of fresh garlic and a half cup of onions per day could remote toxins in the blood cells due to an increased production of a key toxin-removing enzyme (Barrett, 2012).

According to Dietitian (n.d.), at high doses, the sulfur compounds in garlic have been shown to protect against organ damage from heavy metal toxicity.

Garlic for other diseases

- a. **Allergies.** Garlic combats allergies by its anti-arthritic properties, such as diallyl sulfide and thiocresonone (Anchan, 2015).
- b. **Osteoarthritis.** The long-term study, involving more than 1,000 healthy female twins, found that those whose dietary habits included plenty of fruit and vegetables, particularly garlic had fewer signs of early osteoarthritis in the hip joint (Nordqvist, 2015).
- c. **Food poisoning.** Some researches indicate that garlic's anti-bacterial properties might help to prevent food poisoning by killing bacteria like *E. coli*, *Staph. aureus*, and *Salmonella enteritidis* (the affect would only apply with fresh garlic) (Anon., n.d.2).
- d. **Skin disease.** The properties of garlic protect the skin from the effect of free radicals and slow down the depletion of collagen which leads to loss of elasticity in aging skin. Applied topically, garlic does wonders to skin infected with fungal infections and provides relief from skin ailments like eczema (Anon., 2016).
- e. **Toothache.** Among many home remedies for toothache, the use of garlic has been passed down for years to treat this issue; the antibiotic compound called allicin is what give garlic ability. When garlic is crushed, this compound is released, helping to slow bacterial activity upon application and ingestion. Try applying a crushed garlic clove or garlic powder to the area. It may burn, but the pain from the toothache could vanish within minutes, although it could take hours. Repeat this over a few days (Barrett, 2012).
- f. **Cough.** Boiling cloves of garlic and drinking it like tea will not only make it easier to breathe, but it also help to alleviate itchiness which could cause to cough continuously (Barrett, 2012).

CONCLUSIONS AND SUGGESTIONS

Conclusions

Nutritional profile of garlic

The sulfur compounds in garlic serve as its spotlight nutrients. These compounds include sulfur-containing amino acids and peptides, thiosulfinates, sulfoxides, sulfides, diallyl sulfides, polysulfides, vinylthiins, and ajoene. Based on World's Healthiest foods rating, garlic is an excellent source of manganese and vitamin B6, a very good source of vitamin C and copper, and a good source of selenium, phosphorus, vitamin B1, and calcium.

Health benefits of garlic

Garlic's sulfur compounds responsible for preventing or reducing the risk of various kind of diseases are released when garlic is crushed, chopped, or chewed.

There are more than 5,100 peer-reviewed articles that evaluated garlic's ability to prevent and improve a wide spectrum of diseases. All of those article's publications revealed that eating

garlic regularly has been linked to reducing or even helping to prevent four of the major causes of death worldwide, including heart diseases, stroke, cancer, and infections.

The sulfur compounds in garlic, such as allicin and its breakdown products play an important role in preventing and reducing the risk of diseases. These diseases include heart disease, cancers (esophageal, stomach, colon, lung, skin, breast and prostate cancers), high blood pressure, high LDL (low density lipoprotein) cholesterol or bad cholesterol, infections diseases (cold, flu, throat irritation, ear infection, urinary tract infection, vaginal yeast infection, and athlete's foot infection), Alzheimer disease and dementia, diabetes, allergies, osteoarthritis, food poisoning, metal toxicity, eczema, cough, and toothache.

Suggestions

Garlic should be consumed along with a healthy diet. Healthy diet has five characteristics, as the following:

1. **Adequacy:** the foods provide enough of each essential nutrient, fiber, and energy.
2. **Balance:** the choices do not overemphasize one nutrient or food type at the expense of another.
3. **Calorie control:** the foods provide the amount of energy needed to maintain appropriate weight.
4. **Moderation:** the foods do not provide excess fat, salt, sugar, or other unwanted constituents.
5. **Variety:** the foods chosen differ from one day to the next.

References

- Anchan, A. 2015. 15 Health Benefits of Garlic. Available: <http://www.thehealthsite.com/diseases-conditions/15-health-benefits-of-garlic> (Accessed May 8, 2017).
- Anon. 2016. 7 Surprising Health Benefits of Foods. Available: <http://food.ndtv.com/food-drinks/powerhouse-of-medicine-and-flavour-surprising-health-benefits-of-garlic-1200468> (Accessed May 8, 2017).
- Anon. n.d.1. 7 Raw Garlic Benefits for Reversing Disease. Available: <https://draxe.com/7-raw-garlic-benefits-reversing-disease> (Accessed May 1, 2017).
- Anon.n.d.2. Benefits of Garlic: 11 Healthy Reasons to Eat More of this Smelly Superfood. Available: <http://www.huffingtonpost.com/Ca/2013/09/25/benefits-of-garlic-n-3990616.html> (Accessed May 1 2017).
- Barrett, M. 2012. Health Benefits of Garlic-Anti-Cancer, Anti-Infection, detoxify, and More. Available: <http://naturalsociety.com/benefits-of-garlic/#ixzz4iFCZ4Fcx> (Accessed May 1 2017).
- Beliveau, R. and D. Gingras. Foods to Fight Cancer. Dorling Kindersley Limited. London.
- Borek, C. 2006. Garlic Reduces Dementia and Heart-Disease Risk. Available: jn.nutrition.org/Content/136/3/8105.full (Accessed May 5, 2017).

- Chattopadhyay, A. 2017. 12 Amazing Benefits of Garlic (Lahsun)-Why You Should Never Run Away from It. Available: <http://www.stylecraze.com/article/beauty-benefits-of-Garlic/#gref> (Accessed May 3, 2017).
- Cook, M.S.2017. 8 Health Benefits and Uses for Garlic. Available: <http://www.care2.com/greenliving/8-health-benefits-and-uses-for-garlic.html> (Accessed May 2, 2017).
- D'Adamo, P. J. and C. Whitney. 2004. Cancer: Fight It with the Blood Type Diet. The Berkley. Publishing Group. New York.
- Dietitian, J.L. n.d. 11 Proven Health Benefits of Garlic. Available: <https://authoritynutrition.com/11-proven-health-benefits-of-garlic> (Accessed May 1, 2017).
- Goulart, F. S. 1995. Super Healing Foods. Reward Books, a Member of Penguin Putnam Inc. New York.
- Lewin, J. n.d. The Health Benefits of Garlic. Available: [https://www.bbcgoodfood.com/how to/guide/ingredient-focus-garlic](https://www.bbcgoodfood.com/how-to/guide/ingredient-focus-garlic) (Accessed May 1, 2017).
- Magee, E. 2000. Tell Me What to Eat to Help Prevent Breast Cancer. Published by arrangement With Career Press. USA.
- Nala, Ngr. 1993. Usada Bali. Penerbit PT. Upada Sastra. Denpasar.
- Nordqvist, C. 2015. Garlic: Health Benefits, Therapeutic Benefits. Available: <http://www.Medicalnewstoday.com/articles/265853.php> (Accessed May 1, 2017).
- Reader's Digest. 2004. Foods that Harm Foods that Health. Reader's Digest Association Inc. New York.
- Servan-Schreiber, D. 2008. Anticancer: A New Way of Life. Published by the Penguin Group Inc. USA.
- The George Mateljan Foundation. 2017. Garlic: The World's Healthiest Foods. Available: Whfoods.org (Accessed May 9, 2017).
- Thomas, A.N.S. 1989. Tanaman Obat Tradisional 1. Penerbit Kanisus. Yogyakarta.

**THE INHIBITORY OF EXTRACT GUAVA LEAVES (*Psidium guajava*)
ON BACTERIAL *Escherichia coli* GROWTH**

Ni Putu Ayu Trisnayani¹, Anak Agung Komang Suardana²
suardanaunhi@gmail.com²
Hindu Indonesia University^{1,2}

Abstract

Guava (*Psidium guajava*) is a plant that grows a lot in Indonesia. Guava leaves are usually used as a traditional medicine that can be as antibacterial. Chemical content of Guava (*Psidium guajava*) leaves in the form of tannins that are as anti-bacterial.

This research is an experimental research using non randomized design which aims to find out the inhibition of guava (*Psidium guajava*) leaves extract on bacterial *Escherichia coli* growth.

The result showed that treatment with guava leaves extract at different concentrations had an effect on the inhibition of bacterial growth.

Further test results proved that the treatment of guava leaves extract at 0 % concentration (control), 25 % concentration, 50 % concentration and 75 % concentration produced different inhibitory zone which is obvious while for the treatment of guava leaves extract at 100 % concentration resulted in the resistor zone which different significantly with the control and concentration of 75 %, but not significantly different from the inhibition zone produced by the treatment at concentration 25 % and concentration 50 %.

INTRODUCTION

Background of the Study

Health development is the most important part of national development. The purpose of health development is to increase awareness, willingness and ability to live healthy for every person to realize the optimal health of society. Health development is organized by the basis of humanity, empowerment and independence, justice and equality, with special attention to the rural population, including: maternity, babies, children, elderly and poor families (Dinkes Kota Denpasar, 2015)

Health efforts are influenced by four factors: environment, behavior, health service, and heredity. From those factors, environmental factors and behavioral factors have a big role to increase the standard of public health. The big influence of this environment, therefore to improve the health standard of environmental sanitation efforts should be done is a preventive effort against diseases associated with the environment(Blumm, 2014)

Environmental sanitation is an effort to achieve a healthy environment through controlling physical environmental factors especially the situations that have destructive impact on the

physical development of health and human survival. Basic sanitation facilities are the minimum necessary tools to provide a health-resident environment that includes the provision of clean water, human waste disposal, waste water disposal and waste treatment. This basic sanitation facility is a supporting tool to improve environmental health (Azwar, 2014).

The efforts to improve environmental health are one of the efforts to improve the health standard in order to achieve optimal quality of life. Environmental health science focus on human efforts to manage the environment in such a way that human degrees can be further improved. From the importance of environmental factors, the effort of environmental sanitation is absolute. The effort covers the improvement of environmental conditions. To achieve a healthy environment conditions various efforts should be undertaken among others is the fulfillment of sanitation facilities that must be minimal and necessary to make healthy residential environment such as clean water facilities and waste water disposal facilities. The condition of sanitation facilities in a region influences the environmental quality in the area. Lack of inadequate sanitation facilities may serve as an intermediary for transmission of various diseases due to adverse environmental conditions such as diarrhea (Azwar, 2014).

Diarrhea is a condition when the patient has frequent defecate and still has excessive water content. Diarrheal disease is an endemic disease of Indonesia, meaning it occurs continuously in all areas in both urban and rural areas. This disease threatens everyone regardless of age, gender, or social status. Differences in diarrheal diseases between Indonesian territories are only the number of cases, the season of incidence and the mortality rate.

Diarrhea can be caused by several types of bacteria that contaminate food and beverages we consume or also bacteria contained in water that we use for everyday purposes, the types of bacteria that are *Shigella*, *Salmonella*, *Escherichia coli*. *Escherichia coli* is a normal flora in the intestine but can be a pathogen if its amount is large, especially *Escherichia coli* that is enteropatogenik and enterotoxigenic. This clinical aspect produces exotoxins that can aggravate the standard of occurrence of diarrhea. Enteroinvasive *Escherichia coli* (EIEC) is a diarrhea with a slimy and bloody phenomenon similar to shigellosis, this aspect can ferment lactose to acid and gas and attack intestinal mucosa epithelial cells, Enteroagregative *Escherichia coli* (EAEC) type of acute and chronic diarrhea lasts more than 14 days because the attachment to intestinal mucosal cells and produce enterotoxins and cytotoxins, resulting in mucosal damage, expenditure of large amounts of mucus and severe diarrhea. Enterohemorrhagic *Escherichia coli* (EHEC) produces verotoxin which can cause severe diarrhea accompanied by rectal blood discharge called intestinal bleeding or Hemorrhagic colitis (Brooks et al, 2005).

Guava leaf extract is often used to treat various diseases, including gastrointestinal diseases, vomiting, diarrhea, dysentery, new injury, toothache, cough, sore throat, gingivitis and others. Guava plants have good prospects and should be developed (Dweck, 2009)

The existence of a community group that are use natural ingredients as a traditional diarrhea medicine for the first action before treatment at health facilities. For example Guava Leaf (*Psidium guajava*), this ingredients beside being easy to obtain, the way of processing and its use is easy and simple. Its use as a traditional cure diarrhea if used apart or in combination with other natural ingredients that function still same. This traditional medicine is certainly for mild cases of diarrhea that is not accompanied by dehydration. Practically the leaf of Guava (*Psidium guajava*)

has been used by the people of the world as flavoring spice and treatment of non-specific diarrhea and theoretically leaf of Guava (*Psidiumguajava*) has antibacterial. Based on the description above it is necessary to do research on the inhibitory power of guava leaf extract (*Psidiumguajava*) on the growth of *Escherichia coli* bacteria.

Problem Identification

As stated on the background of the study, the problem identified is “How was the inhibitory of Extract Guava leaf (*Psidiumguajava*) on the growth of *Escherichia coli* bacteria? “

Research purposes

The purpose of this research is to know “The Inhibitory Extract of Guava Leaf (*Psidiumguajava*) on the growth of *Escherichia coli* bacteria”

Research Hypothesis

There is inhibitory of extract Guava leaf (*Psidiumguajava*) on the growth of *Escherichia coli* bacteria.

Benefits of research

The results of this study can be used as an information data to the public and related institute, about the benefits of Guava leaf (*Psidiumguajava*) as natural herbal ingredients in the treatment of diarrheal diseases caused by *Escherichia coli*.

RESEARCH METHODOLOGY

Time and Location of the Research

Guava Leaf Extract (*PsidiumGuajava*) was made at Biotechnology Postgraduate program Laboratory of Udayana University, Bali. The research was done at Public Health Laboratory of Udayana Level II Hospital, Denpasar Bali. The study was conducted for 2 weeks, starting from 16th February to 1stMarch 2016.

Research Design

The research design was an experimental research which is called *Non-randomized design post-test only control group design* (Zainuddin, 2000; Kuntoro, 2006). There were 5 treatment groups in this experimental research. The 5 treatment groups which were done are as following:\

- T0 = 0% Concentration with aquadest (as control).
- T1 = 25% Concentration of Guava Leaf Extract (*Psidiumguajava*).
- T2 = 50% Concentration Rough Guava Extract (*Psidiumguajava*).
- T3 = Concentration 75% Guava leaf extract (*Psidiumguajava*).
- T4 = 100% Concentrate Guava Leaf Extract (*Psidiumguajava*).

The experiment design was determined by the following steps:

1. Determine the number of replications

$$(T - 1) (r - 1) \geq 15$$

$$(5 - 1) (r - 1) \geq 15$$

$$4 (r - 1) \geq 15$$

$$4r - 4 \geq 15$$

$$4r \geq 15 + 4$$

$$R \geq 19/4$$

$R \geq 4.75$, rounded to 5, therefore, the number of replication = 5

Description:

T = Treatment

R = Replication

2. Determine the number of experimental units

Treatment (t) = 5

Many samples (r) = 5

Number of experimental units = t x r

$$= 5 \times 5$$

= 25 experimental units (Hanafiah, 2012).

Sample and Population of the Research

1. The population of this study was Escherichia coli Bacteria Clinical isolates which was obtained from clinical isolation collections of patients with non-specific diarrhea Udayana Community Health Laboratory.
2. Samples of this study were Escherichia coli bacteria which was given the extract of Guava leaf (Psidiumguajava).

Research Instrument

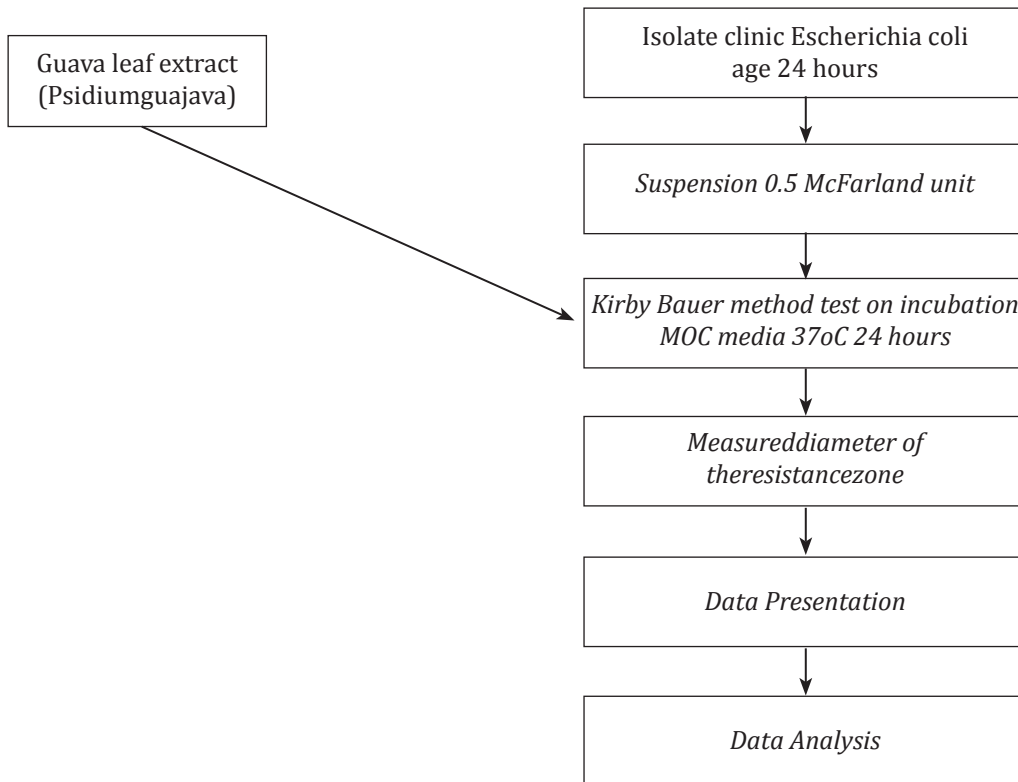
Tools

Autoclave, Incubator, Measuring cup, Rotary evaporator, Threaded bottle, Jar, Gauze cloth, Knife, Reaction Tube, Tissue, Cotton swab, Micropipet, Triple, Petridisk, Yellow tip, Blue Tip. Skate, Aluminum foil, Measuring pump, Stationery, Bunsen Burner, Burner Spritus, Stirring Rod, Bulp filler, Ose, Erlenmeyer, and Laminar air flow.

Materials

Materials used in this study were Guava Leaves (Psidiumguajava), Guava Leaf Extract Psidiumguajava), Escherichia coli Culture, MHA Media (Muller Hinton Agar), EMB Media (Eosin Methylene Blue), H₂SO₄, BaCl₂, Alcohol 96 %, Sterile Aquadest, Blank disk, Plastic Bag, and 96% Ethanol.

Research Plot



FINDINGS AND DISCUSSIONS

Based on the research experiment conducted at the Public Health Laboratory of Udayana Hospital Bali Level II, about the Limit Concentration of Guava Leaves (Psidiumguajava) on the growth of Escherichia coli bacteria, the results were obtained as following:

Table 1
Inhibitory zone (mm) Guava Leaf Extract (Psidiumguajava) on the growth of Escherichia Coli Bacteria

Treatment Concentration (%)	Test					Total	Average
	1	2	3	4	5		
0 (kontrol)	0	0	0	0	0	0	0
25	12	12	13	12	13	62	12,4
50	14	16	15	15	14	74	14,8
75	18	18	20	18	19	93	18,6
100	15	13	12	14	15	69	13,8

Source: Data processed in 2016

From the data of the research, it had shown that Guava Leaf Extract (*Psidiumguajava*) at the concentration of 25%, 50%, 75%, and 100% created the variety of inhibitory zone. The inhibitory zone which was created depending on the concentration of the extract, the higher the concentration up to 75%, the inhibitory zone would increase. However, at 100% concentration, the increasing of inhibitory zone was not happened. It was different with 75% concentration as seen in table 4.1 Concentration 0% which using sterile aquadest did not form inhibitory zone.

The Result of Sensitivity test of Guava Leaf Extract (*Psidiumguajava*)

The result of the research was the diameter of the resistance zone of Guava Leaf Extract (*Psidiumguajava*) had shown that the concentration of Guava leaf (*Psidiumguajava*) which had the average diameter of the inhibitory zone was 75% (18.6 mm) and the narrowest was 25 % (12.4 mm). This indicates that the Extract Guava Leaf when matched with standard of natural obstacle material, according to Murkerjee (1998), the diameter result of inhibitory zone measurement smaller than 4 mm means resistant, 4 -12 mm inhibitory zone is intermediate, and greater inhibitory zone of 12 mm means sensitive. The results were sensitive from concentrations of 25% to 100% (12.4mm - 18.6mm), whereas concentration 0% (control) was resistant or cannot inhibit the growth of *Escherichia coli* bacteria.

Statistical Test Results on One Way ANOVA Analysis (Variant Analysis)

The data obtained from the results of the test of Guava Leaf Extract (*Psidiumguajava*) on the growth of *Escherichia coli* bacteria after being analyzed by statistical test One Way ANOVA Analysis (Analysis of Variant) with 95% confidence level ($\alpha = 0,05$), with the result from SPSS program 22nd Version as shown in table 4.2 as follows:

Table 2
The Result of Statistical Test of *One Way* ANOVA Analysis (*Analysis of Varians*)

Source of Variants	Quadratic Amount	Free Square	Middle Square	F _{count}	Sig.
Treatment	993,840	4	248,460	354,943	,000
Error	14,000	20	,700		
Total	1007,840	24			

Based on the results of table above, it can be seen that the treatment of extract is significant, as indicated by the value of Sig. = 0.000 <, this means that there is at least a pair of treatments that give different Zone Inhibitory results. To find out which Treatment produces a different or equal Inhibitory Zone then it must be continued with the Tukey HSD Multiple Comparison Test.

Tukey HSD test results

Table 3
Tukey HSD Multiple Comparison Test Results

Treatment	0	25%	50%	75%
25%	-12.400**			
50%	-14.800**	-2.400**		
75%	-18.600**	-6.200*	-3.800**	
100%	-13.800**	-1.400 ^{ns}	1.000 ^{ns}	4.800**

Description:

** means significantly very different

* Means significantly different ns means not different

Based on the results of table 4.3 above, it can be seen that the Control generated significant Inhibitory Zone which was very different from the real Zone Inhibitory which generated by concentrations of 25%, 50%, 75% and 100%.

Firstly, the 25% concentration which produced a significant Inhibitory Zone was significantly different from the Inhibitory Zone generated by 50% Concentration. The 25% concentration resulted in Inhibitory Zone significantly different from the Inhibitory Zone generated by 75% Concentration. The 25% concentration produced an Inhibitory Zone which is not significantly different from the Inhibitory Zone generated by 100% Concentration.

Moreover, the 50% concentration which produced a Inhibitory Zone was significantly different from the Inhibitory Zone produced by 75% Concentration. The 50% concentration produced the Inhibitory Zone which was not significantly different from the Barrier Zone generated by 100% Concentration. Furthermore, the 75% concentration yielded a significant Inhibitory Zone was significantly different from the Inhibitory Zone produced by 100% Concentration.

To make the readers easier to read the result of Tukey Multiple Comparison Test above, the following table will explain more clearly. Table 4 about Tukey Multiple Comparison Test is as following:

Table 4
Tukey HSD Multiple Comparison Test Results

Treatment	Average	Notation
Control	0	a
25%	12.400	b
50%	14.800	c
75%	18.600	d
100%	13.800	bc

Description:

Treatments that have the same letter notation produced an Inhibitory Zone that was not significantly different, whereas Treatments that have different letter notations generated different Inhibitory Zones significantly.

Discussion

The aim of this study to observe "Guava Leaf Extract (*Psidium guajava*) towards the growth of *Escherichia coli* bacteria" with concentration of extract 0% (control), 25%, 50%, 75% and 100%. From the results of the research can be seen that the concentration of 0% (aquadest control) obtained Diameter Daerah Hambat (DDH) or Diameter of Inhibitory Zone of 0 mm because at this concentration was used a sterile aquadest without the addition of Guava Leaf extract (*Psidium guajava*), therefore, there is no active substances in it which can inhibit the growth of *Escherichia coli* bacteria.

Guava Leaf Extract (*Psidium guajava*) at concentrations of 25%, 50%, 75% can form inhibitory zones against the growth of *Escherichia coli* bacteria. The higher the concentration, the greater inhibitory zone was produced up to 75% concentration. On the other hand, at 100% concentration inhibitory zone decreased. The inhibitory zone which formed was influenced by the active substances contained in the extract of the Guava leaf (*Psidium guajava*), especially aromatic compounds such as piperin, avicularin, tannin and others act as antibacterials that can inhibit bacterial growth. The results of this study are in accordance with research conducted by Sari (2015) which states that the active ingredients such as piperin, avicularin, tannin and others serve as an antibacterial that can inhibit bacterial growth.

Guava Leaf Extract (*Psidium guajava*) at 100% concentration can also form inhibitory zone but tends to decrease or less than 75% concentration. Due to 100% pure concentration of Guava leaf extract (*Psidium guajava*) without dilute with aquadest, therefore inhibitory zone can be decreased and if there is aquadest in it, it will be more effective. The mechanisms of inhibitory growth of bacteria can be conducted in 5 ways, namely cell wall synthesis, membrane function, protein synthesis, nucleic acid metabolism and intermediary metabolism. Protein is the compiler of bacterial cells and plays an important role in the cell. Proteins in these bacterial cells will work well if dissolved in aquadest (Anonymous, 1993).

Decreasing of the inhibitory zone at 100% concentration also caused the water content of the leaf extract of Guava (*Psidium guajava*) low, therefore the low water content of the Guava leaf (*Psidium guajava*) cannot pass through the cell wall and the cytoplasmic membrane of *Escherichia coli*. Finally, the active ingredients produced by the guava leaf extract (*Psidium guajava*) enter only slightly. As a result, inhibitory zone in the extract of Guava leaf (*Psidium guajava*) against *Escherichia coli* bacteria had decreased.

The inhibitory activity of bioactive compounds which was contained by Guava Leaf Extract (*Psidium guajava*) on the growth of *Escherichia coli* was caused by other antibiotics that can damage the bacterial cell wall which affected the wall is not perfect and cannot stand by the pressure of plasma osmose (Pelczar, 1988).

Inhibition of synthesis of nucleic acids and bacterial proteins can cause total damage to cells because DNA, RNA and proteins played a very important role in normal cell life processes. Therefore, any interference that occurs in the formation or in the function of these substances can cause cell damage. Moreover, changes in cell permeability or damage to the membrane also resulted in inhibition of cell growth or cell death. This is because the cytoplasmic membrane retains certain ingredients in the cell, regulates the entry of other substances and maintains the integrity of cellular components and changes in protein molecules and nucleic acids can damage cells irreversibly because the life of a cell depends on the preservation of molecules - protein molecules and nucleic acids (Pelczar, 1988).

The results of this study are suitable with the opinion of Parimin (2005). Parimin states that guava leaf contains 9-12% tannins, essential oils, waxes, phytosterols, ursolic acid, oleonic acid, kratogolic acid, guaiacolic acid, carotene, Vitamin B1, B2, B6, Niacin, avicularin compound, guaiaverin. Moreover, active substances which were found in guava leaves had an antibacterial effect on the inhibition of bacterial growth.

Anova test results had shown that treatment given with different concentration of Guava Leaf Extract (*Psidium guajava*) had an effect on the growth inhibition of *Escherichia coli*. Tukey test results had proven that Treatment (Control, 25% Concentration, 50% Concentration, and 75% Concentration) produced different Inhibitory Zone significantly, while for Treatment (100% Concentration) resulted significantly different Inhibitory from Control and from the concentration of 75%. However, it was not significantly different from the inhibitory zone generated by Treatment (P = 25% and 50%).

CONCLUSIONS AND SUGGESTIONS

Conclusion

The conclusion of this study was obtained from the result of analysis in previous chapter. The conclusions were:

1. Guava Leaf Extract (*Psidium guajava*) has an inhibitory effect on the growth of *Escherichia coli* bacteria.
2. The average inhibitory zone of Guava Leaf Extract (*Psidium guajava*) on *Escherichia coli* bacteria at concentrations of 25%, 50%, 75% and 100% was 12.4 mm, 14.8 mm, 18.6 mm, and 13.8 mm respectively.
3. At concentrations of 25%, 50% and 75% the average inhibitory zone were increased and at 100% concentration the average inhibitory zone was decreased.

Suggestion

After did the research on Guava Leaf Extract (*Psidium guajava*) on the growth of *Escherichia coli* bacteria, it is suggested that the next researcher can use different types of bacteria or can use a smaller concentration than existing research, and to find out the minimum concentrations that can be inhibit bacterial growth.

References

- Adnyana, I Ketut, Yulinah Elin, Sigit I. Joseph, Fisheri K. Neng and Insanu Muhamad. 2004. Efek Ekstrak Daun Jambu Biji Daging Buah Putih dan Jambu Biji Daging Buah Merah sebagai antidiare. *Journal Acta Pharmaceutica Indonesia* (29) 1: 19-21.
- Anonim. 2005. *Morfologi E. coli menggunakan mikroskop elektron* Available at: <http://www.microbelibrary.org>, didownload 18 April 2015.
- Anonim. 2005. Pohon Jambu Biji. Available at : <http://www.microbelibrary.org>. Didownload 18 April 2015.
- Anonim. 2005. Tanin. Available at: <http://www.webref.org/chemistry/tannin.htm>. Diakses tanggal 21 Maret 2016.
- Anonim. 2006. Koloni *E. coli* pada media *Eosin Methylen Blue* (EMB). Available at: <http://www.Microbelibrary.org>, didownload 18 April 2015.
- Anonim. 2010. Uji Hipotesis. Available at: <http://http.wordpress.com>. Diakses 18 April 2015.
- Anonim. 2014. Cara menghambat pertumbuhan bakteri. Available at: <http://www.kompasiana.com>. Diakses tanggal 21 Maret 2016.
- Anonim. 2015. Pembangunan Kesehatan. Departemen Kesehatan Kota Denpasar.
- Azwar. 2014. Pengantar Ilmu Kesehatan Lingkungan. *Jurnal* 13: 183-192.
- Brooks GF, Janet SB, and Stephen AM. 2001. Mikrobiologi kedokteran. Diterjemahkan oleh Staf Mikrobiologi FK Unair. Ed. 1, Jakarta: Penerbit Salemba Medika, hlm 395 – 399, 429-431.
- Blumm, Hendrick L. 2012. Faktor yang mempengaruhi upaya kesehatan. Available from: <http://www.ruanginfoguru.com>. Diakses 15 Februari 2016.
- Dweck, C.A. 2005. Khasiat tanaman Daun Jambu Biji. Available from: <http://khasiat.wordpress.com>. Diakses tanggal 20 April 2015
- Fadhilah, D. 2012. Metode Analisis Statistika. Available at: <http://repository.unhas.ac.id>. Diakses 18 April 2015.
- Hanafiah. 2012. Menentukan Jumlah Replikasi dan Unit Percobaan. Available from : <http://www.digilib.fk.unsyiah.ac.id>. Diakses 17 April 2015.
- Harborne, J.B. 1996. Metode Fitokimia Penuntun Cara Modern menganalisis tumbuhan, ITB Bandung.
- Kartasapoetra. 2006. Kandungan Kimia Daun Jambu Biji. Available from: <http://www.eprints.uns.ac.id>. Diakses 19 April 2015.
- Kurniawan, S. 2010. *Pemeriksaan Test Sensitivitas pada Bakteri*. Dilihat 4 Oktober 2013. <<http://www.sodycxacun.web.id/2010/10/pemeriksaan-test-sensitivitas-pada.html>>.
- Lucky. 2009. *Buku Ajar Mikrobiologi Kedokteran*. Binarupa Aksara Publisher. Tangerang
- Mahon, C. 2011. *Textbook of Diagnostic Microbiology*. Fourth Edition.
- Maliana, Y, Khotimah, S, Diba, F. 2013. *Aktivitas Antibakteri Kulit Garcinia mangostana Linn. terhadap Pertumbuhan Flavobacterium dan Enterobacter dari Coptotermes curvignathus Holmgren*. *Jurnal Protobiont* vol.2 Universitas Tanjungpura. Pontianak.
- Mukherjee K.L. 1988. *Medical Laboratory Technology*. Vol II. Tata McGraw Hill, New Delhi.
- Narasiwi, A. 2013. Efektivitas Ekstrak Ethanol Kulit Jeruk Manis (*Citrus sinensis*) Sebagai Larvasida Terhadap *Larva Culex sp.* Karya Tulis Ilmiah. Program Studi D3 Analisis Kesehatan STIKes Wira Medika Bali.

- Parimin S.P. 2005. Jambu biji: budi Daya dan Ragam Pemanfaatannya, Cet.I, Penebar Swadaya, Jakarta,hal 5-23.
- Pelczar J dan E. chan. 1988. Dasar – dasar mikrobiologi. Jakarta : UI press.
- Puspaningrum, A. 2008. Taksonomi Klasifikasi *Escherichia. Coli*. Available from:<http://www.lib.ui.ac.id>. Diakses 18 April 2015.
- Simatupang. 2004. Penyakit Diare. Available from: [http:// www.ripository.usu.ac.id](http://www.ripository.usu.ac.id). Diakses 19 April 2015.
- Soemarno. 2000. Bakteri *Escherichia coli*. Available from: <http://www.digilib.unimus.ac.id>. Diakses 19 April 2015.
- Sugeng. 2001. Berbagai Manfaat dan Khasiat daun Jambu Biji. Available from: <http://www.menitinfo.com>. Diakses 18 April 2015.
- Sari, A. 2015. Pengaruh Pemberian Ekstrak Maserasi Daun Jambu Biji (*Psidium guajava* L.) Terhadap Bakteri *Escherichia coli*. Karya Tulis Program Studi D III Farmasi Pliteknik Harapan Bersama.
- Saputra, M. 2015. Tanaman Jambu Biji (*Psidium guajava*). Available from: www.repository.iun-suska.ac.id. Diakses 20 April 2015.
- Sukardi, A.R. Mulyarto and W. Safera. 2007. Optimasi Waktu Ekstraksi terhadap Kandungan Tanin pada Bubuk Ekstraks Daun Jambu Biji (*Psidii folium*) serta Biaya Produksinya. Jurnal Teknologi Pertanian 8 (2) : 88-94.
- Zainuddin M, 2000. Metodologi Penelitian. Surabaya, hal. 32-36, 79-81.

USADA: THE PHILOSOPHY OF BALINESE HEALING TRADITION

I Wayan Suka Yasa¹, W.A. Sindhu Gitananda²

gitanandas@yahoo.com²

Hindu Indonesia University^{1,2}

Abstract

The healing tradition to utilize the medicinal plants in Bali is called *usada* or *pangusadan*. Then, the healer is called *balian usada*. Before someone becoming a healer, he must master the knowledge of *tattwa usada* (the philosophy of health), *sesana balian* (the ethic of healing), *tetenger* (the diagnosing method), *taru pramana* (kinds of the medicinal plants and their qualities), and *ngusadanin* (the therapy method).

Based on the viewpoint of *pangusadan*, there are three kinds of disease that cause people to suffer illness. They are (1) *adhibhautika duhka*: the physical illness induced by various viruses or collision with blunt instrument, (2) *adhyatmika duhka*: psychological illness caused by mental or emotional disorder, and (3) *adhidaivika duhka*: the illness caused by supernatural power. Among these three kinds of illness, the mental or emotional disorder may also bring out the other two illnesses. Besides, the illnesses are of three characters: (a) *nyem*, the illness because of coldness; (b) *panes*, because of heat; and (c) *nyem-panes* or *sebaa* is the illness caused by the mix of both or in between.

The *balian usada* does not only cure the patient of the physical illness, but also the other kinds of illness. That is why, while they are mastering the knowledge of *usada*, they must also be able to understand the mental or emotional condition of their patients. Through this methodology, the patients may be healed holistically. Therefore, the *balian usada* should have physical exercise as well as mental and supernatural exercises. The three exercises are also known as *sadana telu*:

- (1) *Jnana bhyudireka*, which means improving the knowledge of spiritual through understanding the texts of *tattwa* 'theological philosophy'. The texts are of three kinds: (a) *sastra sangha*, which is the theological doctrine in which there are nine aspects of God generating into the nine cosmic souls of the macrocosm and the microcosm; (b) *Buddha kecapi* that is the knowledge about how to improve the logical way of thinking in order to have rational perspective; and (c) *genta pinarah pitu*, which means to have religio-magical enforcement as the important initiatives to foster the supernatural power of the *balian usada* they use to heal their patients.
- (2) *Indriya yoga marga*, the yoga exercise of the *balian usada* in order to have healthy physic and mind for the sake of controlling the bad tendency of the five senses and or the mind.
- (3) *Tresna dosa ksaya*, the self liberation from various worldly bondages or bad deeds to violate the sinful actions.

The last two *sadana* is the basic of the ethic of the *balian usada* called *sasana balian* or *dharma usada*. Accordingly, the *balian usada* have the responsible to cure the sick people who come to their house on behalf of and as the representation of their devotion to God. The patients must obey the rule of *bhakti* and precede the clue and requirement given by the *balian*.

For the purpose of implementing the professional rule of the *pengusadan*, the *balian usada*

have to keep in mind the knowledge of *tetenger* 'disease diagnostic knowledge', the knowledge of *usada* 'the medicinal plants and the pharmacology', and must be able to *ngusadanin* 'therapy the patients'. There are hundreds of *lontar usada* 'Balinese scripts of *usada*' that may be used as the references for the *balian usada* in Bali. Among all of those *lontars*, the most popular are *Dharma Usada*, *Buddha Kacapi*, *Taru Pramana*, and *Kalimosada*.

INTRODUCTION

The healing tradition of using medicinal plants in Bali is called *usada* or *pangusadan*. Those who dedicate themselves to be healers by utilizing herbs are called *balian usada*. In order to become a qualified healer, the person is required to master *tattwa usada* (the health philosophy), *sesana balian* (the ethics of *pangusadan*), *tetenger* (how to diagnose), *taru pramana* (type of the medicinal plants and their qualities), and *ngusadanin* (how to treat) patients.

According to the world view of the *pangusadan* (science of *usada*) there are three types of diseases that make people sick or suffering. (1) *adibhautika duhka*, the physical disease caused by various seeds of disease or having collision to hard objects; (2) *adyatmika duhka*, the psychic illness caused by a disorder of thought or feeling; And (3) *adidaiwaika duhka*, the disease caused by a disturbance of supernatural powers (Wrehaspati Tattwa, 1994). Among the three types of diseases, the illness caused by the disorder of thought or feeling can cause people also suffer physical and supernatural diseases. There are three types or natures of the diseases: (a) *nyem*, the cold disease, (b) *panes*, the hot disease, and (c) *nyem-panes* or *sebaa*, the mixed between hot and cold disease.

In order to be able to overcome the three types of disease the *balian usada* is not only required to cure only the physical one, but also the two other diseases. Therefore, in addition to mastering the science of *usada*, they are also required to have the mind ability to cope with the suffering of patients to give holistic cure. To that end, the *balian* must develop his own professional quality through performing physical, thought, and mental activities called *sadhana telu* (see Wrehaspati Tattwa): (1) *Jnana bhyudireka*, broadening the spiritual insight by deepening the *tattwa* texts 'theology in philosophical perspective'. (2) *Indriya yoga marga*, which is the practice of yoga by keeping fit and control the tendency of the senses and/or the mind; and (3) *tresna dosa ksaya*, to free himself from the worldly attachments or disgraceful acts in order to avoid sinful circumstances.

In order to raise or develop his professional quality, there are three important philosophical aspects that must be mastered by the *balian usada*: Learning the teachings of *Sastra Sangha*, *Budha Kacapi*, and *Ganta Pinara Pitu*. What are they? The followings are brief explanations.

DISCUSSION

The Teaching of the *Sastra Sangha*

The *Sastra Sangha* is a divine teaching with nine aspects (actually there are ten aspects, but because two aspects in the middle are united to become one then all of them are *sangha* 'nine')

which become the spirit or the soul of the nine cosmic elements, both of the macrocosm and the microcosm. The nine spirits consist of two major components called *Panca Brahma* and *Panca Tirtha*. The *Panca Brahma* is the spirit of the five great elements of the universe called *Panca Mahabhuta*. According to the Balinese spiritual pattern those deities who occupy the position in the direction of East, South, West, North, and Lower Middle.

- (1) God Iswara is the spirit of the *bayu* 'air' or 'wind'. He is believed to occupy the Eastern position. His spell formula is *Sang*. The attribute is white. In the human being He resides in the heart;
- (2) Brahma is the spirit of the *teja* 'light' or 'fire'. He is believed to occupy the South. The spell formula is *Bang*. The attribute is red. In the human being He is in the liver;
- (3) God Mahadeva is the spirit of the *prethiwi* 'soil' or 'solid matter'. He is believed to be based in the West. The spell formula is *Tang*. The attributes are all yellow. In the human being He domiciles in the kidneys;
- (4) Lord Vishnu is the spirit of the *apah* 'water' or 'liquid matter'. He is believed to be based in the North. The spell formula is *Ang*. The attribute is Black. In the human being He resides in the bile;
- (5) God Isana (Shiva) is the spirit of the *akasa* 'ether' or 'sky'. His spell formula is *Ing*. The attribute is pent color. In the human being He is placed in *bungkahing ati* 'the bottom of the heart'.

Meanwhile, the *Panca Tirtha* are the five gods who occupy the direction of *widik* 'edge', namely Southeast, Southwest, Northwest, Northeast, and Upper Middle.

- (1) God Mahesora is the spirit of rain who resides in the Southeast. Its mantra formula is *Nang*. The attribute is orange. In the human being He is in the lungs;
- (2) Lord Rudra is the spirit of the beast who belongs to the Southwest. The mantra formula is *Mang*. The attribute is purple. In the human being he domiciles in the young intestine;
- (3) God Sangkara is the spirit of plants who rules the Northwest. The spell formula is *Sing*. The attributes are all green. In the human being He is in the spleen;
- (4) God Sambhu is the spirit of the cloud. He is located in the Northeast. His spell formula is *Wang*. The attributes are all blue. In the human being is the seat of the chest cavity;
- (5) Lord Sadaswa is the spirit of the upper heart. He is located in the upper middle. Its mantra formula is *Yang*. The attributes are pent color.

These ten gods are aspects of God's unity that must be understood, comprehended, and trained by the *balian usada* according to the *pasuk-wetu* or Siwaistic tantric yoga system. Its spiritual outlook is pantheistic that God is one but by His character makes him different by in names according to the dominant character of each. The goal is to fulfill His omnipotent function.

In line with that, then in order to concentrate the mind, the magic formula of the ten gods, Bang Tang Ang Ing Nang Mang Sing Wang Yang, are the main means of guiding to the mind of the *balian* where he cannot think of anything other than concentrating, contemplating the greatness of the gods concerned. The ten gods (with their formula) are restored step by step to the Essence

of the Sole. At first the formula of 10 (*Panca Brahma + Panca Tirtha*) are summarized into five formulas called *Panca Gni* (*Sang Bang Tang Ang Ing*); *Panca Gni* then are summarized into 3 formulas called *Tri Murti* (*Ang Ung Mang*); the *Tri Murti* are summarized into two formulas called *Sanghyang Rwabhineda* (*Ang Ah*); And finally the *Rwa Bhineda* are summarized into one formula whose mystical concentration center is determined on the guidance of the teacher. The mantra formula of the One is Om, the core formula is called *Ongkara Pranawa*. This *Ongkara Pranawa* is the symbol of the Almighty God. For this concern, in order to practice yoga and other professional works, the *balian usada* must perform yoga and works on behalf of and for God's sake. This is because God is indeed the *Balian Usada* itself. The patients who come to the *balian usada* are really healed on the blessing of God. The *balian* is only a professional servant of God which in him has manifested the unity of power in the form of God's divine character (see Lontar Panglukun Dasaksara, Yasa, 2015).

The Teaching of *Buddha Kacapi*

If the teachings of the *Sastra Sangha* aims at providing the *balian usada* to have sufficient spiritual intelligence, the teachings of *buddha kacapi* aims at training the *balian usada* in order to develop his power. The word '*buddha*' here is defined as the mind or the power of reason. Then, the word '*kacapi*' means mirror. This expression is likely to say that the *balian usada* clears his body through practicing logical thinking in helping the patients overcome the illness they suffered. Its metaphorical principle is that only a clear mirror (wise thought) can reflect a clear shadow. The shadow is certainly a symptom of the illness that is reflected from the patients' body. The symptoms are the result of the illness that affects the patients. Through knowing the symptoms, the cause of the pain can be recognized. The recommended way is to develop reasoning based on the *tri pramana* method, which is three ways or phases to reach the truth. The truth in the context of the existence is the truth according to science of *usada* in terms of developing the professional skills in diagnosing, concocting drugs, and treating patients. The *tri pramana* refers to three methods of analysis.

- (1) *Pratyaksa pramana*. The *balian* must pay attention to the physical signs that can be the symptoms of illness suffered by the patient. For example by observing the state of the eyes, lips, face, skin, nails, body language, patient complaints and others carefully;
- (2) *Anumana pramana*. The *balian* carefully analyzes the observed symptoms of causal law that the symptoms observed are the result of the illness that the patient suffered;
- (3) *Agama or sabda pramana*. In this method the conclusion of the *balian* must be taken based on the texts of *usada* and/or on the basis of the experience of the more senior *balian usada*.

Such methods may be assisted by other relevant methods, for example, the method of *upamana*, the comparative method where the symptoms of one patient's pain can be compared with another patient who seems to experience the same sickness. Based on the analysis of the symptoms of the illness, a new *balian usada* is then justified for *ngusadanin* 'treating patients' by giving his patients the dosage of herb believed to be suitable for curing the illness. As the illness, the healing and the health care of the patients also need time to process through a therapy. There are hundreds of *lontar usada* that can be used as references by the *balian usada* in carrying out

his profession. Some of them have been very popular such as *Taru Pramana*, *Dharma Usada*, *Kalimosada*, *Usada Sari*, *Usada Dalem*, *Usada Tiwang*, *Usada Punggung Tiwas*, and so forth.

The Teachings of *Ganta Pinara Pitu*

The *ganta pinarah pitu* is the teaching related to the practice of religious-magical yoga. The goal is to be able to have a sense of power or emotional quotient through sublimating the basic emotions that exist within the body of the *balian*. It can be utilized as supernatural power, self-sustaining suggestive power to accelerate the healing to the patient. In other words, the supernatural power is in fact the strength of the focused positive character that becomes self-suggestive power to overcome or minimize the strength of the patients' negative character. The assumption is that the negative thoughts that accumulate in the patient can be the main cause of people to become ill. Thus, the main task of the *balian usada*, in addition to treating the patients with herbal medicine, is to restore the patients' confidence, namely to treat patients with loving discourses so that the negative thoughts can be minimized until become lost through the spiritual splash of positive fruits of thought. Besides, the *balian usada* has an obligation to awaken and/or strengthen the belief of the patients called *sraddha* since without a firm conviction people will easily confuse and lose their center of spiritual orientation that become the protector and the guide to maintain the positive behavior and attitude of the people within their life.

This suggestive power therapy can be applied by instilling the Hindu motto, "*Yad bhawam tad bhawatu*" that means what is in your mind is what happen to yourself. Sri Krishna in the *Bhagawadgita* (XVII: 3) advises Arjuna:

*Sattwanurupa sarwasya, sraddha bhawati Bharata,
Sraddhamayoo'yam puruso, yoyah sraddhah sa ewa sah.*

Meaning:

Every man's belief, O Arjuna, confirms his world view.
The existence of man is determined by his world view.
What the belief is anything to happen.

In that context, the *balian usada* first needs to understand what is meant by *ganta pinara pitu*. *Ganta* or *genta* means bell. Then, *pinara* means to be divided. And, *pitu* means seven. The point is that the bell's tone can be divided into seven tones. The sound of the bell is from the bottom to the top; or from the lower to the higher, the tones are *Dong*, *Deng*, *Ndeng*, *Dung*, *Ndeung*, *Dang*, and *Ding*. The seven tones of the bell are related to the latent 'inner energy' of the *chakra* in every human being. (1) *Muladara chakra* has the *Dong* tone; (2) *Swasdisthana chakra* has *Deng* tone; (3) *Manipura chakra* has the *Ndeng* tone; (4) *Anahata chakra* has the *Dung* tone; (5) *Wisudha chakra* has the *Ndeung* tone; (6) *Ajna chakra* has the *Dang* tone; and (7) *Sahasra chakra* has the *Ding* tone. Of the seven tones, five of them are the principal tones, namely, *Dong Deng Dung Dang Ding*. The *Ndeng* and the *Ndeung* tone is the sound of *pemero* 'falsifying' or 'interrupting' that are the sound of the alloy from the basic tone flanking both. The five key tones have the same meaning as the *Panca Brahma* formula, namely, *Sang*, *Bang*, *Tang*, *Ang*, and *Ing* (more details see *Lontar Prakempa*, Aji Gurnita; Granoka, 1998).

However, if these *Panca Brahma* or *Panca Ganta* are the formula positioned in the horizontal chronology, as previously described, then the *ganta pinara pitu* have the position of the vertical mystical chronology, in accordance with the *Sapta Cakra* sequence. Within the magical spiritual power generation called *Kundalini*, the seven tones are the divine aspect called *Saptongkara*, namely A, U, M, O, *Ardacandra*, *Windu*, and *Nada*. The way to generate the *Kundalini* with the guidance of this *Saptongkara mantra* can be learned in the lontar of *Jnana Siddhanta*.

Thus, based on the foregoing, it becomes clear that the science of *usada* has the Sanskrit tantric esoteric philosophical basis. In practice, the tantric yoga recommends that the *balian usada* use yoga as the method of their spiritual practices. There are five important components of the tantric yoga. One component and the other components are systemically interrelated. The neglect to one component can make people fail to achieve the goals of the yoga practice. In the *Lontar of Bhuwana Kosa*, there can be read the five components such as *Arcana*, *Mudra*, *Mantra*, *Kutha Mantra*, and *Pranawa*.

- (1) *Arcana* means using the preferred ritual means, for example, *mandala* (place), sacred image, statue, *banten*, day, and time;
- (2) *Mudra* means the movement of hand and/or holy behavior. There are various *mudras* that if properly trained and confident they can help the *balian* in the healing process;
- (3) *Mantra* means the sacred poetry or the suggestive utterances that serve to guide the mind of the *balian* in the practice of yoga, and of course giving special ambience to the patients during the healing process;
- (4) *Kutha Mantra* means the formula mantra formulated according to the goal which wish to be obtained by *balian usada*. The formulas referred to are the cores of the *mantra* which, when properly spoken at the point of mystical concentration, is believed to evoke the supernatural powers which actually come from the gods concentrated on reflected by the mantra enchanted;
- (5) *Pranawa* is the most core formula that may summarizes all existence as it has been formulated into the *Kutha Mantra*. This *pranawa* implies that the power of mind focusing on the Almighty God is the truly supernatural power of the *balian usada*.

According to the framework of this tantric yoga, it is expected for the *balian usada* to have the attitude in the sense of *abhyasa* 'having faithful discipline to God' and *wairagya* 'having sincere effort without orientation to the result in order to maintain emotional stability and run the profession on behalf of and for the sake of God'. These are the requirements as what hinted by Maharsi Patanjali in his book entitled *Yogasutra*.

CLOSINGS

Through brief explanations above, the reader of this paper is expected to understand or rather be challenged to reveal the collective meanings of the idea hidden behind the esoteric expression (often in short formulas) or metaphorical phrases contained in some *lontars* of *usada* and the like. For example, in the *lontar of Buddha Kacapi Cemeng*, the teachings of the *buddha*

kacapi are described in *kerata bhasa* 'traditional word or syllable plays without any concern to historical meaning of the words' which often deviate from the linguistic rules of the language used as the following quotations:

"*Boda ngaranya budi, ngaranya idep, idep ngarannya idup, idup ngaranya urip,*"

Meaning:

'boda means budi, budi means *idep* (mind), *idep* means hidup, hidup means *urip* (alive or life)';

"*Kaca, ngaranya meka. Meka ngaranya mata, mata ngaranya mati, mata ngaranya manon,*"

Meaning:

'Kaca means *meka* (mirror), *meka* means *mata*, *mata* means *mati*, *mata* (eye) means to see';

"*Pi ngaranya pitara*" '*pi* means *pitara* (ancestor).

The understanding is also explained as follows:

"*ika idepta, sarirakena Sanghyang Manon. Nging terus teka ring pejah, ika naran sanghyang urip, maka awaking pitaranta*".

Meaning:

'Make *Sanghyang Manon* reside on your mind. You're your death has come (*Sanghyang Manon*) is called *Sanghyang Urip*, the manifestation of your soul'.

The meaning of the other *buddha (boda) kacapi* is also explained like this: "*Boda ngaran aturu*" *boda* means to fall asleep'; "*kaca ngaranya awas*" '*kaca* means to be careful'; "*pi ngaranya atma*" '*pi* means soul'. This means that "*aturu mati raga, ika awas lawan atmanta*" 'to fall asleep means to be in "physical death", which makes your soul to become always careful'.

In the teaching of the *Sastra Sangha*, it is explained in the following expressions:

"*sastra ngaran sembah*" '*sastra* means a devotion'; "*sangangaranya ping sia*" '*sanga* means nine times'. "*Ika ta kang sembah ping sia, ika ngaran sastra sanga*" "Thus, what is meant by *sastra sangha* is the nine times devotion', which is "*pasurupan Sanghyang Nawa Dewata*" 'in the temple of *Sanghyang Nawa Dewata* (nine gods).

"*Sanghyang Nawa Dewata, maka sarira tunggal, lawan sembahta ping sia,*"

Meaning:

'*Sanghyang Nawa Dewata* are truly united with the nine times devotion you make'.

"*Ika maka awak Sanghyang Puspa Tan Alun, ngaranya, ya mula ning atmanta,*"

Meaning:

'It is the manifestation of *Sanghyang Puspa Tan Alum* (the never wilted flowers), it is your source of soul'.

Other elaboration is as follows:

"*Sas, ngaran tingal*" '*sas* means seing'; "*tra, ngaran bayu sabda idep, maka awak Sanghyang Tiga*" '*tra* means power, speech, and thought, as the bodies of *Sanghyang Tiga* (*Sanghyang Brahma, Wisnu, dan Iswara*);

“*Sa, ngaran sawara, sawa ngaran pati*” ‘*sa* means one day, *sawa* means dead’; “*Nga, ngarannya raga, nga, ngaranya putus teka ning lepas*” ‘*nga* means body, *nga* also means *putus* (perfect, holistic) reach the realm of *moksa* (liberation)’.

Moreover, here are the other explanations:

“*Tinghalakena Sanghyang Tiga, dening sabda mati raga, terusakena tekaning lepas, ika ngaran sastra sanga,*”

Meaning:

‘Pay attention on (have a concentration on) *Sanghyang Tiga* through enchanting the words of *mati raga* ‘physical death’, go on (your yoga practice) until you reach the liberation. This what is called *sastra sanga*’.

The yoga technique is explained as follows:

“*Ika kengetakena, apan Sanghyang Nawa Dewata sumurup maring sembahta ping sia, mwah sembahta ping sia, masarira Sanghyang Tiga, mwah Sanghyang Tiga, anemu tunggal lawan manusa sakti, marma ning maka ngaran Sanghyang Tunggal, ngaranya*”

Meaning:

‘Pay more attention that *Sanghyang Nawa Dewata* penetrate into your nine times devotion. Your nine times devotion manifest into *Sanghyang Tiga*. Then, *Sanghyang Tiga* unites with the powerful human. Therefore, (the powerful human) is called *Sanghyang Tunggal*’.

Meanwhile, the teaching of *Ganta Pinara Pitu*, in the *lontar* of *Prakempa* (Bandem, 1986; Donder, 2005) is elaborated as follows.

“*...Iki jatinya swara kang wetu sangkaning pangajinira Sanghyang Bhuwana, kang ingaranan swara Ganta Pinara Pitu...*”

Meaning:

‘--- Here is the true sound that really comes out and generate from *Sanghyang Bhuwana* which is called *Ganta Pinara Pitu*...’

References

- Bandem, I Made. 1986. “Prakempa Sebuah lontar Gambelan Bali”. Denpasar: Akademi Seni Tari Indonesia Denpasar.
- Donder, I Ketut. 2005. *Esensi Bunyi Gamelan dalam Prosesi Ritual Hindu*. Surabaya: Paramita.
- Granoka, Ida Wayan. 1997. *Perburuan Ke Prana Jiwa*. Denpasar: Sanggar Bajra Sandhi.
- Indra, Ia Bagus Ketut Maha. 2001. “Kanda Mpat Dewa (lontar transliteration)”. Denpasar: Kantor Dokumentasi Budaya Bali.
- Mantra, Ida Bagus. No Year. *Bhagawadgita: Alih Bahasa dan Penjelasan*. Denpasar: -
- Padmi, I Dewa Ayu Puspita. 1999. “Tutur Pangiwa (transliteration)”. Denpasar: Kantor Dokumentasi Budaya Bali.
- Subaga, Pan. No Year. “Buku Katuuran” (lontar citation). Tabanan: -
- _____. No Year. “Kaputusan Dalem”. Tabanan: -
- Suarka, I Nyoman dll. 2005. *Kajian Naskah Lontar Siwagama 1 & 2*. Denpasar: Dinas Kebudayaan Propinsi Bali.

- Sura, I Gede.dkk. 1994. "Wrehaspati Tattwa (teks dan terjemahan)". Denpasar: Kantor Dokumentasi Propins Bali
- Yasa, I Wayan Suka.1999. "Pangringkes Dasaksara (lontar transliteration)". Denpasar: Universitas Hindu Indonesia.
- _____. 2011. *Yoga Marga rahayu*. Denpasar: Lemlit Universitas Hindu Indonesia.
- _____. 2015. "Wijaksana: Tuntunan Yoga Anak Nyastra". Denpasar: Universitas Hindu Indonesia.
- Yulyana, E Dewi dkk. 2013. "Prospek Pengembangn Ayurweda di Indonesia (Studi Kasus Pengobatan Tradisional Usada Bali)". Denpasar: Lemlit Universitas Hindu Indonesia.

CONCEPT HEALING TRADITIONAL OF THE *BALIAN BAWO* FOR HEALTH HUMAN BEING IN CENTRAL OF KALIMANTAN ACCORDING TO HINDU PHILOSOPHY

I Ketut Subagiasta
ketutsubagiasta@yahoo.co.id
STAHN-TP Palangka Raya in Central of Kalimantan

Abstract

According to the Hindu philosophy, that to be belief of the human being of Hindus society in the central of Kalimantan about a method healing traditional by the healer of the *Balian Bawo*. If any someone to be sick in the area village and in the area of city so coming to the healer traditional named the healer of the *Balian Bawo* for do healing until someone become healthy from any sickness. That method so very popular in the area central of Kalimantan, especially in the regency of East of Central Kalimantan named the Barito Timur regency in the *Tamiang Layang* area. Thus, this as the belief traditional of healing someone if experience sickness and this belief become popular not only in the *Tamiang Layang* area, but also more popular for any people in the area central of Kalimantan.

Key words: Concept Healing Traditional, the *Balian Bawo*, the Health Human Being, Hindu Philosophy.

INTRODUCTION

The island of Kalimantan is a biggest of island which exist in the Indonesia country. The existence of Kalimantan island is have more potency very natural and the rich with value of tradition, art, culture, and also about belief by human mankind of human being which be stay in the Kalimantan island. The island of Kalimantan consist of five provinces like as, *first*, Southern of Kalimantan; *Second*, the Eastern of Kalimantan; *Third*, Northern of Kalimantan, *Fourth*, Western of Kalimantan, and *Five*, The Central of Kalimantan. So in the province of Central Kalimantan have area is very wide, if compare with another island that same like two and half time of the island of Java. The province of central of Kalimantan consist of some regencies like as the Kapuas regency, the Pulang Pisau regency, the city of the Palangka Raya, the regency of Katingan, the regency of Kotawaringin Timur, the regency of Seruyan, the regency of Kotawaringin Barat, the regency of Lamandau, the regency of Sukamara, the regency of Gunung Mas, the regency of Murung Raya, the regency of Barito Utara, the regency of Barito Selatan, and the regency of Barito Timur. Thus, area of central Kalimantan province is as the biggest number second of province of Indonesia country after province of Papua.

In the province of central Kalimantan so popular as the *Tambun Bungai* area or also named by the land of *Huma Betang* area. The central of Kalimantan province is a province with population not so tick near about 2.3 million. Then province of central Kalimantan is so much have potency about agriculture, potency economic, potency industry, potency trade, potency mining, potency animal husbandry, potency tourism, potency cultural, potency tradition, potency art, potency plantation, potency religious, potency fishery, and so on. In the context of traditional of life that area province of central Kalimantan actually have any potency about component traditional life. In the connect of health that there is a certain belief in the health life in the central Kalimantan named the *Balian Bawo* belief.

Condition of society in the area of central Kalimantan that really have so many condition of communalism like as a part of the *Dayak*, a part of the *Ngaju*, a part of the *Maanyan*, a part of the *Lawangan*, a part of the *Murung*, a part of the *Siang*, a part of the *Oot Danum*, a part of *Banjar*, a part of the *Seruyan*, and another. In the context of religion also be exist any religion be following by human mankind namely Islamic, Hindus, Christianity, Catholic, Buddhism, and Konghuchu. Then about language that condition in the area central Kalimantan so be local language of the *Dayak Ngaju*, language the *Banjar* language, the *Murung* language, and so on. Whereas about culture so exist about culture profane and culture sacred.

One of type for healing traditional on the people which sickness is by methods which named the *Balian Bawo* for help someone become good condition namely fit condition so healthy, and become fresh in physical and also become healthy in spiritual. The effort for to do help to someone which sick is one effort who to do by the *Balian Bawo* as dedicate for human being in area of central Kalimantan. Thus that the *Balian Bawo* for making someone healthy and good condition, not be disturbing by any hindrance of life daily in household and in society.

CONCEPT HEALING TRADITIONAL OF THE *BALIAN BAWO* FOR HEALTH OF HUMAN BEING IN CENTRAL OF KALIMANTAN ACCORDING TO HINDU PHILOSOPHY

“In the belief of human mankind of Hindu *Kaharingan* society in region of the river Barito, especially in area southern of Barito and in area of Eastern also exist in area of southern of Barito which to do ritual of Hindu *Kaharingan* by the people of Hindus named the *Balian Bawo*. One of the believe as generous for Hindus *Kaharingan* in central Kalimantan that the ritual the *Balian Bawo* as a system for respect to the God named *Ida Sang Hyang Widhi Wasa* or *Jus Tuha Alatala*” (Etika, dkk, 2016 : 218—219). So the *Balian Bawo* is a system for belief and respectful to the God. Then any human mankind of Hindus *Kaharingan* in central Kalimantan fore request to the God may can become fresh and healthy also can not any some problem of life.

Meaning of the *Balian Bawo*

About meaning of the *Balian Bawo* that “the practice of *balian bawo* is the customs for preserving Dayak Lawangan community which consist of function in religiosity, preservation of culture, social life, and aesthetics” (Sigai, 2016 : xiii). Agree with meaning mentioned that the “*balian bawo* is person or people which lead performance ritual *balian bawo*” (ibid, xviii).

Meanwhile according to Karjuni (2013 : 2&) described meaning “*balian bawo* that religious ritual which performed by human mankind of Hindu *Kaharingan*, is a part of integral from a traditional atau natural or custom which performed a scale hereditary as the medium healing”. The point that *balian bawo* is a type for healing people sickness and the person who have dedication for healing sickness following by some rituals of Hindu *Kaharingan* be in area central of Kalimantan. The *balian bawo* is one type or one method for healing traditional which very popular for Hindu *Kaharingan* in central Kalimantan, for making someone recovered from an illness or restored from sickness. According to result of research of Suparni (2015 : 15) that meaning of the “*balian* that is a certain of ceremony religious of Hindu *Kaharingan* with used equipment or instrument special named the *Katambung*”. Another term by local language of *balian bawo* called the *balian bakawat*. Meaning of the *bakawat* is “the *bakawat* namely to help or assist someone, to treat someone, or cure, healing someone” (Suparni, 2015 : 15). Thus, term of the *balian bawo* have comparison term with the *balian bakawat* agree with local language of *Dusun Ma’alang* in area of regency the northern Barito, in central of Kalimantan.

Location Performance of the *Balian Bawo*

Related about location of performance of the *balian bawo* in central Kalimantan known in some areas or in some regencies and town. The *balian bawo* known in Palangka Raya city, in the regency of Pulang Pisau, in regency of Gunung Mas and so on. But generally known exist and popular performance of *balian bawo* in some areas of regency the Barito Timur or in the eastern of Barito regency. Also more popular performance of *balian bawo* in regency of Barito Selatan or in southern of Barito regency, in the Barito Utara regency or in the northern Barito regency, and in the Murung Raya regency. Then be based on the result of research by Sigai (2016 : 44) that location of *balian bawo* namely “in area of Ampah city, in Bantai Karau, in the Asak village, in the Sumber Garunggung village, and in the Hayaping or in the Muara Awang village”. Furthermore according the result of research by Karjuni (2013 : 31) that “in the Baliti village, district of Gunung Timang in regency of Barito Utara or regency southern of Barito, as choose reason for about performance of the *balian bawo* yet often implemented”. So such that performance of the *balian bawo* generally implemented by human mankind of Hindu *Kaharingan* in central Kalimantan province located be exist in the area the eastern of Barito regency, southern of Barito regency, northern of Barito regency, and also in the regency of the Murung Raya regency, and so on which constitute area performance of the *balian bawo*. About performance of healing disease in area central of Kalimantan also exist in other place like as in “Teluk Melawai village district of Lahei Barat or west of Lahei district in the regency of Barito Utara or regency of northern of Barito” (Suparni, 2017 : 15). Term which used in that area named the *balian bakawat* or another term of the *balian bawo*.

Material Ritual for Healing Traditional of the *Balian Bawo*

Performance of *balian bawo* using some material of ritual *balian bawo*, like as : *teringit*, *katupat lapat* or rice cake boiled in a rhombus-shaped packet of plaited young coconut leaves, the *ancak* or place for put material ritual, the *apai* or a plaited mat, the *babat* or shawl or stole worm over, the *bane* or kind of cake traditional, the *bentas* or the flower red, the *beyowo* or kind of leaf

local in area of Kalimantan or popular named the leaf of the *andong*, the biyas sawis or the rice for *tawur* ceremony, the *cucur* or kind cake of the *cucur*, the *empa* or betel vine and areca nut, the *gagatas* or kind of cake the *gagatas*, the *kakanong* or the small gong, the *kepinggang* or belt, the *lading* or knife, the *lawung* or kind the cap in area central of Kalimantan, the *lalung mona* or *balian* or the indigenous medical practitioner, the *nahi* or rice, the *nuye* or dance, the *mansi sambau* or bowl, the *pentiis* or candle, the *penyeroet* or the *tampung tawar* or kind of leaf with mixed by holy water, the *penyawang* or as place for put ritual, also with pray local language like as : the *peruko anyet*, the *peruko batang unuk*, the *peruko beyowo*, the *peruko bias walo*, the *peruko jemu*, the *peruko olang lou*, the *peruko samang sawit*, the *peruko sesipung*, and so on some prays which pronounced by the *balian* or the shaman. So that some materials using in the moment of performance of the *balian bawo* ritual. Another material also used by mankind of Hindu Kaharingan in area of other place like in the Teluk Melawai village in district of West Lahei, regency of Barito Utara that is the *panduduk*. Meaning of the “*panduduk* is the type device named the *Sangku* which contain rice, coconut, iron, thread, sewing or hypodermic needle, coin, red sugar, and cloth” (Suparni, 2015 : 15). All of material for using in the healing someone is the material main which served with sincere or with all of someone by heart and soul, that mean by honest, in Hindu philosophy named the *sucih* or the *nirmala*, the *lascarya*, the *sudha*. Thus, any material worshipping by honest by someone in the context of ritual the *balian bawo* or in the performed of the *balian bakawat* in place of the *Barito* area.

Kind of Sick which the Healing by the *Balian Bawo*

According to opinion of Hewuriani of the moment interview about the *balian bawo* that is for help someone sick which in condition mystic of sick, that mean that somebody which sick non medic. The *balian bawo* can healing of someone sick non medic be based on belief in the area of the Barito places, like in the Barito Timur, in the Barito Utara, in the Barito Selatan, and also in the Murung Raya region. The term of the *balian bawo* also called the *balian dadas*, because the doer of the *balian bawo* by clan boy, whereas for the *balian dadas* can do or by doer of clan boy and girl which know about profession of the *balian bawon* and the *balian dadas*.

Method for healing someone according to Hewuriani described that who which sick treated with method by of being sucked or sip from mouth of the *balian*. According to Suparni (2015 : 57—58) that “the *balian bakawat* is a story or poem or rhyme like rebound of the mantra or magic formula for healing someone sick non medic which delivered by the *basir* or the *pisor* for help and healing non medical patient who is condition sickness”. In the moment of the *balian* for healing someone sick non medical using instrumentation like as the *lawung* or special string of head, the *samang sawit* or cloth of the *balian*, the *tapis balian* or pants of *balian*, the *babat* or belt of the *balian*, the *paning* or type belt special of *balian*, the *penyelenteng* or cloth which hang up, the *tayung* or place instrument of the *balian*, the *getang* or bracelet of the *balian*, the *geneng* or *katambung* is instrument special for the *balian*, the *pamalu* or small rattan, the *banyowo* leaf of *andong*, the *sinsipung* or tusk of animal, the *sake* like the *baram* or fermented palm wine, the *mansi sumu* or bowl, the *pangararai* or leaf of banana, the *tibingkar* or place of fire called the *parapen*, the *apai* or a plaited mat, the *totang* or lime of a chew of betel. All material of the *balian bawo* using

for help someone sick non medical or illness who can not heal by medic method, then healing by method of the *balian bawo* in the *Barito*.

Existence of the *Balian Bawo* According to Philosophy of Hindu

The existence of the *balian bawo* according to philosophy of Hindu, especially in the philosophy of Hindu *Kaharingan* in central Kalimantan so more known by any Hindus mankind as the method traditional or special method for healing someone which sick non medical. Local belief of Hindu *Kaharingan* so more can help any people if any problem, any hindrance, any disturbing of life in the society life, then any sick non medical can healing by the doer of the *balian bawo*. Other of term also in the connect of type the *balian bawo* also any type or model the healer called the *balian dadas*, the *balian bakawat*, the *balian palas bidan*, and so on.

In the Hindu philosophy also named term the *taksu* which spirit by powerful of the unrealistically or the *niskala*. That mean the power from the magic power from the God or power the *Ida Sang Hyang Widhi Wasa* or the *Ranying Hatalla Langit*. Any people of Hindus in the universe like in central of Kalimantan so be belief about power from the God can to give help by the wisdom people called the healer, like the *balian bawo*, the *balian dadas*, the *balian bakawat*, the *balian palas bidan*, and so on. According to philosophy of Hindu that someone not all be healthy or the *barigas*, the *seger*, the *rahayu*, but sometime also have experience sick, bad condition, suffer, anguish, sadness, misery, miserably, and another called the *duhkha*, the *pataka*, the *lara*, and the *samsara*. With aid of the *balian bawo* so for making human being of Hindus in the universe become healthy or the *svasty*, happy or the *bhagya*, and prosperous or the *hita*, and also peace physical and peace spiritual or the *santih sakal ca niskala*. May can materialized.

RESULT AND DISCUSSION

One result of this writing that a material of healing for help someone which sick non medical can become healthy with healing of the *balian bawo* in the area central of Kalimantan, especially in region of the *Barito* area. This material of writing more important as the focus of discussion for making a finding about health for spreading to human being in the society which needed about healthy it. May this writing more useful for all participant of seminar international. May also this writing can to give contribution for all expert from any component which care about health human being, because about healthy is vitally for human life and for making long life for any people, that mean the *dirghayusa* according to Hindu philosophy. As small as whatever of this result of writing, I think can to give support for all participant of seminar internasional in order that become always care about problem health of human being. The problem of health not only profession and discussion by the doctor or physician, but also for all,

CONCLUSION

The *balian bawo* is a type or a model of healing traditional to someone if sick as belief to the God or the *Ida Sang Hyag Widdhi Wasa* or the *Ranying Hatalla Langit* be exist in the area of central

Kalimantan. Some area in central Kalimantan like in the area of Barito Selatan, in the area of Barito Timur, in the area of Barito Utara, in the area of Murung Raya, and son on the surrounding of it be ability for healing sick non medical become heal. Term of the *balian bawo*, also any term another like as the *balian dadas*, the *balian bakawat*, the *balian palas bidan*, and so on for help human being of huminty in area of province of central Kalimantan. Some materials using by the *balian bawo* for help someone sick non medical according to belief of Hindu *Kaharingan* and the treatment by traditional healing by healer of the *balian* called the *basir*, the *pisor*, or other named of it.

Some materials using for healing someone sick non medical namely some instrument using by the *balian*, also some materials for using ritual by the belief of Hindu *Kaharingan*, then also using pray special by language local like the *mantra* for making someone become healthy. This method of healing to any people of world more important for research and for material discussion by any expert of the world. The local and the traditional of method for healing someone which sickness or illness very needed for eternalized by whatever and whenever in order to scarce or extinct in the next time, with the result that new generation become be lost belief and vanish of culture and civilization about health and medical treatment traditional local and regional like in the central of Kalimantan. May be useful for implementation about health.

Acknowledgement

In this moment I like thanks to committee of seminar international in UNHI Denpasar-Bali, because to give chance for writing this paper on the moment of international seminar, may this writing be useful for committee also to all expert which care about health include also about the healing traditional non medical like be exist in central of Kalimantan. Also be thanks to all author of this book as the material literature of this paper. To thanks also to rector UNHI Denpasar-Bali, thanks to any friends in Hindu college of the Palangka Raya in central of Kalimantan. Thanks also to Prof. Ida Ayu Yadnyawati as the professor in UNHI Denpasar has given chance for contribution of this paper. Also thank to Ketut Juli as the dean faculty in the UNHI Denpasar. Thank you very much for all. If any positive suggestion I will accepted with be happy and comfortable and may be success all. *Svaha. Om Santih, Santih, Santih Om.*

References

- Etika, Tiwi. 2016. "Konsep Ketuhanan Umat Hindu Kaharingan Suku Dayak Dusun di Desa Tumpung Laung I Kecamatan Montalat Kabupaten Barito Utara". Laporan Hasil Penelitian Mandiri P3M STAHN-TP Palangka Raya.
- Etika, Tiwi, dkk. 2016. "Ketuhanan Dalam Ajaran HinduKaharingan". Diterbitkan oleh STAHN-TP Palangka Raya.
- Gepu, Wayan. 2009. "Upacara Balian Palas Bidan Pada Masyarakat Hindu Kaharingan Suku Lawangan di Desa Putai Kabupaten Barito Timur Kalimantan Tengah (Kajian Bentuk, Fungsi, dan Makna)". Tesis Magister IHDN Denpasar.
- Karjuni. 2013. "Nilai-Nilai Pendidikan Agama Hindu Dalam Upacara Balian bawo Pada Masyarakat Hindu Kaharingan di Desa Baliti Kecamatan Gunung Timang Kabupaten Barito Utara". Skripsi Program Sarjana Jurusan Pendidikan Agama Hindu STAHN-TP Palangka Raya.

- Sigai, Ervantia Restulita L., 2016. "Eksistensi Balian Bawo Dayak Lawangan di Dusun Tengah , Barito Timur, Kalimantan Tengah". Disertasi Program Doktor Program Pascasarjana Universitas Udayana Denpasar.
- Subagiasta, I Ketut. 2015. *Renungan Filsafat Hindu*. Surabaya : Paramita.
- Subagiasta, I Ketut. 2015. *Filsafat Hindu Dalam Bhuwana Kosa*. Surabaya : Paramita.
- Subagiasta, I Ketut. 2016. *Filosofi Karakter Hindu Kepemimpinan Dalam Hindu*. Tangerang : LLD.
- Subagiasta, I Ketut. 2017. *Filosofi Simbol-Simbol Keagamaan Hindu di Kota Palangka Raya*. Tangerang : LLD.
- Suparni, Monica. 2015. "Filosofi dan Makna Panduduk Dalam Upacara Balian bakawat Pada Umat Hindu Kaharingan di Desa Teluk Malewai Kecamatan Lahei Barat Kabupaten Barito Utara". Skripsi Prodi Filsafat Agama Hindu Jurusan Brahma Widya STAHN-TP Palangka Raya.
- Suyasa, I Made. 2009. "Balian Bawo : Study Kasus Masyarakat Dayak di Desa Muara Marui dan Tawai Haui Kecamatan Laung Tuhup Kabupaten Murung Raya". Laporan Hasil Penelitian STAHN-TP Palangka Raya.

CONCEPTS OF HEALING IN THE CONTEXT OF EDUCATION

Ketut Suda¹, I Wayan Subrata²
[suda.unhidps@yahoo.co.id¹](mailto:suda.unhidps@yahoo.co.id)
Hindu University of Indonesia^{1,2}

Abstract

This article discusses the concept of healing within the educational context. This is interesting because the condition of society today is experiencing pathology due to the bonds of moral values began to weaken. This is due to three main things, namely (1) The weakening of the bonds of brotherhood that occur in the family environment, which is the first and foremost teacher for children; (2) Today's young generation has lost an exemplary figure in behaving, because many leaders in this country are involved in acts of corruption, collusion and nepotism, as a form of shifting moral values it embraces; (3) The local wisdom values of traditional societies, which actually contain many moral values that can guide young people to desirable destinations have been marginalized.

This can be cured through the application of character education to children through religious education in schools. Because by building moral intelligence, children will be able to improve their ability to understand right and wrong, along with a strong belief to do the right thing according to that belief. If, the moral intelligence of children can be built properly, then the author believes the pathology suffered by the community in a certain period of time will be curable.

Key Words: Concepts of Healing, Character Education, Religious Education

INTRODUCTION

Background

In today's increasingly open societies, the bond of moral values seems to have begun to weaken. Whereas moral values in every culture is a regulating tool that is very determining the harmonization of the life of a society. As a result, people almost all over the world today, experiencing a moral crisis is quite apprehensive. Related to that, the world of education is currently reviewing the importance of moral education or character education given to children through school educational institutions. According Tilaar (1999: 74) this is not only felt by the nation and people of Indonesia, but also by other countries around the world. Even in the advanced industrial countries, such as America, Australia, and in other European countries, where the moral ties in people's lives are getting weaker, it also feels the need to re-educate moral education for its younger generation.

There are three main things according to Tilaar which causes this condition to occur, among others: (1) Weakening of fraternal bonds that occur in the family environment, which is traditionally the first and foremost teacher for children; (2) Young people today have lost a figure who can be imitated in behavior, because many leaders in this country are involved in acts of corruption, collusion and nepotism, as a form of shifting moral values it embraces; (3) The marginalization of the local wisdom values of traditional societies, which actually contain many moral values that can guide the younger generation to the desired purpose of life.

Seeing the condition of society like this, it can be said that society is suffering from a disease which in the context of sociology is called social pathology. Observing the social phenomenon that is happening in society today, then the big question is how efforts can be taken in order to heal social pathology that is suffered by society today?

Purpose of Writing

This study was conducted with the aim of contributing theoretical ideas relating to critical ethnography in the context of studying social-humanities issues, especially those discussing the condition of ailing society (social pathology). In addition, this study is also intended to offer a solution of the concept of healing through religious education and moral education (character education).

DISCUSSION

Education as an Enlightenment Tool

Education is essentially a tool of enlightenment or a tool to free human beings from the various problems that surround it. Education in Freire's view (2002: 12-13) is one of the efforts to restore human functioning to its essence in order to avoid various forms of oppression, ignorance, and backwardness. However, in the development of the modern world today, the process of transformation from traditional society to modern society has really colored the world of life with the ideology of developmentalism and its growth logic. For example, development programs not only change the "outer shell" of public space intended for the people, but also provide new content for the constructed space. The use of public space for a particular interest has created anxiety for the existence of society. For example, when real estate development, golf courses, and shopping centers (minimarkets, supermarkets, and hypermarkets) invade spaces for the general public, the public spaces originally intended for community life are marginalized. On behalf of the development of public spaces continues to decline, leaving only a small amount of public space accessible to the general public for free (Ibrahim, 2004: 4).

As a result, human life is becoming increasingly materialistic-capitalistic on the one hand, while on the other there is a very worrying spiritual and moral crisis. This assumption is based on the fact that everywhere, at all levels and areas of community life are experiencing a prolonged crisis. As evidence, those who are educated are many who are involved in corruption, collusion and nepotism, while many uneducated people become thieves, and there are also confused groups who become mug shabbers, marijuana and various forms of illicit drugs (Suhartono, 2008: 17-18).

The community that is in the midst of the current crisis can be said to be a society suffering from a disease called social pathology. Like, the increasing frequency of free sex, the abundance of violence that occurs, especially among children and adolescents, the occurrence of cheating among schoolchildren, and the occurrence of rape, and the deprivation of the rights of others, has become a social problem that can not be solved Thoroughly to date.

According Zubaedi (2011: 2-3) demoralisasi that hit the lives of people, including Indonesian society today, one of them is caused by the learning process in schools that tend to teach moral education and character (character education) is only limited to the text and does not prepare students to face A very contradictory life. While in reality the children in the life of society, faced with attitudes and behavior of adult that exactly contrary to religious values and moral values of nationality. As a result, children become confused, meaning which things to follow whether the theories that are taught academically in school, or the fact praxis that occurs in a society that actually collide with religious values and moral values taught by Teachers at school.

According to Sudarminta (in Zubaedi, 2011: 3) educational praxis should be able to strengthen the aspect of character or values of goodness in the child (can serve as a healing effort) behavior of troubled children. However, so far education praxis is only able to produce various attitudes and behaviors of children who are contrary to what is taught by teachers at school. Exemplified, Moral Education Pancasila (PMP) and Religion in the past are two types of fields that teach value, it failed to instill moral values and humanism into the center of student awareness. By referring to the research of Afyah, et al. (2003) it can be seen that the material taught by religious education and character education tends to focus on enriching the knowledge aspect (cognitive) while the formation of attitudes (affective), and behavior (psychomotor) is minimal. Thus, the learning of religious education from the past to the present is more dominated by the transfer of religious knowledge that is memorizing, compared with the transmission of moral values, thus less touching social aspects of the various values of life in society.

Concepts of Healing in the Context of Education

Education, especially character education is essentially a form of education that develops moral intelligence or develops the moral capacities of children. That is, one good way to grow the character in children is to build moral intelligence. The moral intelligence meant in this context is one's ability to understand something right and wrong, and a strong conviction to do what is right. Moral intelligence awakens from some of the major virtues that can help children face the unavoidable ethical challenges and pressures in their later lives.

Here are seven main virtues according to Michael Borba (in Zubaedi, 2011: 57-64) that will maintain the positive attitude of the children for the rest of their lives, among others: (1) empathy, ie understanding the concerns of others who are the core of a moral emotion ; (2) Conscience is an attitude to distinguish right and wrong as a strong foundation for building a good personality; (3) Self-control, is the control of thoughts and actions to always be able to behave in accordance with the values and norms that apply; (4) Reverence is a form of respect for others by being good, and polite; (5) Kindness, is a form of attitude to care about the welfare and feelings of others; (6) Tolerance means to respect the dignity and rights of all people even though their beliefs and behaviors are different from ours; And (7) Justice, ie open thinking and fair and righteous acts toward others.

If the concept of character education and the seven main virtues according to Michael Borba, can be applied in educational praxis, then in the next three decades people experiencing a prolonged crisis (social pathology) will slowly experience healing. This is because education is a conscious, focused, and sustainable effort to create the expected changes to individual behavior, and to the behavior of the communities in which they live (Afifi 1964: 163). While religious education according to John Sealy in his book "Religious Education: Philosophical Perspective" (1986), as dictated Ma'arif (2005: 1-2) has a neoconfessional function. That is, in addition to working to increase the religiosity of learners with their own religious beliefs, also serves to provide the possibility to study other religions, only to generate tolerance. Thus, if character education and religious education can be implemented correctly in educational praxis, then the healing of social pathology suffered by the community can be realized.

Character Education in School Education Practice

In addition to families as informal educational institutions, schools also have a very strategic role in the effort to form a community character. Because of the 24 hours of time children have each day, 6 hours of which are spent on learning and internalization of value in the school environment. So, 25% of the time children have every day is used to live school activities. Therefore, schools should be able to create a conducive climate for efforts to shape the character of a good child. It must be admitted that the issue of character or moral education is not completely ignored by the school institution. However, based on the facts surrounding the decline of the character of today's society, it has been proved that there is a failure of educational institutions in Indonesia, in terms of growing Indonesian people, to have good character.

Yet when observed the content of religious studies and moral education in school are all good, even children can easily memorize and understand what it means. However, according to Susetyo (2005: 88) religious education given in schools is more ritual and dogmatic, so the basic issues related to the issues of faith, hope, and love have not been touched at all. That is, the emphasis in giving religious teaching materials in schools in Indonesia still lies in the desire to make people religious, rather than on the desire to make people believe in God Almighty and virtuous.

Further according to Susetyo that the orientation of such religious education, still emphasizes the piety of the individual compared to social piety. Thus, religious education given at school should be able to open the insights of learners to improve faith in God Almighty, not just to make people of religion. Therefore, the orientation of religious education is not enough if it concerns only external things of religion, for example, about ceremonies, religious rules, rites, laws, symbols, sociological aspects, and politics of a phenomenon called religion. However, the values that should be implanted in children through religious education is the soul or spirit of the rules of religious law, ceremonies, and sociological aspects of a religion.

If this can be applied through school education praxis, then the authors believe that the disease suffered by society (social pathology) in a certain period of time can be cured. However, what has happened so far religious education in schools has been stuck in an attempt to get people to become religious instead of making people able to behave well in accordance with religious teachings. It must be admitted that the religious education given in schools today, impressed to be able to make people holy and obedient to the rules of religion, but less attention to issues that are socio-religious. Religious education of this model may produce a religious child, but narrow-

minded, arrogant, and want to win alone. In short, religious education given in schools should be able to bring learners and educators to behave well according to religious teachings, not just religious.

CONCLUSION

Based on the above description can be drawn some conclusions, among others:

- 1) Education is essentially a tool of enlightenment or a means to free human beings from the various problems it faces. Therefore, education must be able to free human beings from various forms of oppression, ignorance, until the backward, so that in its development humans can grow into dignified human beings.
- 2) The concept of healing in the context of education means that with the proper implementation of education can be formed attitude and behavior of learners in accordance with moral values, religious values, and moral values that apply in people's lives. Thus, through the education process various forms of attitudes and behaviors of children that lead to things that are negative (social pathology) can be avoided.
- 3) In the praxis of school education in Indonesia, religious education is expected to inculcate virtue, moral values, and good manners, and not be trapped in attempts just to make people religious. However, religious education in schools should be able to make learners, can behave well in accordance with the teachings of his religion.

References

- Freire, Paulo, 2002. *Politik, Pendidikan, Kebudayaan, Kekuasaan, dan Pembebasan*. (Agung Prihantoro dan Agung ariffudiyartanto, trj.) Yogyakarta: Pustaka Pelajar.
- Ibrahim Idi Subandy, 2004. *Dari Nalar Keterasingan Menuju Nalar Pencerahan: Ruang Publik dan Komunikasi dalam Pandangan Soedjatmoko*. Yogyakarta: Jalasutra.
- Ma'arif Syamsul, 2005. *Pendidikan Pluralisme di Indonesia*. Yogyakarta: Logung Pustaka.
- Suhartono, Suparlan, 2008. *Filsafat Pendidikan*. Yogyakarta: AR-RUZZ MEDIA.
- Susetyo Benny, 2005. *Politik Pendidikan Penguasa*. Yogyakarta: LKiS.
- Tilaar, H.A.R, 1999. *Pendidikan, Kebudayaan, dan Masyarakat Madani Indonesia: Strategi Reformasi Pendidikan Nasional*. Bandung: PT. Remaja Rosdakarya.
- Zubaedi, 2011. *Desain Pendidikan Karakter, Konsepsi dan Aplikasinya dalam Lembaga Pendidikan*. Jakarta: Kencana.

IMPLEMENTATION OF FAMILY FUNCTIONS IN CHARACTER STRENGTHENING CHILDREN

I Wayan Suija
Hindu Indonesia University

Abstract

Moksartham jagadhitaya ca iti Dharma, born welfare and kebahagiaan bathin is the goal of Hinduism. And therefore every Hindu always strives to mobilize and direct all the wood, word, and idep. To achieve such an ideal state. As an ideal goal, it is not impossible to achieve. For the Hindu religion through its sacred books. Textually it has written a council and / or conceptual handbook which then goes to the ummah for how to use it in order to actualize it in the context of life with all its demands and challenges.

Except for Hindu families, as the smallest social unit among others legitimized through religious sakrama is to be swadharma of each family and its members to jointly with the spirit of *paros paros sarpanaya salunglung sabayantaka* endeavor to realize happy prosperity condition in life Grahasta hostel.

INTRODUCTION

Hindus view the existence of the family as an institution associated with the process of wiwaha or marriage, then the effort to realize a prosperous and happy family can not be separated from the process of marriage itself. No matter how marriage is a body-soul agreement that has previously been through the process of unifying the various differences between two different sex creatures. This means that when marriage has taken place and / or lasts at least a firm foundation for the establishment of a married life ready to take off into the ocean of a prosperous and happy life.

On that basis the scripture Manu Smrti, III 42 hinted:

*Aninditaih suri wiwahair
Anindya bhawati praja,
Ninditairnadita nrram
Tasmannindyah wiwarjayat*

That is to say : From marriage the praiseworthy sons and daughters are blessed born and from the marriage of despicable born despicable descendants should therefore be avoided the forms of marriage disgraceful.

What is written by the Manu Smrti book is eccliciously giving clues that to track the gate of *Grahasta* or marry or marry is not a decision-making solely motivated by biological motivation for sexual intercourse remains more than that driven also by religious motivation. That family life is

a life that integrates completely in the unity of the unity of life with all the obligation to meet the various physical needs of the birth, the spiritual mentality of the earthly-heavenly.

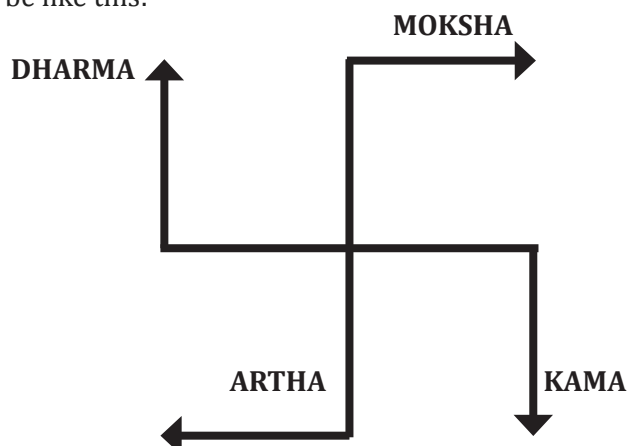
So, building a family life must take careful and careful consideration of all preparedness not physically (age), economy (ability to bear the material burden), social (adaptation in society) but also mentally (maturity, maturity, spiritual and Strength of faith). With the inner self-preparedness the first and most important capital for a family has been demonstrated. Later then how to make use of the capital to always refer to family conditions that not only target the objectives of physical fulfillment of material-born, but in the same step harmoniously can also target mental spiritual fulfillment. Especially when it is realized that human existence is composed of physical and spiritual parts. Although different but true to each other can not be separated and at the same time influence each other. When the body is disturbed, the more so until the pain then the spiritual condition can also easily be disturbed. Vice versa, if spiritual or inner is not peaceful, mentally stressed will certainly be able to degenerate the physical state. Therefore, these two parts are physical and spiritual, by anyone also be obliged to always be nurtured and kept freshness so as to always be different in good health walafiat born inner.

Hinduism as it has been its goal also leads its people to always have a prosperous birth (healthy to meet the needs of food, clothing, shelter and strong faith). And to realize the teachings of the Hindu religion has given its guidance, as stated by Brahma Purana 223, 45: *Dharm rthakamamoksanam cariram sadhanam*, that the body is a tool for on the basis of Dharma (religion) seek and get Artha (material) to menuhui kama (desire / Needs) that can ultimately reach moksa (eternal happiness). This is further called Purusarta chess and citizen chess.

Catur Purusartha or Catur Warga

According to etymology chess purusartha derived from the word chess which means four, purusa means soul or man, and Artha means life purpose, while chess citizens comes from the word chess means four and the citizen means tightly intertwined. When in the Catur Purusartha or Catur Warga that can be interpreted four life purpose that is closely interwoven with each other with the details of the Dharma as the starting point of Artha as a tool, kama as the target between and moksa as the ultimate ultimate goal.

If described it would be like this:



As an ideal doctrine *catur purusaartha* or *catur warga* is not easy to manifest states. But as an actual teaching its application allows to be realized by every people in their daily life. What is clear and it must be so, any movement steps should start or start from the point of Dharma da foot or guidance of religious teachings. For with the Dharma all beings are arranged or maintained *dharmana widhrtah prajah* (*cantiparwa* 109.11).

It also expresses the humanity's tranquility and the welfare of the people coming from the Dharma like and the virtue of human well-being that is the main purpose of the Dharma (*Cantiparwa*, 259.26).

In the book of *sarasamuscaya* 14 added:

Ikang dharma ngarang hetuning mara ring swarga ika kadi gatining prahu, an hetuning banyaga nentasingtasik.

That is to say: The so-called dharma is the cause to get to that paradise, just as a tool boat for merchants across the sea.

In short the Dharma is obliged to be a guiding ground or grip in seeking Artha because Dharma is closely related to Artha and Dharma is not opposed (but controls it) (*Brahma Purana* 221.16).

Then when Artha has been obtained then Kama can be fulfilled. But Kama's fulfillment is still based on Dharma. Although Artha is said to be a tool for Kama but Artha is always sourced and for Dharma (*Cantiparwa* 123.4).

As an outline the use of Artha is divided on the basis of three purposes called Tri Boga namely:

1. Bhoga : Related to the fulfillment of food
2. Upabhoga : With regard to clothing including jewelry.
3. Paribhoga : Links to the board include punia funds.

If detailed in this Tri Bhoga section on the fulfillment will make the ummah for the Panca state include:

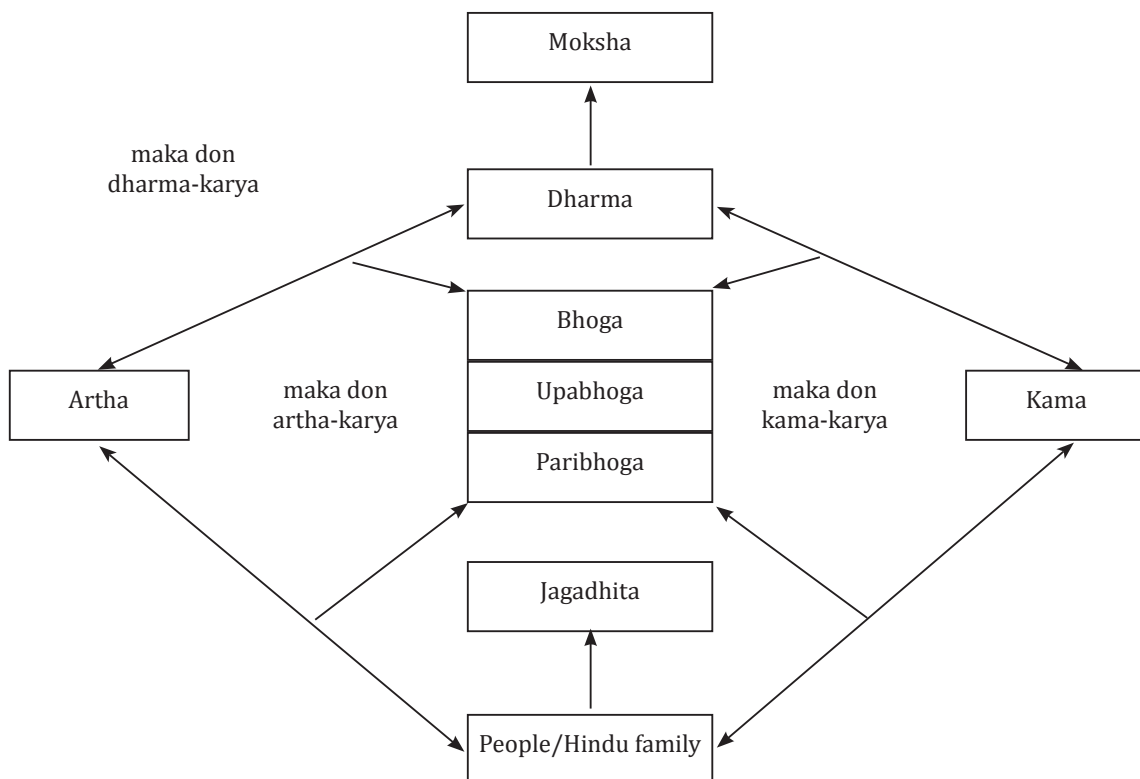
1. *Wareg* : Eat enough with the necessary nutritional needs.
2. *Wisma* : Adequate housing meets the condition of the facility
3. *Wastra* : Clothing and jewelry can be owned as they should.
4. *Waras* : Physically and mentally fit physically and mentally.
5. *Wasita* : Family education is guaranteed sustainable and quality.

When collapsed again all Artha that have been obtained will essentially be channeled for the purposes of:

1. *Maka don Dharma Karya* : For the sake of the establishment of the dharma held yadnya fund-punia.
2. *Maka don Artha Karya* : For prosperity as well as production economic ventures.
3. *Maka don Kama Karya* : For fun, pleasure and / or happiness that touches the inner or spiritual freshness.

These three channels of Artha's cultivation in principle other than remain guided by the Dharma must also be applied in harmony and harmony in order to achieve a rhythm of life and life on the basis of equality of life in equilibrium.

And finally after starting from the Dharma to get Artha to meet Kama, the end of all the goals of the Hindu people and / or family is to reach moksa, a state of joy and happy grief in the realm of eternity. Although *moksa* is more *niskala* or heavenly but actually what is called happiness is still associated with spiritual longing is still to be enjoyed in the world *sekala*. What is described above quite briefly when described would be like this:



Based on the brief disclosure above then what is called and or referred to a prosperous family according to Hinduism is the realization of a family condition along with its members of good quality physically and non physically. It also implies that for the Hindu family the quality of life becomes an obsession to achieve. Both the material-material-born qualities and the spiritual-spiritual-spiritual qualities and to seek for their concrete form of Hindu religion give guidance to the path called Catur Purusartha or Catur Warga with the emphasis that all attempted endeavor must begin and end for the benefit of Dharma and or religion. That way, what is desired by the Hindu people and / or family to achieve the prosperity of birth and happiness inevitably will be realized all enjoyed.

The further meaning of the meaning of prosperous families, especially when linked with family functions, is how a family building as a social institution can actualize its eight functions in daily reality while still making Hinduism a moral, ethical and spiritual foundation.

The eight functions of the family referred to are:

1. Religious Functions
2. Socio-Cultural Functions
3. Function of Love and Compassion
4. Protecting Functions
5. Reproduction Function
6. Educational Functions and Socialization
7. Economic Function
8. Environmental Conservation Function

In principle the teachings of Hinduism have summarized the whole functions of the family above, which if translated will be as follows:

1. Religious Functions

Based on the view that the family, especially the Hindu family is a sacred institution, then the actual religious function has been actualized since the marriage bond is legalized according to Hinduism. That is, the Hindu family is formed, lasted and or held with can not be separated from the elements of religion. Moreover, if the family referred to have given birth, the religious function of the family will automatically be actualized. The following will reveal some religious functions for the Hindu family:

a. Sanggah maintenance

A formation of a new family carries the consequence of its responsibility to keep the sanggah, the sacred place of family worship. Whether the argument is in the "inheritance" or because the new family is building a new house complete with sanggah or the so-called merajan.

Sanggah or merajan this is the realization of the system of religion and belief of Hindus not to be, the *kawitan* or ancestral with the way continue to worship him in order to ask for his protection for the safety and or safety of all family. In its function as the maintenance of this argument the Hindu family believes that by continuing to maintain harmonious relationships with its ancestors through their offerings and worship has embodied the obligatory responsibility to pay what is called Pitra Rna debt to the ancestors who have given birth to this world's descendants. Principles held firm by the Hindu family: *Away kita pegat akadang nurusan tha sembahin*. Abstinence to break up the worship relationship with the ancestors. Besides devoting to the ancestors is a noble duty of paramo dharma.

Moreover, if it is associated with the concept of Tri Mandala: the three parts in a prohibition, then Sanggah is the soul as well as of course spiritually to the family. What is clear, the foothold of the teachings not to forget the kawitan or ancestors is written in the Ramayana marriage, 3 which reads: "*Gunamanta sang Dasaratha, wruh sira ring weda, bhakti ring Dewa, tarmalupeng pitra puja, masih ta sireng swagotra kabeh*" Meaning: the success of the Dasaratha as a leader due to the cause

of deepening the teachings of religion, devoted to God Almighty, not forgetting the ancestors and at the same time love relatives along with their people.

a. Implementation Yadnya

If there has been mentioned the existence of Pitra Rna is the debt to the ancestors, then there are actually two more debts, namely Dewa Rna is the human debt before God Almighty who has created and maintained all living things. And another one called Rsi Rna is debt to the rsi or saints who in common language are often said to be the prophet recipients and prophets of the revelation of the teachings of God.

Against the three debts or Tri Rna in the Hindu family manifested declare through the implementation of Yadnya there are five types, namely: God Yadnya: sacrifice to the presence of God Almighty, Bhuta Yadnya: Sacred sacrifice to all elements and forces of nature, Rsi Yadnya: Sacred sacrifices To the rsi, Pitra Yadnya: Sacred sacrifices to the ancestors and Manusa Yadnya: Sacred sacrifice for fellow human beings. The foundation of Yadnya's teachings is based on the sound of Bhagawadgita III's scriptures.¹⁰:

*"Sahayajnah prajah sristwa
puro waca prajapatih
anena prasawisya dhiwam
esa wo stwista kamadhuk"*

That is to say: it has been from the beginning that God has created man through his Yad, in this way you will flourish, just as a dairy bull is milked for your will.

This Bhagawadgita sloka story teaches Hindus that if God creates and nurtures through his yad, it is a bhakti way too when worshiping him by his way of yad. Moreover, in sloka 13 in the same book it is reaffirmed; "He who eats the rest of his yad will be released from all sins, but he who only cooks food only for himself, actually eat sin".

What this scripture mandates gives us is that Yadnya or sacred sacrifice carried out by a sincere heartless man is a high value teaching to show bhakti to Hyang Widhi God Almighty.

b. Enforcer of Dharma

The Dharma raksahah raksitah who protect the dharma he also will be protected by the dharma of truth itself. As a family supported by the soul of the Hindu religion, the moral duty to be exercised is to maintain the establishment of dharma or religious for the welfare, spiritual-born, at-niskala make the teachings of religion as the basis of ethics, moral and spiritual in everyday life.

c. Guardian of Conscience

Conscience is the deepest part of human existence. If conscience is still awakened in the consciousness of faith, then congratulate the human race. Therefore the Hindu family becomes the guardian of the conscience of all members of his family in order to always condition his conscience in the shelter of Dharma.

d. Basic laying of values

As a family imbued with religious-sociocultural character, the Hindu family is the first social institution to lay the foundations of value to its family members. Good values related to ethics, morals and spiritual which all refer to the teachings of Hindu religion. And that is the basis of all values that is the Tri Kaya Parisudha teachings are: three kinds of good and right behavior, including: Manacika, thinking good and right, Wacika: say the good and right, and Kayika: do or act good and correct. The teaching of the Rich Triangle of Parisudha is considered the pillar of value, for if one has been able to make this teaching an inseparable part of all his behavior, then God will always bless him.

2. Socio-Cultural Functions

The family is the smallest unit in the social layer that has the greatest share in building quality communities, nations and countries. In it is also related to the problem of culture, because human beings themselves are cultural beings, who with the creation, taste and intention embodied all kinds of forms of creation.

Once the importance of socio-cultural function is then a family makes the most responsible person that but very vital for the direction of development of a nation. That is, if from the family, the planting and then the growth of socio-cultural values is less rooted in the socio-cultural conditions of Indonesia with the religious Pancasila philosophy, it is believed the Indonesian nation will lose its identity. Conversely, if the family has been used as the basis of planting and the growth of socio-cultural values from the beginning then no doubt the Indonesian nation will be supported firmly by the pillars of Indonesian families who are at once cultured.

Hinduism in this context has positioned the family as a central symbol to affirm the existence of a nation. For only with a strong, united, civilized and cultured family that will be the pillar of the State. This is reminded by ajurna in the field of kuruksetra through the stanza of Bhagawadgita I.40: With the destruction of all families, the customs of the hereditary family will be destroyed and the tradition disappears, the family will be overwhelmed by legal uncertainty. Furthermore, in sloka 42, 43 and 44: "this moral collapse brought the family and the killers to hell, the ancestral spirits fell into hell, all amazed, water and rice no longer part: for the sins and the destruction of the family and the law Families are destroyed forever; We have heard this, the man whose culture and laws perish, the eternal place of hell ".

What these sacred slokas imply implies that how family building is so important and vital to the robustness of a nation and Country. Hinduism therefore teaches that in order to build strong and solid nation and state, start from family through planting and growth of socio-cultural values according to the norm of religion or Pancasila.

3. Function of Love and Compassion

The essence of the family is the essence of love and affection. For a family is built is definitely on the basis of love and affection. After all it is indeed love and affection that is the first to be the capital of a family built that brings together two creatures of different sexes. Therefore, it is

already a logical consequence if love and affection is defined as the breath of a family's life. That is, the life of a family's death depends on love and affection itself.

Hinduism in this case, always teaches, guides and or guides its people to stand on the teachings of *Tat Twam Asi* that man really comes from and will return to the same source one therefore the teachings of *Tat Twam Asi* underlines how man should realize his one being brother. "It is you" is so meaning of the teachings of *Tat Twam Asi* it. From him was born a respectful attitude, respect for the existence of human beings or other creatures. So it was born a behavior that loves, loves and loves fellow beings. It stands in the Book of Panca Veda, XIII.33 which asserts: "Just as one sun illuminates the world, so is the paramatma (Hyang Widhi) of the universe illuminating (the life of) the whole world (all beings)".

By taking the attitude that all beings come from one source, it is certainly expected that one with another human beings or other beings can live a life in a cradle of love and compassion. And for the cultivation of awareness of the importance of the value of love and affection is definitely a task and or family responsibility to start early. That a family built on love and affection, is a follow-up just to pour out the love and affection to all family members, then spread the environment of fellow creatures. For indeed the essence of love and affection is the attitude of serving. And serving other human beings or beings is the same as serving God himself. This is expressed by the Hindu philosopher Swami Vivekanda, "Look at every man, woman and child as God. You will not be able to help anyone, you can only serve them, serve the children of God. Serve the Lord Himself, if you have the honor to do so. Do it as worship ". Then added by Mahatma Gandhi, "God is the binding force that unites all human beings. Breaking this bond, even with our greatest enemy even means to tear God apart ".

Realize now that love and compassion is not only intended for husbands, wives, children, but for all human beings as well as other beings. So it is family in the function of love and affection is expected to be the ark of a sweet household in combining the attitude of loving, loving and caring towards family members, fellow human beings and also other creatures.

Sarwam Khalu Idaham Prahma: all creation comes from His power. Sarwam Idham Kuthem Bhukem; All creation that there is essentially brothers one outaga only.

4. Protecting Functions

Family institutions basically function to miss each other *gi* between family members. Of course, parents, especially a father is expected to appear as the protector. As a husband he protects his wife. As a father he protects his children. As the head of the family he protects the entire members of the family. In the holy book *Manawadhar*, literature IX.2, 3, and 9 wrote:

"Day and night a woman must be protected, she is dependent on men in their family, and if she is bound for sensual pleasures, she must always be under one's supervision; Her father protected her as a child and after her adult her husband protected her. And his son protects after knowing. The woman is not free or unprotected, as the husband of the wife hangs herself, as well as the son she gave birth to. Likewise, husbands should keep their spirits to be kept as holy as their descendants ".

What this Manawadharmasastra declares holds is that in a family even though each other is obliged to protect each other, yet the role of a husband, father or father is guided to protect not only herself, his wife but also his children. And more importantly, a family is expected to be obliged to maintain the sanctity of the relationship between family with mutual trust and respect so as to ensure the harmony and harmony of the household.

5. Reproductive Function

The human nature created by different sexes is to meet each other in a marriage bond in order to continue the offspring of the human generation. This is very clearly imprinted in our holy Manu Smṛti IX.96 that “To be a woman’s mother was created and to become a male father was created. Therefore the ceremony is set in the Vedas to be performed by the husband (Male) along with the wife (woman) “.

Based on this sound, it is legitimate to say that forming the family is actually the same as performing the reproductive function, in Mantram Dharmajati put forward: “*Om pranda purusha the yoga yes winda dewataya, boktra jagatnatha ya goddess adi yoga yes*”: It is you who created us, men and women, and lived and bred the world in the duties and positions of society.

So it is quite clear that the reproductive function for the family is natural. Men coupled with women in marriage bonds, so that a legal husband and wife that allows them to bear the son of successor generation as well as savior of ancestors. Of course beforehand must meet various requirements. Whether regulated in religious teachings, as well as those set out in law. For example the marriage foundation that must be supported by a sense of mutual love, meet the provisions after marriage, healthy born inner and so on. The requirement is important to adhere to, for the formation of a family that is koko and eternal colored by the conditioned atmosphere of prosperous and happy of the household concerned.

Furthermore, it can be explained also that for the Hindu family the actualization of this reproductive function is very referring to quality. That is not the amount to be taken into account, but the weight of the born child. Of this, it is stated in Slokantara 2 (6), that: “If any man makes a hundred wells be defeated with a reservoir, it is the glorious person who makes the reservoir. If there are people who make hundreds of boats less than do one yadnya once, it is very important to do the sacrifice. The one who sacrifices a hundred times less rewards than a Single Child, if the child is noble or Suputra “. On the other side of the same sloka 24 (52) of the same book is also affirmed, “If the moon is a lamp at night, Surya is the light of the world during the day, the Dharma is the third light of the world, then the good son is the light of the family.” It is clear that the family’s reproductive function must be oriented to the quality of the human being born, not just the quantity planned.

6. Educational Functions and Socialization

The real family is the first and foremost educational institution. Because through the family of planting and growing various educational values with socialization in the community began to be introduced and real applied. Both leading to physical education, the introduction of the social environment, mental coaching and spiritual strengthening. And because in a family the role of the parent in its function as a vital educator is a good example to be a pioneer for the example

of positive behavior by children. As for the child, according to Hindu teachings, there is no other way but to obey and or guide the educational value order implanted by his parents with bhakti attitude. For as stated in the holy book of Sarasamuscaya 250 is affirmed, "As for the reward of doing bhakti to the four parents of many, namely: Kriti, Ayusa, Bala and Yasa. Kriti means praise of goodness, Ayusa means life, Bala means strength, and Yasa means good name abandoned. All of which is the perfect increase as the reward of bhakti to the parents ".

Furthermore, in Lontar Putra Sasana is also mentioned: "As for the reward of a perfect suputra and do dharma, famous and good of heart, peace and noble virtue, everyone loved him, both claimed the family, all fell in love to see him, because God has made sure the superior person among all beings ".

What the sacred teachings teach above provides guidance that families in actualizing educational and socialization functions should be more emphasis on parental example and discipline of devotion in children. Thus the aspect of socialization applied in the middle of society will certainly be in line with the educational values that have been grown-grown from an early age.

Moreover, the formation of the family that is expected to materialize is a family with members who always uphold all always based on the noble values of diversity. This is what Hindus called the dharma family or Kula Dharma.

7. Economic Function

Aside from being a social institution, an educational institution, in fact the family is also an economic institution and or a container of the economy. For the family is not solely concerned with the issue of the smallest unit in society, the place where the first education takes place, but also at the same time a container where the activity of the economy will occur. Especially when it is linked with the material responsibility of a family to meet and or meet physical, food, spare, and board needs, it is certain that the family's role in re-aligning its economic functions is particularly prominent. It may be said that the life of the death of family life depends on the economic organizer and the fulfillment of family material.

For Hindu families, in line with the teachings of Purusartha Chess as has been described in the front of this paper has been hinted that Hindu still encourages its people to move forward, that is by step Dharna searching Artha (material) to meet Kama (needs) so that happiness is born born inner, Heavenly, commonly called Moksa.

And the only way to pursue the attainment of prosperity and happiness is through Karma or work. The footsteps are written on us Bhagawadgita III.8 which affirms, "Work as it has been determined, for it works better than without work".

The Hindu mandate of work is clearly an inspiration that encourages and mobilizes Hindu families for excision in carrying out its economic functions. But one thing that needs to be in the line-up is that what is done by Hindu people or family in its work, in it has contain elements of bhakti or work as a devotional, where the emphasis of the implementation of work is as an obligation not merely want to get reward. Because work as an offering is one of the paths to reaching Him that is called the teachings of Karma Marga. Nevertheless, through the work which

is also a way of devotion, Hindus can still exist to condition their respective families to remain able to meet their physical and / or economic needs.

8. Environmental Conservation Function

The Hindu family building is in fact formed on Tri Mandala which is the three areas that become one unity in the family container, namely Main Mandala (Parahyangan); Holy place of family, (Madya Mandala) (Pawongan) home for family, and Nista Mandala (Palemahan); Is part of the territory / carpentry specifically intended for family efforts to preserve the environment.

In this part of Nista Mandala or in this area the Hindu families align the function of the environment. Because this section of Palemahan is commonly called Teba is a special place to keep the concept of harmony of nature or bhuwana called Tri Hita Karana three elements of harmonious relationships; To God, to others and to the Natural Environment.

Thus, for the Hindu family to actualize its function as environmental conservation is not foreign anymore. Kongkretnya, for a Hindu family, the extent of palemahan or caring which they occupy will be divided for the rules of Tri Mandala and Tri Hita Karana. In the main area of Mandala or Parahyangan will be built a family sanctuary called Sanggah or Merajan. While in the Madya Mandala or Pawongan is the place to build a residential house family members, and in the Nista Mandala or Palemahan is a special place to plant any kind of plants or trees that can serve as a shade, productive, live and other opatik. In a place called also Teba is generally maintained as well as animal houses, such as pigs, cows, chickens, ducks and others.

What the Hindu family does by dividing their pages for vegetation or animal areas shows that family acceleration in its function as environmental conservation is proven to be reliable.

CLOSING

Thus the Hindu family in realizing a prosperous family with the actualization of its eight functions based on the teachings of Hinduism has shown that how the social institution called the family became the central and vital institutions in order to form a quality family, which in turn will become a pillar for the strength or robustness of the nation And the state of Indonesia. Quality is not only physical but also non physical. If translated, it will create a healthy family and fresh, productive body that is supported also by the personality of noble, intelligent, mentally retarded, independent, berkesetiakawanan, moral, steadfast and faithful and pious to God Almighty.

References

- Pudja, G. (1981). Bhagawadgita/Pancama weda. Mayasari Jakarta.
- Pudja, G., Sudharta, T.R. (1977/1979). Manawadharmasastra/Manu Smrti. Penerbit: CV. Junasco.
- Pudja, G. (1979). Sarasasmuscaya. Proyek Pengadaan Kitab Suci Hindu Departemen Agama RI Puniyatmadja, IB. Oka. (1976). Slokantara. PHDF.
- Gandhi, M. (1988). Semua Manusia Bersaudara. Gramedia.
- Vivekananda, S. (.....). Sauara vivekananda.
- Widana, I Gusti Ketut. (.....) Mimbar Agama Hindu (kumpulan). Bali Post.

YOGA AND HEALING

I Gede Suwantana¹, Ni Ketut Ayu Juliasih², I Nyoman Arsana³

gedesuwantana@gmail.com¹

Brahma Widya Faculty, IHDN Denpasar¹

Hindu Indonesia University^{2,3}

Abstract

Yoga is currently considered capable of preventing and treating various types of diseases. Each asana and pranayama is found to be able to overcome certain types of diseases. This work will attempt to describe the relationship between Yoga (especially asana and pranayama) and its healing power. The reason why Yoga has a healing function, how the process takes place and some examples of Asana and Pranayama able to cure disease is the scope of the discussion. Problems are narratively described by trying to describe in detail the reasons, processes and movements of Yoga that come into direct contact with the healing of illness. The discussion will try to find the philosophy behind the Yoga asana and pranayama so that it has a tendency for healing. Whether the posture itself is directly in contact with the disease so that there is a healing process or there are other aspects that work when the practice of yoga is implemented are the main points that will be the cornerstone of this article. As for the process of posture and pranayama as well as some of the healed illnesses are described on the basis of the philosophical foundation and then celebrated by the results of various studies by the growing Yoga institutions around the world.

Keywords: Yoga, Healing, Asana, Pranayama

INTRODUCTION

Several centuries after Patanjali, the evolution of Yoga is more interesting. Now, some great experts are beginning to disguise the hidden potential of the body. The previous generation of yogis and yoginists did not pay special attention to the body. They are more interested in contemplation, to the transcendental point consciously. The goal, they merge and join the reality without form, the soul. The new generation of yoga masters creates systems designed to rejuvenate the body and prolong life. The body is regarded as an immortal soul shrine, not just a discarded container at the first opportunity. This gave birth to Hatha Yoga, an amateur version that is now practiced all over the world. This is also why various branches of yoga are present (Windratie, 2014: <http://www.cnnindonesia.com>).

Yoga branches are born lately is the diversity of approaches and methods in achieving the desired goals respectively. Because it must be admitted, everyone has their own goals in doing yoga. Some branches of yoga such as: AcroYoga, Anusara Yoga, Ashtanga Yoga, Baptiste Power Yoga, Bikram Yoga, Forrest Yoga, Integral Yoga, Ishta Yoga, Yoga Iyengar, Jivamukti Yoga, Kapha

Yoga, Kripalu Yoga, Kundalini Yoga, Nirvikalpa Yoga, OM Yoga, Organic Yoga, Yoga, prana flow yoga, purna yoga, Sivananda Yoga, Svaroopo Yoga, Tri Yoga, Viniyoga, Krishnamacharya Yoga and others (Akhlis 2016: <http://www.akhlis.net>). All of these branches are more emphasis on posture or hatha yoga which in principle emphasizes on health and healing. Currently hatha yoga is the most popular yoga branches than any other yoga. The focus of practice in the hatha yoga includes the following activities (in Kinasih, 2010: 2-3):

1. Pranayama technique (breathing technique). Respiratory technique is a very important support in yoga practice. Breathing is done by pulling and exhaling from the nose deeply. When pulling - breathing in the air enter the body carry oxygen that serves as a "fuel" to activate every cell in the body. In hatha yoga, breathing exercises are very important because in accordance with the principles of hatha yoga that is union of body and breath.
2. Mudra (gesture). Mudra can be analogy as a veil / seal. Mudra is a technique that aims to hold the energy of the body remain stable and help generate sensation to the mind and feelings. One example of mudras is the chin mudra (ghruyan), which sits with both hands above the knee, palms facing up with the thumb touching the tip of the left and right index finger. Chin mudra can help improve feelings of calm and broaden the horizons.
3. Bandha (lock). Bandha is a special posture aimed at holding prana not out of the body and expedite the "prana" energy in the body transforms into spiritual energy. One example of bandha is Jalandhara bandha, inhale, while holding the breath press chin to the chest. The practice of uddiyana bandha, done after jalandhara bandha, ie after breathing and then held back while pulling the abdominal muscles toward the spine and upward toward the pit of the stomach.
4. Asana (posture or body movement). Asana is a comfortable posture, done slowly, meditatively and with deep breathing. Asanas are designed to strengthen every part of the body and enable one to manage the thoughts and feelings as well as aspects of the spiritual. Somvir (2008) and Widyantoro (2004) mention that some asanas are designed to honor the universe that has been considered to help human activity, naming the asanas with names of parts of the universe such as mountains, trees (vrksasana) Sun solutation (suryanamaskar), gomukhasana (cow face), gajakarni (elephant), sarpasana (snake), chicken (cukuta-sana), adho mukha svanasana (dog), etc. There is a literature that states that asana yoga amounted to 840,000 (Sindhu, 2007).

Based on the results of research conducted by Kinasih (2010: 6) yoga exercises have influence for physical, psychological and spiritual. Physically, respondents feel a healthier body, improved immune system, eliminating insomnia and reducing complaints of physical pain commonly experienced. Psychologically, yoga practice causes the respondent to be more calm and not easy to feel anxious. Spiritually, respondents feel that life is a blessing. The life of the respondent becomes more meaningful because of doing every activity with total heart. This work will outline the reasons why yoga is able to cure diseases of both physical, psychic and spiritual as the Kinasih mentioned above. Likewise, this work will express briefly the process of asanas and pranayama as well as some of the findings of some diseases can be cured by yoga itself.

DISCUSSION

How Yoga Works for Healing

The human body is composed of a number of different organ systems that work together to perform certain bodily functions and keep the organisms in one unified whole. All vital systems are a balanced interaction of various interdependent organ systems. Failure in one of the organ systems or functions will be detrimental to the entire system of the body and disease can not be avoided anymore.

From the perspective of Yoga, poor health is caused by an imbalance in the body's energy system. No matter how intelligent a person or however good and lawful a person is, if the energy system is not functioning properly, the person will suffer from the disease. The disease will attack without warning, but unwittingly the disease has settled for years on our bodies. Hidden in the genetic structure of the body or tucked in our subconscious. But if the balance of energy is awake, all diseases will get out of us (Sumantra, tt: <https://yogahealingbali.wordpress.com>).

Nadhi is unbalanced, resulting in illness. In the normal life Ida Nadhi and Pinggala are unbalanced, causing fluctuations of energy, emotions, healthy and illness periods, up down events in life. This is a normal process because as a continuous replacement of energy from Ida to Pinggala and back from Pinggala to Ida Nadhi in a cycle. In normal individuals there is always a dominance of energy in one of his nadis, or ida or Pinggala, rarely having this in balance. A disease will arise, if there is a dominance of energy in One nadhi in a long time.

Someone more dominated by Nadhi Pinggala, this man will be very extrovert, have very little inner experience, seek fulfillment with outer pleasures, insight and ambition. Continually will pursue happiness from the outside, and so unfulfilled and unsatisfying his ambition will lead to frustration and inner pressure. Anatomically, the Pinggala dominant person tends to activate his sympathetic nervous system, releases too much acid that causes injury, increases blood pressure beyond normal limits. Removing adrenaline too much because always being striving in the competition of life and sports will be a little time. Finally, endocrine and unbalanced metabolism will result in this person being always restless and very sensitive, no tranquility in the heart (Sumantra, tt: <https://yogahealingbali.wordpress.com>).

Someone dominated by Ida Nadhi, this person will be introverted, happy daydreaming, thinking more than doing, very sensitive to all external and interpersonal events, he is looking for happiness inside. This energy is very weak, the disease that occurs usually such as constipation, depression, anxiety, inflammation of the colon, eczema, and psychosomatic conditions.

Research conducted by the Spiritual Science Research Foundation (<http://www.spiritualresearchfoundation.org>) has revealed that if one practices asanas and Pranayama, he may face certain limitations from the point of view of spiritual growth. The following chart shows the average spiritual purification that occurs across the various bodies of our existence after practicing yoga asanas and pranayama.

**Purifikasi* dari berbagai tubuh yang dicapai dengan
Yogic āsanas (yogasānanas) dan Prāṇāyām**

Berbagai macam Tubuh (Maks. purifikasi yang bisa dicapai)	Yogic āsanas (yogasānanas)		Prāṇāyām	
	Purifikasi maksimum yang bisa dicapai	Tahun yang dibutuhkan	Purifikasi maksimum yang bisa dicapai	Tahun yang dibutuhkan
Tubuh fisik (20%)	20%	10	20%	6
Tubuh vital (30%)	7%	10	30%	8
Tubuh mental(100%)	5%	10	10%	8
Tubuh kausal (100%) (Akal budi)	2%	10	2%	8
Tubuh suprakausal (100%) (Ego halus)	1%	10	1%	8

* Maksud kami dengan purifikasi adalah meningkatnya komponen *Sāttva* di dalam tubuh tertentu itu

© Spiritual Science Research Foundation

From this table you can see that the asana and pranayama can purify the physical body and the vital body to a maximum of 20% within 10 years. While other more subtle bodies, Yoga asanas and Pranayama are not able to purify them to the fullest, so more subtle spiritual practice is required. But the Spiritual Science Research Foundation (SSRF) concludes that Yoga asanas and Pranayama are very useful in worldly life to make the physical body and the vital body healthy (SSRF, <http://www.spiritualresearchfoundation.org>).

Meanwhile Katrina Love Senn (2014 in: <https://www.mindbodygreen.com>) mentions there are at least 20 reasons why yoga can heal. He found this based on his personal experience when he had to sleep a few months in a state of illness. She does yoga exercises regularly while doing research. As for the 20 reasons he described as follows:

1. Yoga brings attention to your breathing, which is the single most important thing that you do every day.
2. Yoga is a spiritual practice that allows your mind to soften and your heart to open.
3. Yoga can help you stay connected to yourself, so that you can put your own needs first.
4. Yoga can help you to gain clarity about things you're working through each day.
5. Yoga is a great way to say, "yes!" to yourself and everything that is important to you.
6. Yoga can help you move beyond a negative inner-dialogue.
7. Balance poses in yoga invite you to get out of your head and into your body.
8. Yoga gives you healing tools to better cope with stressful events and trauma.

9. Yoga rebalances your body and can help with weight loss, Premenstrual Syndrome (PMS), inflammation and other chronic ailments.
10. Yoga can bring your awareness to the tension being held in your body, so that you can let it go.
11. Yoga classes are a great way to meet new, interesting and like-minded people.
12. Yoga opens up a whole world of travel opportunities, with amazing yoga retreats held all over the world.
13. There are lots of different styles and levels of yoga allowing you to find the best 'fit' for you.
14. Doing yoga regularly can help you to discover what makes you really happy.
15. Creating a regular yoga practice can bring more flexibility and strength to your body.
16. Yoga twists can help you feel stronger and better able to cope with life's unexpected turns.
17. Yoga supports you to consciously make better and healthier food choices.
18. Yoga opens you up to new feelings like inspiration, joy and gratitude.
19. Relaxing at the end of a class awakens the healing wisdom that lives within your body.
20. Yoga heals by helping you to reconnect with your inner-knowing, your heart and your dreams.

From the description can be said that Yoga for Healing is a holistic practice that addresses the mind, body and the soul. We allow our bodies to build strength gently while working to heal our nervous system and mental space. In short, with Yoga for Healing will: build strength, enhance joint movement, gain flexibility and relax, modify and take things at the pace (Bucasas, 2015: <http://yoga-for-healing.com/>).

Some Asanas That Have Healing Properties

In principle every asana in Yoga has its healing effect. As long as we train it appropriately, the healing aspect of each asana will work automatically. Therefore, the most important thing in practicing yoga is how to make the posture is not wrong. The accuracy of the movement itself that will deliver the energy in the body flowing balanced and healthy. It's just that it takes perseverance and time to do it. Many people complain because they do not have enough time to do the exercises regularly. But Zain Saraswati Jamal, as though the yoga teacher says, even though one does not have time, they can still do certain poses of yoga that have the healing aspect. Asanas can be done anywhere and anytime. According Jamal (2013: <http://bahasa.aquila-style.com>), there are at least four simple asana that can be put into practice.

1. Standing Forward Bend (Uttanasana)

How to do it is as follows: Keep your arms, legs, body and chest straight. Exhale as you lean forward from the hip joint, place your hands on the ground or against the shin. Bend the knee as far as it takes to keep the ribs above your thighs. Insert the tail bone down by pulling the pubis into the abdomen.

In each breath, let the tail bone rise, pull the belly in, and stretch the torso. In each breath, fold the body deeper. While taking 10 to 15 breaths in this pose, with your hands and feet steady, grab the healing energy from the earth from below.



Source: CNY Healing Arts

It helps calm the mind and can help cure mild depression. This pose stimulates the liver and kidneys, reduces fatigue, improves digestion, and stretches the hamstrings and hips. This pose also helps clean up the chakra blockage down and generate energy to forgive and resignation (2013: <http://bahasa.aquila-style.com>).

2. Warrior II Pose (Virabhadrasana II)

Stand with both legs open about 1 to 1.5 meters with the toes pointed straight and the rear legs form a 45-degree angle. Bend your front knee until your legs reach a 90 degree angle and straighten your shoulder-level arms. Spread the spine by pulling the tail bone down or pulling the pubis toward the navel. Make sure the front knee spins outwards externally rotates. Shift gently and look at the middle finger of the front hand. Breathe 20 to 25 breaths here, pull the energy and vitality of the Earth.



Source: <https://www.123rf.com>

This asana strengthens and stretches the legs, knees, and joints of the ankles and groin, lungs, and shoulders. This pose helps build stamina and stimulates all the abdominal organs. This pose is also useful for increasing strength at the center of your self, helping to boost confidence.

3. Triangle Pose (Trikonasana)

Stand with both legs spanned 1 m, right toes pointing forward, left toe in 45 degree angle, straight legs, parallel heels. Raise your arms up to shoulder height, take a deep breath and as you exhale, lift your right fingertips aloft. Bend your torso and hold your right toe, ankle, or shin, lift your left hand to the sky and look at the fingertips of your left hand. As you exhale, stretch through your side as if you are standing between two sheets of glass. Hold for 10 to 20 breaths and repeat on the opposite side.



Source: <https://www.123rf.com>

It helps stimulate the digestive system, relieves stress and anxiety symptoms and can strengthen and stretch the hamstrings, thighs, knees, ankles, shoulders, and spine. This pose also serves to enlarge the heart chakra and throat and increase energy in your body.

4. Tree Pose (Vriksasana)

Move weight to one leg and raise other legs resting on the outside of the knee. Hold your ankle and manually move your legs, place your feet against the calf, thigh, or half the lotus. Make sure that your feet are above or below the knee joint. Raise your arms above your head, palms facing inwards and gaze gently forward or up fingertips. Extend the tail bone by pulling the pubis towards the navel so that the lower back is free. Breathe 10 to 15 times the breath. Feel your roots grip deep inside the earth like a giant banyan tree.



Source: aboutyoga.in

This asana improves balance in the body and in your life. If you experience a lot of imbalance in life, tree pose is a great way to foster stability and stability. In energy, this pose opens the heartburn, heart, and throat chakra, strengthening the intuition and connection to Earth.

Yoga and Conditions

Yoga excellence that is not in other exercise, is yoga gives a positive impact not only to the physical aspects but also to the mental and emotional aspects. Everything is driven in a 'dance' that harmoniously combined. Harmony and balance all these aspects that produce positive effects in taking care of body health and is therapeutic in dealing with the weakness of the body due to human negligence. Another yoga excellence is the gentle but firm movement of yoga. If the muscles contract, the sugar stores in the body will turn into lactic acid and arise additional power. In hard, fast, and sporadic sports like aerobics, the lungs work faster to get enough oxygen to meet the muscle's needs, but if done too Hard, the long and fast breath is not able to meet the body's need for oxygen, consequently lactic acid will increase and accumulate in the muscle. Muscles experience fatigue that can lead to muscle spasms (cramps). The opposite occurs in yoga. Though refined, the gradual yoga movement provides the same benefits as the hard and fast movements of other forms of body work but is not followed by the buildup of lactic acid in muscle which can lead to fatigue. In addition, yoga does not exert excessive pressure on the heart and nervous system as evoked by the exercise of other bodies (Annunaki: 2010: <https://annunaki.me>).

Yoga can be therapeutic for many types of diseases if practiced in accordance with the following principles:

1. Performed regularly. Practicing yoga on a regular basis helps to stretch and strengthen muscles, flex joints and strengthen bones and stimulate hormone release regularly.
2. Breathe deeply. Yogic breathing techniques increase the lung capacity to make the respiratory process optimal. Yogic breathing techniques also help strengthen internal organs and increase the body's ability to relax.
3. A balanced diet. A balanced diet and meet the nutritional intake for the body will improve health holistically.
4. Get enough rest. It is important to maintain a balance between working and resting so that the health of the body is always in top condition.
5. Think positive. The mind / heart must also always be given positive input so that mental and emotional aspects are maintained health. There is a correlation between mind and body. Positive thoughts help the body's recovery from disease (Annunaki 2010: <https://annunaki.me>).

In addition, there are other provisions that must be followed if we want to exercise yoga is useful to the fullest.

1. Yoga needs to be done in the morning at sunrise (best time is 06.00 until 07.00 am) and afternoon (05.00 pm - 07.00 pm).
2. Yoga needs to be done when the stomach is empty. Do not eat before doing yoga exercises. We can only eat half an hour after completion of yoga.
3. Yoga needs to be done in a clean environment and fresh air.
4. While doing yoga, draw and exhale always through the nose. Yoga needs to be done on a mat or carpet.
5. When doing yoga should not talk for an hour, so it will help the mental development and make the mind calm.
6. Yoga can be done by everyone regardless of age, race, religion and belief. Similarly, prayers spoken during meditation can be adapted to their respective religions and beliefs.
7. To start a yoga practice if anyone is sick, or has a particular disease, had an operation, it should be told yoga teachers to avoid things or movements that yoga participants may not do.
8. In training certain asanas (poses), if a position is difficult to do then do not force the movement. Asanas need to be done slowly and carefully.
9. People who do Yoga should try to stop the habit, smoke, consume liquor, steal, hurt others, and say harshly. Saying the subtle and true, helping and not harming others and thinking positive and consider all the people as friends.

10. Asanas and pranayama (breathing) should be done under the guidance of a teacher. When learning yoga only through books, a possibility of misunderstanding the meaning of every asana or pranayama because some people who learn from the book will misunderstand and do yoga in a way that is not true (Chan, 2010: [http:// sitaaerobic.blogspot.co.id](http://sitaaerobic.blogspot.co.id)).

CONCLUSION

Based on the description can be taken some conclusions. First, yoga is an old-fashioned method that is currently popular all over the world because of its health benefits. For that reason, there is an enormous branches of yoga that springs up with a variety of techniques and emphasis on certain aspects of health and fitness. By doing asana and pranayama exercises regularly, one's life will be healthier both physically and mentally. As for those who suffer from illness, yoga will gradually be able to heal it, because each posture has a healing effect.

Second, in the healing process, yoga is more emphasis on energy balance. Yoga believes that the emergence of various types of diseases caused by the flow of energy in the body that is not balanced. The more unbalanced the body energy, the more likely the person is suffering from a particular disease. Through regular yoga practice, the body's energy flow will be maintained to keep it balanced so that the body can cope with various types of disorders or attacks coming from outside, whether it is viruses, bacteria, fungi and others.

Third, yoga will work best if done under certain conditions. In addition to requirements such as must be done in an empty stomach condition, the importance of teachers, and others, should also be followed by certain lifestyle such as way of thinking, eating patterns, resting patterns and others. A good way to live and practice yoga regularly is the key to healthy living.

References

- Akhlis. 2016. *Pilih-Pilih Jenis Aliran Yoga*. In: <http://www.akhlis.net>. Downloaded: 10-05-2017.
- Annunaki, 2010. *Yoga dan Kesehatan*. In: <https://annunaki.me>. Downloaded: 11-05-2017.
- Bucasas, Tera. 2015. *Yoga For Healing*. In: <http://yoga-for-healing.com/>. Downloaded: 11-05-2017.
- Chan, Nadia Sita. 2010. *Persyaratan Melakukan Yoga*. In: <http://sitaaerobic.blogspot.co.id>. Downloaded: 11-05-2017.
- Kinasih, Arum Suksma. 2010. 'Pengaruh Latihan Yoga terhadap Peningkatan Kualitas Hidup'. *Buletin Psikologi Fakultas Psikologi Universitas Gadjah Mada*, Vol. 18.1 (2010): 1 – 12.
- Senn, Katrina Love. 2014. *20 Reasons Why Yoga Heals*. In: <https://www.mindbodygreen.com>. Downloaded: 11-05-2017.
- Sindhu, P. (2007). *Hidup Sehat dan Seimbang dengan Yoga*. Bandung: Qanita.
- Somvir. (2008). *Hidup Sehat dan Bahagia dengan Yoga*. Yoga for Health a Voice of Bali edisi 4, April 2008 hlm 4. Bali: Penerbit Yayasan Bali-India Fondation.
- Spiritual Science Research Foundation. *Tt. Asana-asana Yoga dan pranayam mempurifikasi tubuh fisik dan tubuh vital*. In: <http://www.spiritualresearchfoundation.org>. Downloaded: 11-02-2017.

(I Gede Suwantana, Ni Ketut Ayu Juliasih, I Nyoman Arsana)

Sumantra, tt. *Mengapa Surya Namaskara Bisa Menyembuhkan Penyakit?* In: <https://yogahealingbali.wordpress.com>. Downloaded: 11-05-2017.

Widyantoro, Y. 2004. *Yoga. Diktat Intensive Classic Yoga di Balance Mind☯Body☯Soul*. Yogyakarta: Tidak Diterbitkan.

Windratie, 2014. *Dari Sini Sejarah Yoga Berasal*. In: <http://www.cnnindonesia.com>. Downloaded: 10-05-2017.

HEALING ASPECTS ON BALINESE TRADITIONAL LANDSCAPE

I Putu Gede Suyoga¹, I Komang Gede Santhyasa², Ida Ayu Putu Mahapatni²
gsuyoga@yahoo.com¹
Bali Design Collage¹
Hindu Indonesia University^{1,2}

ABSTRACT

Balinese traditional landscape has a design guideline in the selection and placement of plant variants. The concept of *Tri Hita Karana* underlies the layout of plants in traditional Balinese spaces. The magi-religious, humanist, and technical aspects influence the consideration of selecting and planting different types of plants in traditional Balinese landscape including aspects of *usadha* 'medicine and health' or healing aspect. It is very interesting to be studied with the perspective of cultural studies. The condition of Bali's geography, topography, and natural climate is also a consideration for the selection of suitable plants growing in the *Parhyangan*, *Pawongan* and *Palemahan* zones. The purpose of this study is to determine healing aspects in traditional Balinese landscape plants scattered in the three zonations. This research is a qualitative with descriptive interpretative method approach. The research findings show healing aspect, ie plant as medicine to maintain health and vitality (preventives), as well as for the treatment of disease (curative), become the main foundation of traditional Balinese landscape design, in addition to aspects of magic (belief), religion (ritual), technical (structure-construction), environment, and aesthetic.

Keywords: Culture, Healing, Plants, and Balinese Traditional Landscape.

INTRODUCTION

Each traditional area in Indonesia with diverse ethnic, cultural, geographic, topographic, climatic conditions has its own peculiarities in the arrangement of traditional parks, including in Bali. Bali's traditional park is a traditional Balinese landscaped gardens.

Bali traditional park is a tropical garden that refers to the location of Bali island in Indonesia as the main icon. Preparation of the design of the form of the park actually has the same style with other tropical gardens, the composition is not the same or the difference that based on Balinese culture. The main element is the influence of the culture of the Island of the Gods is clearly visible as the use of plants derived from Bali which became one of the characteristics of this park, for example frangipani tree and *pandan* Bali.

The presence of traditional objects and accessories, especially ethnic Balinese sculptures, can also be a unique and different identity from other tropical gardens, but the mystical impression is also felt strong. Therefore, this Balinese style garden can be a trend in all areas of the country,

even outside the country with a little adjustment to the beliefs held by the park owner, for example for the followers of Islam, the element of the statue should not be input in this Balinese style garden setting, Because there are many more interesting elements that can replace the shape of the statue.

Traditional Balinese-style gardens are often labeled as a mysterious and magical ornamental garden arrangement, although most of the ornaments displayed highlight the unique flora and fauna. Essentially, the design of Bali's garden is not just covered in classic decoration with mysterious fantasy motif, but also displays the modern elements according to the demands of the society that is more concerned with the abstract decoration of the three dimensional image.

The most important feature in traditional Balinese gardening is the plants. Typically, plants in Balinese gardens are characterized by uniqueness and classic, such as shoots of nails, frangipani, heliconia and alocasia. This simply shows Bali is located in the tropics, with various types and character of a strong tropical plant.

Elements of water movement must be present in every Balinese traditional park, as the flow and the water entwined symbolizes prosperity and peace. Another feature that must exist in a traditional Balinese garden is a statue. There is at least one statue in this park. The statue reflects the recognition of the ongoing upheaval over the aspect of *rwa bhineda*, the element of good and evil raised from the mythology of the gods, the heroic story of Mahabharata, Ramayana, or Tantri Kamandaka (fables), as well as other romantic, moral, ethical, Hinduism or Buddhism.

The statues of nuance of extravagance and unity are more widely used in the gardens of the 'holy place' *parhyangan* zone, such as temples, worship places, *beji* 'holy water sources', graves, and other sacred areas. This type of sculpture can be replaced with human or animal-shaped statues, such as elephants, tigers, fish, deer, or other animals if placed in the *pawongan* zone around human life, for example in homes, schools, offices and others places.

Nowadays, many garden arrangements that use pottery ornaments, such as jars, clay garden lights, and abstract-patterned sculptures replace the use of patterned artificial statues, in addition to artificial or printed material combined with a fountain.

The park not only involves architectural, functional, aesthetic, but also involves Balinese cultural philosophy in every placement of its landscape components, so patterned in such a way, standard and distinctive for each component. Balinese traditional park has a very high philosophy, as it is published in various lontar and scriptures.

The concept of *Tri Hita Karana* underlies the layout of plants in traditional Balinese spaces. The magi-religious, humanist, and technical aspects influence the consideration of selecting and planting various types of plants in traditional Balinese landscape including healing aspect, ie plants as ingredients for preserving health and vitality (prefentives), as well as for the treatment of disease (curative). The condition of Bali's geography, topography, and natural climate is also a consideration for the selection of suitable plants growing in the *Parhyangan*, *Pawongan* and *Palemahan* zones. It is very interesting to be studied with the perspective of cultural studies.

DISCUSSION

Bali Traditional Garden Philosophy

The philosophy of Balinese traditional garden can be understood from the story of Mount Mandara or Mandara Giri playback. Adi Parwa manuscript VXIX page mentions that in the play Mandara Giri in Ksirarnawa bring up some components among others: (1) *Ardha Chandra* (crescent moon), that is hard element and beauty. The element in question is the aspect of the building with all its forms and its beauty. (2) *Gumani* caste wood, as an element of plant that gives life or *kalpataru*, gives rise to *Panca Wriksa*, the first five plants that grow and give life, namely: (a) banyan tree (*Ficus bengalensis*) that can provide shade and peace of life; (b) *ancak* or bodhi tree (*Hemandia Pellata*) as a place of meditation to connect with God, pleading for life and peace; (c) banana (*musa sp*), which is a life-giving food; (d) the *uduh* plant (*Caryota myitis*) which is the place of receiving the accusers/*wangsit* or advices, and (e) *peji* plants, as a place of praise or worship of God's greatness.

Next (3) The water is thickened, as the symbol of living water which is the most important element that can provide coolness, both coolness of mind and coolness of the environment, so it is *tirta kamandalu* or water amertha, because *amertha* means not death or immortal. Further explanation of this water, producing *Pancara*, which is water engineering for the environment, which includes: (a) *seta* or bridge, (b) *tama* or gardens, (c) ponds or fisheries, (d) ponds or ecosystems and (e) *peken* or market.

Then comes (4) Goddess Lakshmi, as a symbol of beauty, both in the beauty of peace, harmony, and environment, which leads to provide life for humans and other living creatures. (5) *Oncersrawa* horse (white horse), as a symbol of spatial creativity. And (6) *Bongkah*, is a symbol of irregular shapes such as rocks and earth.

The appearance of these components that became the foundation in creating or designing a Balinese style garden. It should also be in accordance with the Hindu aesthetic concept (Dibia, 2003: 97), which consists of *Satyam* (truth), *Siwam* (holiness), and *Sundaram* (beauty). The concept of Hindu aesthetics that animates *Tri Hita Karana*, *Tri Mandala*, *Tri Angga* and *Asta Dala* in the arrangement of traditional Balinese gardens.

Tri Hita Karana are the three causes that give happiness, that is human relationship with God (*Parhyangan*), human relationship with others (*Pawongan*) and human relationship with its environment (*Palemahan*) (Gomudha, 2008: 89; Sulistyawati, 2013: 245). The concept of *Tri Mandala* (three acres) is also used in this concept, namely *Utama Mandala* (main yard) is *Parhyangan* or holy place. *Madya Mandala* (middle yard) is the area of human activity that is home yard with a number of residential buildings, kitchen, bathroom, barn, and "*teba*" or *tegalan*, while *Nista Mandala* is yard outside the house or *jaba* or yard before entering the yard of the house.

It also fulfills the elements of *Tri Angga* (three parts of the body), namely *Ulu* (head), *Bada* (body) and *Batis* (feet) (Sulistyawati, 2013: 255). *Ulu* (head) is a mountain, will give demands related to God Almighty, in order to obtain peace, prosperity and happiness of the inner and outer. The body is the village with its urban place where people seek livelihood, while his feet are the oceans, the place of sanctifying all the calamities and defilements of the innate and inward.

Asta Dala is the eight directions of the wind direction, namely North, Northeast, East, Southeast, South, Southwest, West, and Northwest (Nala, 1992: 123; Titib, 2001: 382). Spatial pattern is divided based on the concept of *natah* or yard, namely "*tapak dara*" the axis of East-West design as the axis of religion and North-South as the axis of the earth. The right rotation of *tapak dara* produces *Swastikayana* which gives life a balanced and harmonious life eternally toward holiness.

Plant Philosophy and Placement

Cultivation of certain types of plants is important in a single yard of the house yard, ie before the entrance on the right should be planted *blatung* mace or cactus (*Pachycereus* Sp), while on the left planted *dapdap wong* plant (*Erytherina variegata*) which is believed to counteract bad intentions.

After entering the entrance, next to it is planted with *bergu / weregu* (*Rhapis exelsa*) which is believed to be able to destroy the stronger negative power, while near the kitchen is planted with *Moringa* (*Moringaoleivera* L), as an antidote of poor energy in the last radius in the yard of the house.

At the entrance of *Utama Mandala* (the shrine) is planted with *jepun putih* (white) and *jepun sudamala* (*Plumeria rubra*), which is believed to cleanse and purify all peoples entering the sacred area, as well as *tulak* and *sisih* (*Phillantus Boxipolius Muell Arg*), which is believed to be able to resist and set aside all good thoughts with the bad. Only the good-minded people can enter the courtyard of *Mandala*.

Inside the *Utama Mandala* planted one of them is *nagasari* (*Mesua ferica* L) is a plant that the aura of pure white and cold, so it is considered as a favorite plant of the Goddess. Own means Dragon *Nagasari* means the *Anantaboga* and *Basukih* binds "*sininging sarining gumi and manah*" (Balinese), which means the essence of the earth and the life of the mind. In addition, planted with flowers that smell good, such as: *pudak*, *cempaka*, *sandat*, roses, *kenanga*, *dapdap*, whistling and plants *upakara* purposes (means offerings) other.

Important notes for the *natah* area "house court", should not be planted with phalanx plants, such as coconut, sugarcane and the like, because it is believed to cause discontinuous life and livelihood. It is also believed to have an adverse effect if planted with a banyan tree whose roots reach into the ground, because it can be a *Banaspati Raja* habitat where the energy is not good for human residence.

Recommended plants are better planted with plants of various types of flowers and some fruit plants, especially starfruit. Fruit plants with large trees (hardwoods) should be planted in the backyard's area near the kitchen or outside of the other rations and preferably planted outside the home yard, such as in 'fields or garden'.

Plants for kitchen and medicinal plants for the family (living kitchens and live pharmacies) are usually grown near the kitchen. The pattern of planting all types of plants, should still pay attention to the aesthetic value in addition to cultivation actions that are considered important for the plant to grow properly.

In traditional Balinese landscaping, whether for house garden, temples, offices or other public landscaping, to realize Bali as Garden Island is expected and it is recommended to use the local plant of Bali as its garden plant. In addition can be used as a fulfillment of architectural, aesthetic, and functional aspects, as well as for the purposes of *upakara* (ritual) and *usadha* (health).

Placement of each plant is adapted to the intended use of the plant. If the plant can be expected to double function, for example other than as a medicinal plant can also be used as an ornamental plant, then either planted around the kitchen or in other yard. For example, *blatung gada* / cactus, in addition to used repellent reinforcements in the yard outside the house, can be used as a drug hepatitis, ulcers or inflammation of the skin, so placement can be in the yard outside the door of the house or around the kitchen.

The basic ingredients of *upakara* in the Hindu ritual, consisting of water, leaves, flowers, fruits, and fire. In addition to the element of fire and water, the rest is an element of the plant. Sloka on Vedic V.11.6 reads: “*Tvam agne agniraso guhahitam Anuavidan sinriyanam vane-vane*”, which means more or less that “The plant is God’s creation to support the needs of living things including humans to eat and other necessities”. Further Bhagawad Gita IX sloka 26 mentions the flower as the main ingredient in *upakara* besides the fruits, leaves and water which read: “*Pattram Puspamtoyam Yo me bhakty prayacchati Tad aham bhaktyupahrtam Asn-mi prayat-tmanah*”, which means more or less is “Anyone with the manifestations of the heart offer to me (God) leaves, flowers, fruits and water, offerings based on love and out of the subconscious heart, I accept” (Darmayasa 2014: 463).

The elements of offerings are formed in such a way that it becomes a offerings. Aji Janantaka and Kunti Sraya manuscripts, mention there are some plants that can and can’t be used as completeness *upakara* ‘elements of offering’. Part of the most widely used plants as completeness in *upakara* are flowers, then fruit and leaves. Flowers besides having the meaning of beauty, also generally smell nice, so it can give influence of holiness and help concentration mind to God. Placement or planting plants adapted to *pengider bhuana* or *asta dala* (the god of the ruler of the direction of the wind) is mainly seen in terms of the color of flowers or fruit.

White dory plants, preferably planted in the East or *Purwa* because as a symbol of the God Iswara. Jambe or betang plants consist of several types, such as betel nut, gang, and other types of betel nut will be better planted in the South or *daksina*, because as a symbol of the God Brahma.

Whirlwind plants, preferably planted in the west or *pascima*, with other flowers used to decorate *kwangen* (means of prayer), and other offerings, as the symbol of the god Mahadeva. The plant of the blue teleng, it would be better if planted in the North or *uttara*, is used in every offering, as the symbol of Lord Vishnu.

Plants of *tunjung* or lotus consisting of various colors, used in various purposes *upakara* gods, the placement in the yard follows the color, namely: blue in *uttrara* (north), white in *purwa* (east), red in *daksina* (south) and yellow in *pascima* (west).

Similarly, other types of plants, such as coconut are the most important elements of various types of *upakara* fittings, from the ‘young leaves’ (*janur*), *slepan* (old leaves), *bungkak* (young fruit), *nyuh* (old fruit), and other parts are indispensable in various types of Balinese Hindu religious ceremonies.

The placement can also follow the pattern of bhuana above consideration, such as: coconut tree or nyuh ivory in the West (God Mahadewa), Coconut Moon (white color) in the East (God Iswara). Kelapa Gadang (green) in the North (Lord Vishnu). Coconut Shrimp in the South (God Brahma). Coconut Sudamala (colored animal / mix of the four colors) in the middle (Lord Shiva). Other types of coconut and also used as completeness *upakara* are coconut *Bojog*, *Rangda*, *Mulung*, and *Julit*. Planting outside the *natah* can be around the kitchen, *teba*, and *tegalan* (fields).

Related presentation and utility offerings in upakara Dewa Yajna, which is an offering to the gods *Nawa Sanga* (nine gods) manifestation of God, namely Lord Vishnu (North) presented *godem* or *jawaras* (Sorghum vulgare Pers), mangosteen (Garcinia mangostin L), Pangi (Pangium Reinw edule), leaves of mango (Mangifera indica). Dear Lord Brahma (South) presented: Maize (Zea mays L.), bay (zalacca edulis BL), betel nut (Areca atechu L), and leaves mangosteen. God Iswara (East) presented: pecan (Alereutes molucana Wild), tropical (Phyllanthus acidus Skeels), and the leaves of *durian* (Durio zibethinus Mere). God Mahadeva (West) presented: Coconut (Cocos nusifera L), corn, and *duku* leaves (Lancium domesticum Jack). While Shiva (Central) presented: rice (Oryza sativa L.), *Jali* (Coix Lacryma-jobi L), and pineapple (Ananas comosus L).

Similarly, the type of flowers used in the prayer is adjusted to the color chosen in accordance with *Asta Dala* and the smell is fragrant. Some good flowers are worn in the worship of each of the worshiped Gods as follows: Lord Vishnu is a ylang or teleng. Brahma is a red rose, a blue lotus, a *soka* flower, *kenyeri*, a red bougainville, Iswara's god is a lotus flower white, *jepun petak* (white), white cempaka. Mahadeva god is yellow lotus, yellow *cempaka*, *kembang kuning* or *alamanda*. That's some kind of good flowers are used if we do praying during the holy ceremony of Hindus.

Aspects of Healing within the Traditional Park of Bali

Plants have many functions, other than as upakara plants, as traditional Balinese building materials can also be used as medicinal materials. Medicinal plants can also be utilized as traditional Balinese garden composers, as live pharmacy plants, or family medicinal plants. Collection of medicinal plants are quite complete and extensive in Bedugul Botanical Garden, Tabanan.

Herbs as one of the elements of the environment, in the long history of mankind (homo sapiens) on earth shows that since prehistoric times have sustained his life. The multifunctional herbs have long been familiar and are used both for food, clothing and medicine, of course also known since prehistoric times (hunting and gathering life), especially from the Neolithic period (planting time).

The knowledge and techniques of patient care and the manufacture of traditional medicines from natural substances (herbs) to cure certain diseases known in prehistoric times continued as Bali entered a period of history or knew the writing civilization (roundabout 8th century AD) . It is likely that the traditional knowledge of traditional herbs from plants that have developed in prehistoric times is enriched with new knowledge through social and cultural contacts with foreign tribes, such as: India (Hindu), China and other Southeast Asian nations, as well as other ethnics in Indonesia.

Knowledge of traditional herbal medicine production is passed down from generation to generation as summarized in *Taru Pramana*, *Janantaka*, and other *usadha* (medicine) manuscripts.

Efforts to uncover and identify traditional treatment systems in Bali need to be improved.

Methods of care and treatment of certain types of diseases as mentioned in the *Taru Pramana* manuscript is a very ancient way of treatment, rooted in the belief system animism, namely the existence of beliefs to various types of plants that have spirits and have the power (effect) to treat certain types of community diseases.

In *Usadha* manuscript mentioned, there are about 250 species of trees that can be utilized as herbal medicinal ingredients. The trees include various grains, fruits, spices, flowers, leaves, and roots.

In general, parts of trees that can be utilized as herbal medicine ingredients, can be grouped into: leaves, fruit, flowers, skin (*babakan*), roots, wood and tree sap. Part of the various types of trees that can be used as drugs include:

- a. Leaves: *Cempaka*, *majegau*, *sandalwood*, jackfruit, *tuberous plant*, *sentul*, *kepundung*, *juwet*, *bila*, *tigarong*, *majakeling*, *sotong*, *kelor*, *pala*, *pandan arum*, *waru*, *madori*, *sirih*, *selasih*, *padi-padian*, *kayu manis*, *labu pahit*, *kasegseg*, *jambu merah*, *liligundi*, *ubi karet*, cotton leaf, cherry, *pule*, banyan, *tabya bun*, *kamerakan*, *dadap*, *sumaga*, *srikaya*, *pala*, *daun sembung*, *gedang*, *kasturi*, *kacang*, *kekara*, *undis*, cucumber, and *jarak kliki*.
- b. Fruits and Seeds: White pomegranate, orange, *mangkudu*, betel nut, red pineapple, *katumbar*, red pepper, *kemiri*, banana (betel banana and *saba* banana), pepper, *buah sirih*, starfruit, coconut (green and ivory), *baligo*, *pare*, gourd, *pulasari*, *cempaluk*, *sumaga*, *kutuh* fruit/*kapuk* fruit, brown rice, black sticky rice, and red sticky rice.
- c. Flowers: *Cempaka* yellow, cloves, fennel, and *kemerakan*.
- d. Skin (*Babakan*): Sandalwood, *pule*, *boni*, *juwet*, *kelor*, *srikaya*, *baligo*, *cempaka* yellow, mango, *gedang*, *kadongdong*, *blimbing*, *kamboja*, *dadap*, wood *ancak*, *cerme*, *gatep*, *kutuh*, *kayu*, *klampauak*, *gedang kasturi*.
- e. Roots/Tubers: *Majegau*, white pomegranate, *kapundung*, *kembang kuning*, eggplant, *srikaya*, candlenut, laurel, grain, *kasegseg*, cucumber, cinnamon, turmeric, ginger, *kencur*, *tigarong*, nutmeg, *sentul*, taro, eggplant, Kenanga, *katumbar*, *cemcem*, *temu tiis*, *temu ireng*, *bangle*, *ampel gading*/ivory bamboo, tallow, *baligo*, *kamerakan*, garlic, onion, *selegui* root, banyan, and *jarak keliki*.
- f. Wood/Stem: Sandalwood, and *jangu*.
- g. Sap: *Majegau*, *boni*, *kepundung*, *awar-awar*, mango, *weni*, *kutuh*, *sumaga*.
- h. Water: *Nira* and palm sugar.

The garden itself as a whole is already a healing, because it can relieve stress, fatigue, lethargy, confusion, anger and so on, a result of the beauty and coolness emitted from the garden itself. It is a common view that landscaping can change the character or behavior of the person occupying or the audience, coupled with the aura emitted, the angry or angry soul can become affectionate, the feeling of grief to be happy, the moody, the quiet becomes humorous, etc.

Not only can collectively plant as a healing (drug), but individually also often used as a healing element. *Usada* manuscript records many names of plants that can be used as healing to heal the sick, as well as health care for the prevention of a disease, so stay healthy and fit.

Some types of plants in traditional Balinese gardens, as well as potions that are often used as healing materials, both in the *usada* manuscript and based on the experience of some *balian* (shaman), including: *Pokat/advokat* (lowering of hypertension); *Belimbing* (*Averrhoa bilimbi* L.) cough medicine; *Cempaka* (colic); *Daluman* (*Cyclea barbara* M.) fever medicine; *Empelas* for the roundworm/*accaris lumbr* and *keremi / oxyuris*; *Gatep* (*Samadera indica* G.) baby cough medicine; *Intros* (jaundice); *Jerungga*/orange muntis (fever); *Cambodia/jepun* (*Flimiera acutifolia* P.) fever and rheumatic drugs; *Lamtoro* (tapeworm); *Jasmine* (fever); *Nagasari* (*Mesua ferea* L.) drug impotence; *Oong*/ear mushroom (*auricularia aurikula* L.) fever medicine; *Gedang/Papaya* (*Carica papaya* L.) tapeworm and laxative; *Roasted sides* (hyperperistaltic); *Tibah/mengkudu* (gastritis); *Undis* (baby diarrhea); *Waru* (*Hibiscus tiliaceus* L.) radiates breast milk, and others. The type of plant, along with its processing, and its utility are described in detail by Nala (1994: 218-257) in his book *Usada Bali* and also mentioned in *Ayurveda book, Hindu Medicine 2* (1991).

Rukmini Tattwa manuscript who specifically revealed about the care and health of women many offensive plants in the garden of traditional Balinese for facial health care, hair, skin, and reproductive organs (outside and inside). Processing parts of the plant used as a material powder, scrubs, shampoo, bath soap, perfume, and herbal (drink).

Presentation of the name of the plant in the traditional Balinese garden for healing needs and its usefulness is more directed to the experts of pharmacotherapy to conduct research so that the plant is really effective and safe used by the community as a cure for disease. The increasing pollution conditions in today's *bhuana agung* (nature), then surely will affect the *bhuana alit* (human), so the use of synthetic materials for drugs is increasingly avoided. Drugs that come from natural elements that do not require complex processes will be more pursued by humans in the coming centuries. The development of traditional Balinese gardens to the front of course more and more multifunctional if at the same time can be used for greening, air sanitation, as well as healing needs.

CLOSING

Based on the description of the above results and discussion can be drawn some conclusions and suggestions, as follows:

Conclusion

The Balinese traditional garden philosophy can be understood from the story of the Mandara Giri's in Adi Parwa story. The elements that come out from the *Mandara* mountain playback procession become the essence of Balinese-style garden, besides it must be in accordance with the aesthetic concept of Hindu: *Satyam* (truth), *Siwam* (holiness), and *Sundaram* (beauty). The concept of Hindu aesthetics that animates the application of the concept of *Tri Hita Karana*, *Tri Mandala*, *Tri Angga* and *Asta Dala* in the arrangement of traditional Balinese gardens.

Specifically related to plant philosophy and placement, it can refer to the *Bhagawadgita* holy book, the *Janantaka*, *Kunti Sraya* manuscript, i.e. the existence of the plant as the main ingredient of the Hindu religious ceremony and the placement or planting in the yard of the house and in the holy place based on the concept of *Pengider Buana (Asta Dala / Dewata Nawa Sanga)*.

The healing aspect of Balinese traditional landscape can be observed that the whole of a garden is a healing for the physical, mental, and soul, as well as in particular each plant can be used as a treatment material, as described in *Taru Pramana* manuscript. *Usada, Rukmini Tattwa* and other manuscript specifically outlines the healing aspects of each type of plant that exist in traditional Balinese gardens. In general, parts of trees that can be utilized as herbal medicine ingredients can be grouped into: leaves, fruit, flowers, skin, roots, wood, and tree sap. Plants with all its parts play a major role as healing to heal the sick, as well as health care for the prevention of a disease, so stay healthy and fit.

Suggestions

Presentation of the name of the plant in the traditional Balinese garden for healing needs and its usefulness is more directed to the experts of pharotherapy to conduct research so that the plant is really effective and safe used by the community as a cure for disease.

Identification of plants in traditional Balinese gardens should be continued by comparing with other usage books (*Ayurveda* for example) to complement each other and be printed in a more representative book.

Scientific research is enhanced so that recipes that use plants in the *usada* manuscript can be measured dose accurately and can be used as a modern natural medicine alternative and tend to be chemical free and side effects.

Development of special garden of medicinal plants in the household, residential environment, city park, and socialize the benefits to the public widely intensively with various social media and mass media available.

References

- Dharmayasa, I Made. 2014. *Bhagavad Gita*. Denpasar: Dharma Sthapanam Foundation.
- Dibia, I Wayan. 2003. Hindu Aesthetic Values in Balinese Art. In *Hindu Aesthetic and Bali Development*. Denpasar: Magister Program Religion Science and Cultural Indonesia Hindu University works together with Widya Dharma Publisier.
- Gomudha, I Wayan, 2008. Browse Bali Traditional Occupancy. In Bali Architecture Library. Ngakan Putu Sueca (ed.). Denpasar: Association of Indonesian Architects Bali Region.
- Nala, Ngurah. 1991. *Ayurveda, Hindu Medical Sciences 2*. Denpasar: PT. Upada Sastra
- _____. 1992. *Usada Bali 1*. Denpasar: PT. Upada Sastra
- Sulistyawati, Anastasia. 2013. Principles and Concepts of Balinese Traditional Architecture and Cultural Values. In *Vernacular Transformations Architecture, Place, and Tradition*. Gusti Ayu Made Suartika (ed.). Reference Library in conjunction with Udayana University's Master Program.

(I Putu Gede Suyoga, I Komang Gede Santhyasa, Ida Ayu Putu Mahapatni)

Titib, Made. 2001. *Theology and Symbols in Hinduism*. Surabaya: Parisada Hindu Dharma Indonesia (PHDI) Pusat works together with Paramita Publishers.

Manuscripts:

Janantaka, Kunti Sraya, Rukmini Tattwa, Taru Pramana. Ny. Denpasar: Collections of Cultural Documentation Center of Bali Province.

THE AKSARA MODRE OFFICIAL OF MAGICAL RELIGIUS TREATMENT (HINDU PHILOSOPHY PERSFECTIVE)

I Wayan Watra

w.watra@yahoo.co.id

Hindu Indonesia University

Abstract

The Balinese script begins with King Aji Saka in AD 78, while the letters introduced are syllables, not letters as described by Nala "ha, na, ca, ra, ka, ga, ta, ma, nga, ba, sa, Wa, la, pa, da, ja, yes, its ". *Aksara* amounted to 18 (eighteen). Furthermore, in Bali using 20 (twenty) characters, including *penganggenya*) are grouped into three, namely: *Wreastra* as common Balinese letters used to write in daily life. The second is a secret script which is used as a *aksara Modre* script used to write the *Kawi* language, Song of Songs, *Kekawin*, *Sloka-Sloka*. The third is *aksara Modre* used to write *kedyatmikan*, *japamantra*, because this sacred script is *aksara wayah*, so to read it must use *krakah durakah*. This sacred scripture has always had something to do with Ceremony, Religion, Spirituality and the Unseen World. This script is magical because it is equipped with a symbol of the universe such as the Crescent called *Ardha Candra*, which is a sphere of *Windu* stamped and the symbolic triangular shape of the Stars is called *Nada*, as the embodiment of the Gods. So the question arises whether true letters of *modre* can be used as a treatment?

To answer the above question, the discussion of this *modre* script uses the religious theory of Koentjaraningrat. In the discussion can finally answer that the script *modre* can be used as a means of treatment in three ways, namely: (1) The first treatment is done with *ngreringkes aksara modre*, from twenty to 1 (one) letter that is *Om* or *Ongkara*, as a treatment for self Which is *prepentif*. (2). Both treatments are performed by combining the *modre* with the means of fruit, leaves, trees and other means, as curative treatment, ie treatment after being attacked by the disease. (3). Third is as a science in understanding more deeply against the types of diseases and treatments, how to treat it, which is in *lontar* by using the script *modre*, and *Mantra-Mantra* including for compassion for us *dikasi* by others. To eliminate witchcraft, and so forth in accordance with the pain that we suffered both in a *prepentive* and curative treatment.

Keywords: *Modre* treatment can be done with Preventive and Curative

INTRODUCTION

Balinese script allegedly derived from King Aji Saka in the year 78 AD, while the script is introduced syllables, not the letters as *dijelaskan* by Nala is "ha, na, ca, ra, ka, ga, ta, ma, nga, ba, sa , Wa, la, pa, da, ja, ya, nya ". A total of 18 coupled with a story to easily remember it ". *Hana caraka gata mangaba swala* on his prime. (2002: 96). The meaning of freedom is two servants

Sang Hyang Aji Saka, both given a message by him to keep the pesraman by giving a dagger. The servant named Dhora was given a message whoever asked not to be given except for Me who took it. Then he went to Bali, until traveling meet a very powerful enemy. To fight the enemy then commanded his servant named Shambada to ask the dagger to Dhora, and do not return before bringing the dagger. Finally they meet and maintain each other's message *Sang Hyang Aji Saka*, war can not be denied. Because the same *saktinya*, eventually the two servants died. It is thought that the characters of *dha* and *Sha*. *Dha* comes from *Dhora* and *Sha* comes from *Shambadha*, used in Bali amounted to 18 characters. At *Lontar T tutur Aji Saraswati* explained.

"Beryogalah para dewata itu, dan muncullah sang Hyang Ekajalaresi Sang Hyang Ekajalaresi beryoga maka muncullah Sang Hyang Rahu. Sang Hyang Rahu menciptakan Kala semuanya Sang Hyang Ketu menciptakan Triaksara yang suci seperti: ha na ca ra ka da ta sa wa la ma ga ba nga pa ja ya nya. Juga yang dinamai Swalalita dan juga yang dinamakan Modre dua puluh jumlah aksara itu". (Budha Gautama, 2009:29)

Furthermore, in Bali still use 20 characters that are grouped into three, which is eighteen letters used as Balinese lumrah letters, the second script is a secret which is derived sebsai *Swalalita Aksara* equipped with pengangge a crescent moon called *Ardha Candra*, a sphere that *Windu* and the symbolic triangle of the Star is called *Nada*, and the third is the *Modre* script used to write the divine, *japamantra*, because this sacred script is the script of wayah, for *krakah lapali*. This holy scripture has always had something to do with *Upacara*, Religious, Spirituality and the Unseen World, (Ria Bookstore, 1994: 1).

The secret *Modre* script on the *Hindu Dharma Swastika Yoga* in Watra explains the essence of the yellow white *mantram* that.

"Sang Hyang Wenang, Sang Hyang Tunggal, Sang Hyang Widhi Titiang Nunas.....sane bakta titiang lekad mangda dados putih kuning. Sane jenar kuning anggen melaning sane putih sane kedas jenar angen melaning sane kedas yan sampun kenten wawu dados putih suci tan pate leteh, ngaran tanpa pamrih".

The meaning of the free God Almighty, the One God, the God who is also called Sang Hyang Widhi servant please that I brought mulsi at birth in order to become white and yellow. The shimmery yellow is used as the basis for keeping the purity of the glittering white if it is so newly pure white, that is what does not obscure anything.

So the script *modre* is very secret, should not be used by just anyone. This is evident in the *mantram* in the sentence *"Sang Hyang Wenang, Sang Hyang Tunggal, Sang Hyang Widhi Titiang Nunas sane bakta titiang lekad."* What is brought at birth? It's a lot to bring; *Yeh Nyom*, Red Blood, Yellow Blood, Black Blood etc., and which is HER ?. It shows a secret that can not be given to a person. Even close friends, wives, or children alone should not be given. If given indiscriminately can lead to someone becoming insane, if crazy who is able to heal. Hence in this case it takes a Spiritual Master, who is able to guide the right path like philosophical concepts. If you have walked on the right path, then God will give secret instructions also through various kinds, in accordance with the ability to receive it. So many hidden secrets, behind the sacred scriptures. The most important of all these questions, which will be discussed in this paper is the script as a

treatment *aksara modre*? To answer this question begins with a discussion that is summarized in conclusion, as below.

DISCUSSION

In the discussion of the above questions using the Religious Theory of Koentjaraningrat which states that there are four elements of religion used to discuss this issue, related to the reality of healing disease that is preventif and curative. Preventive is a human effort to keep the body from being attacked by disease and curative is to treat the body after being attacked by disease. The theory consisting of four parts in question is as below. 1). Religious emotion is an emotion that causes humans to become religious. Religious emotion is a vibration felt by the human psyche at a certain moment either jointly during religious activities such as the time of prayer, meditation, and during the execution of religious ceremonies; 2). The belief system contains human beliefs and imaginations about God, supernatural, supranatural existence, which is about hahekat and the form of gods that are beyond the reach of man through the religious scriptures concerned; 3). The system of ritual ceremonies is a means which aims to seek human relations with the Creator; 4). Religious groups or social entities that mengonsepsi and religion and the system of religious ceremonies. (Koentjoroningrat, 1985: 227).

Treatment with Religious Emotions.

Healing through religious emotion is an emotion that causes humans to become religious. Religious emotion is a vibration felt by the human psyche at a certain moment either jointly while performing religious activities such as the time of prayer, meditation, and at the time of the execution of religious ceremonies. Treatment through religious emotion is more emphasis on the time of prayer and meditation, which refers to a disease that is preventif. That is when the body before being attacked by disease. Both caused by medical and non medical diseases. An informant explained that.

“I am a *Dasaksara* follower who was not serious at first, but after my illness, as well as my family in repeated ends I naturally believe in the great benefits that he gained in healing especially against himself. Then developed to the family side is inseparable. This I do diligently carry out the White-Yellow and Trial Matra every Morning and Evening, followed by *Panca Sembah*. Drinking the drug using script written on the ingredients of fruit, leaves, flowers, or *tirtha* “. (Informant I Nyoman Puger, 62, Interview April 25, 2017).

Prepareful self-medication in question is to assemble the script modre tangible symbolic *Dasaksara* The Gods as Manifestations of God in the form of script, which is in *Bhuana Agung*, synergized with the vital tools that exist in the body like. Jatung, Liver, Spleen, Colon, Peparu, to always function so that the body is always in good health. With confidence every Aksara is having a certain power to cure the disease that is in the body, called Dasa Bayu. The purified and religious scriptures used in preparing treatment are.

“SANG ring Pampusuh (Jantung), BANG ring Hati, TANG Ungsilan (Buah Pinggang), ANG ring Ampru (Empedu), ING ring Patumpukan Hati (Pertengahan Hati), NANG ring Peparu, MANG ring Usus, SING ring Limpa, WANG Ineban (Krongkongon), YANG Ring Gantungan Hati (Susunan Rangkaian hati)” (Nala, 2006:108).

Meaning: “SANG *ring Pampusuh* (Heart), BANG ring Heart, TANG *Ungsilan* (Waist), ANG *ring Ampru* (Gall), ING *ring* Heart Pattern (Mid Heart), NANG *ring Peparu*, MANG *ring* Intestine, SING *ring Limpa*, WANG *Ineban* (Krongkongon), YANG Ring Heart Hangers (Composition of Hearts series)

So by placing an alphabet believed to be identical with a blessing of the blessing to a God who is a manifestation of God; SANG is Iswara God located in *Bhuana Agung* is in East residing in *Pura Lempuyang Luhur*, can cure diseases that exist in Heart, BANG is God *Brahma* which is located in *Bhuana Agung* in *Seletan* residing in *Pura Andakasa*, can traetment disease existing Heart, TANG Is the god of *Mahadeva* located in the West who reside in *Pura Batukaru*, can cure diseases of Waist, ANG is the god *Vishnu* residing in *Pura Batur* can cure gall disease, ING is Lord Shiva who reside in *Pura Besakih* can cure the existing illness in the middle of heart. NANG is the God of *Maheswara* who dwells in *Pura Goa Lawah* can cure Lung disease, MANG is Rudra God residing in *Uluwatu* can cure diseases that interfere with Intestine, SING is *Dewa Sangkara* god residing in *Pura Puncak Mangu* can cure Limpa disease, WANG is *Dewa Sambhu* Which resides in the *Pura Ujung Timur Laut Besakih*, can cure the disease of *Krongkongon*, YANG is Lord Shiva, Sada Shiva, and Prama Shiva in *Pura Padmasana Tiga* in *Besakih* can cure the diseases contained in the blood channel spread by the throughout the body.

Script can be used in many ways, in accordance with the beliefs of the users, this is evident in the use of Tantra, Yantra, as a spell like the quotation below.

“The script is derived from words later into letters, and then becomes *Tantra*, *Mantra* and *Yantra*. That the meaning of *Mantra* from the corner of the word comes from Sanskrit and turned into Indonesian into *Mantra* which means Jampi (retainer / japa), prayer or mantrakratau mantra or reader (only tangible words). *Tantra* which also means a spell but more emphasis on witchcraft (mystic, mystic). And what is meant by Yantra is a tool for contemplating God. In this case more towards things that are positive, meaning not magic. (Watra, 2016: iv).

The wording tantra is called a modre script that refers to learning science for self-control. At the same time practicing with *ngeringkes* letters. Letters that amount to 20 to 1 (one), and develop from 1 (one) to 20 letters including *pengangge*. In order to obtain a positive energy vibration from the unseen world. By contemplating God and his manifestations in order to be able to cure the disease that attacks the body on everyone who performs. Conducted this *ngeringkes*, every praying, at least once a day. So this treatment is more Prepentive.

Imagination Beliefs About God.

The belief system contains human belief and imagination about God, supernatural, supranatural existence, that is about hahekat and the form of gods that are beyond the reach of man through the religious scriptures concerned. As stated by Koentjaraningrat, in line with the statement of Hari Murti, as below.

“Script is a system of graphic signs that humans use to communicate, and at least represent speech; Certain types of graphical signaling systems such as Pallawa script, Inka script, etc. The word is a morpheme or a combination of morphemes by which the language is considered to be regarded as the smallest unit that can be declared as a free form. The unit of language that can stand on its own, occurs from a single morpheme or a combination of morphemes. In some languages a.l. The English language pressure pattern also marks the word. The smallest unit in syntax derived from laksem that has undergone a morphological process. Repeat words that occur as a result of duplication, such as houses, guests, dag dig dug (Hari Murti Krida Laksana, 2008: 5,110,112).

Indeed, it is a means of communication to represent the intention to be conveyed, because it is the smallest unit of the free form morpheme, in which case it can be used in accordance with the wishes of the Petitioner, whether as medicine or other wishes. But this alphabet should not be given to the indiscriminate because it is sanctified and the religious magical gain, which is expressed by Nala below.

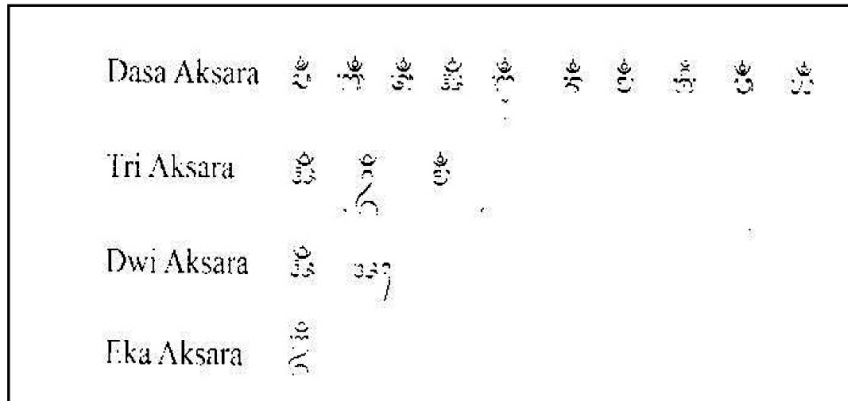
“The Sacred Script is a rarely used alphabet in everyday life. It is called the holy script because it has a magical or religious magical power to purify and cleanse something. This alphabet is generally used when there is a religious ceremony, or in medicine, the sacred script consists of: 1). *Aksara Wijaksana* or *bijaksana*, and 2 is *aksara modre* (Nala, 2006: 27).

“I am offering sacred hearts, food and side dishes made from animal flesh that Pastors may eat (eg ducks). The name of the sajen used in certain small ceremonies consists of white and yellow cakes. Laundry abstinence on pork food, make sacred offerings. Masuci baptized himself as Pastor; Like carrying out the purification of self. Sanctification tools to purify themselves. (Basic Education Office of Bali Province Dati I Bali, 1999: 67

The holy book related to the treatment is Atharwa Veda, then has been copied in the form of the Usana Taru Premana palm, obtained by a Rsi by doing Tapa ememohan to God Almighty. With a short snippet Sukartha stated (2016: 8).

The key to all the literary modes used is called Sad Dasa Aksra, or often called Sodaksra are sixteen Wijaksana characters, consisting of daksaksara + Triaksra + Dwiaksara + Ekaksara, often called Ongkara (Nala, 2006: 157). As follows.

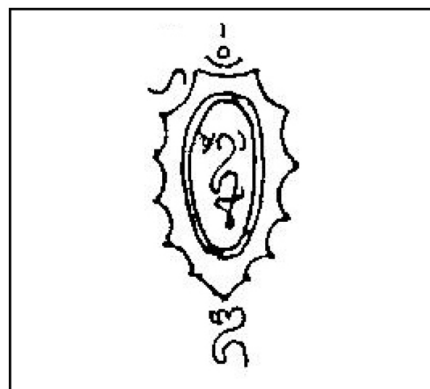
Tumbuhan	Bagian	Kasiat	Penyakit	Bagian Yang digunakan & Campuran	Cara Memakai
Kepopoh	Kes el u r u h Kulit	Panes Dumelada	Hamil	Pulasari & Bawang Putih	Param
Buyung-buyung putih	Keseluruhan Getah Akar Hangat Panas Tis	Hangat-han-gat Tis	Ayan	Akar + Masui, mica gundil, garam	Sembur Ulu hati
Tabia dakep	Keseluruhan akar batang daun	Hangta-han-gat Tis	Ayan	Daunya + daun sirih tua, merica garam, asam	Tumbuk halus, rebus, jamunya diminum
Dst....					



Between letters combined with herbs as a means and infrastructure of treatment (Nala, 2006: 178-181) as below:

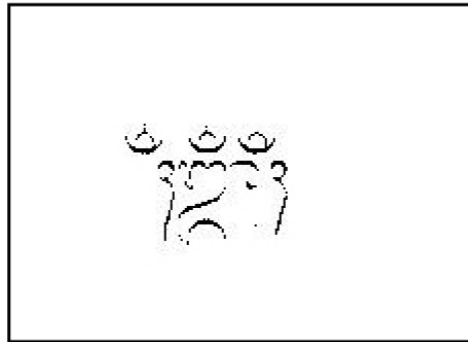
a. To Treat Headache.

Maina Cemeng Leaf Powder, white pepper coriander. Processing and Use. Continued and plastered on the forehead. The letters or *rerajahan* on *maina* leaves, ie two *Ungkara* characters that are inside the circle of fire tongue and *Ongkara* script which is outside the circle that *ardha Candra*, *Windu* and *Nada* across the *Ongkara* script. Why filled the circle and why filled the flames, and why filled the circle and tongue of fire. Here is the secret of the *aksara modre* script, the circle signifying Windu, the circle's embellishment is a tongue of fire. Windu symbol of the universe, *Ongkara* is symbolic of God in the form of giving healing. (Read the *Krakah Modre* script). Treatment in this way can relieve headaches. Script like below.



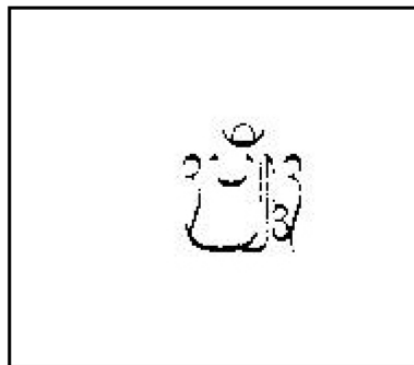
b. Headache.

Potions leaf *maina cemeng*, orange *linglang* (*purut*). Processing and use in gerus, plastered on the forehead. There are three letters Eh, Ong, and Eh which contain *Nada*, *Windu*, *Candra*, *bisah*, *Ongkara*, and last one, *Candra*, *Windu*, *Candra*, and *bisah*. Write on *miana* leaves and orange *linglang* as below.



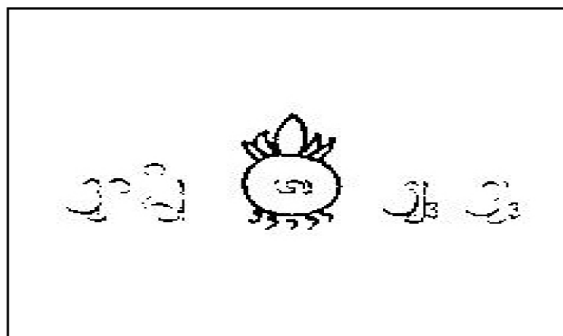
c. Disease to with mantra and script.

Potions leaf *maina cemeng*, orange *linglang (purut)*. Processing and use in *gerus*, plastered on the forehead. *Mantra Ung Ura*, Biblical script, *Nada*, *Windu*, *Candra*, P, Y (*Nanya*) and last *bisah (h)*, inscribed on *maina* leaves and orange *linglang* as below.



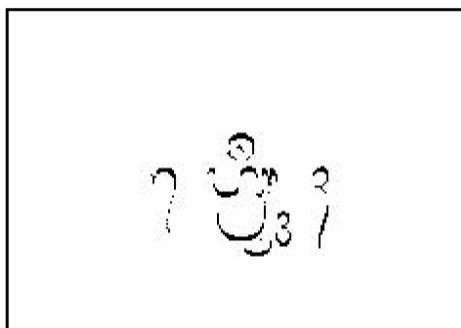
d. Disease Puzzle Staggering.

Potions of grass leaves, grass, onions, fennel. Processing and use: crushed, stick on forehead. The *Mang Mang Mantra*, the Y (*Nanya*) script contains the letter O (tedong) E containing the letter "i" (*Ulu*) containing Y, in the middle of the onion filled with the letter T, and last filled two letters Y, Y (*Nanya*) inscribed on grass and onion like below this.



e. Diseases in *Ubun-Ubun*.

Potions of Sirih Temurose leaf, Processing and use: stick on the crown. *Mantram Ang* is pronounced 15 times, the letter E (*taleng*) of the letter H contains “i” (*Ulus sari*) and Y (*Nanya*), ending with the letter E (*taleng*). On the betel leaf as below.



From the above description shows that the sacred scriptures embodied in these words are the smallest combination of morphemes that can be preached in the form of holiness, which has undergone a process of morphology and duplication for health in achieving healing to health. One Script called *Om*, which develops into 16, coupled with *pengangge*. Likewise 16 characters can be summarized into one OM or *Ongkara*, to cure the disease. In accordance with the needs and circumstances of the sick. In the treatment of the first requested to God Almighty, called *Tapa*. In order for means of Literacy, Leaf, Trees, and *Mantra* really berkasiat can cure disease. For those who do the treatment should have been practicing *Yoga Aksara*, so the characters used to have kasiat better and mature. Treatment of the disease in this way is curative, because after being attacked by new diseases treatment.

Upakara and Ceremony means of communication to the Unseen.

The system of rituals and ceremonies is a reigius way that aims to find a human relationship with the Unseen, in this case is the Creator of God Almighty. A Serati (the person who used to make upakara ceremony) explained that:

“Tiyang sampun sering ngaryaning banten, sehananing daging banten nenten dados kirang, seatukan banten punika pinaka anggan Ida Bhatara. Minakadin Ipun Porosan anggan Ida Bhatara Siwa, Pamor pinaka anggan Ida Bharata Iswara, Buah jebug, pinanaka Anggan Ida Bhara Mahadewa, Gambir pinaka anggan Ida Bhatara Brahma. Yan sampun jangkep, sinah Ida Bahata sane ka Aci pastika pacang rauh. Manut ring tatujon sane madue karya. Duaning hidup ring jagate ten lepas ring Catur Asrama, catur asrama punika kocap pacang ngemangguhing moksah” (Ni Ketut Tuki, 61 Th, di Sukawati Gianyar, 25 April 2017).

The meaning of free: “I have often made banten, all the contents of the upakara should not be reduced, because the *upakara* symbolic the Gods. Like Porosan is the symbol of Lord Shiva, Pamor yang *Putih* is the symbol of God *Iswara*, *Bhatara Mahadewa* Artificial Fruit, *Gambir* as a symbol of *Brahma* God. Is complete believed the gods in the puja will surely come. In accordance

with the wishes of the making *upakara*. Because life in this world must live a life, called the Chess Boarding. With this boarding chess it is believed to achieve freedom “

From the urain clearly shows that *upakara* as means of *upcara*, is needed in communicating with the Gods. So that made *upakara* must be in accordance with the Gods who wish to be requested salvation. With the accuracy of the contents of the *upakara* made, it is believed the Gods will surely grant. Added also that in this life should not be separated with Chess Dormitory.

“Chess Dormitory, namely: 1). *Brahmacari*, is the level of life while pursuing knowledge / divinity, “*Brahma*” here means science / science of the deity of “Search” means the behavior in seeking knowledge. 2). *Grehasrta*, is the level of life fostering a home by marrying offspring, “Greha” means household, “stha” means standing or establishing and nurturing. 3). *Wanaprastha*, meaning is the level of preparation life to improve spiritual life and gradually break free from worldliness. By retreating into the forest, with the intention of getting a peaceful mood. 4). *Sanyasin*, is the level of life out of worldliness and devoted solely to *Sang Hyang Widhi* by deepening the doctrines of purity “(Watra, 2016: 132)

His point in this life of the world as a human being, must go through the life stages of *Brahmacari*, *Grahasrta*, *Wanaprastha*, *Sanyasin* or *Bhiksuka*. *Upakara* in this case must follow every stage of human life from *Brahmacari*, that is to study knowledge. So the peace and quiet can be obtained every step too, which finally reaches peace.

Social groups that promote religion.

In general in Bali religious groups or social units that mengonsepsi and religion and the system of religious ceremonies is *Pekraman* Village, which has a toritorial region has three *Pura Desa*, *Pura Puseh*, and *Pura Dalem*. Then arranged by Prajuru, at every 6 monthly *piodalan*, as explained by *Mangku Istri Pura Puseh in Batusepih-Sukawati Gianyar*, as follows.

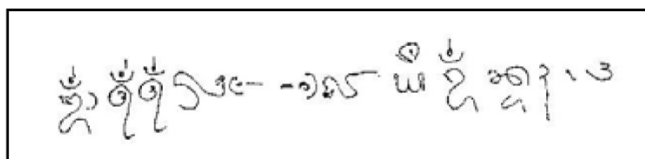
“*Rikanjekan yan wenten wali ring kahyangan tiga Ring Pura Desa, Ring Pura Puseh, Ring, Pura Dalem. Karhinin antuk sangkep para lanange, daging sangkepe punika kasobyahan ring para istrine, para sratine, tur ring para mangku sane ngemong pura suang-suang. Yan tiang ring Pura Puseh, upakarane punika kaepah mangda sami polih pepeson banten. Yan wenten semeton sane mekarya ring luar, kagentosin antuk jinah manut ring pepeson sane kaepah. Kenten kalaksanen sabilang enam bulan. Kenten kalaksanayang duke riin kayang mangkin. Mungguwing dasar upakara miwah mantra mantra lan sesontengan kaketus ring lontar-lontar, sane sampun kagicayang antuk Ida anak Lingsir*” (Informan Ni Ketut Konci/Mangku Puseh, 60 th 25 April 2017).

Free Meaning. “At the time there are *Piodalan in Pura Desa, Pura Puseh, and Pura Dalem*. Begin by meeting by male members of the banjar. The result of the meeting, whether to conduct Big or Small *Upakara* spread to the Mothers, to *Srati (Banten)*, to the respective Wife Stakeholders. *Pura Puseh*, the *upkara* is divided so that all will get a share. If there is a *waga banjar* that works outside, still subject to *uapakara*, usually replaced with money amount of burden burdened. Once done every six months, and done continuously from time immemorial until now. Regarding the basis of performing *upakara*, the *weda* spell, as well as the *sontal* (the language of fine bali) follow

the instructions of the lontar, which have been guided by the sanctified like priest, *mpu, rsi*, and others “.

From the description shows that, social groups that carry out religious ceremonies in Bali, conceptualized by men’s customary men based on the meeting. Then the results of the meeting are distributed to the wives to realize the outcome of the meeting. So that all members of the community both in the traditional village and those working outside the region still charged upakara fees, so that the implementation of the upakara from antiquity until now still still running until now. For the execution of the upakara is based on the lontar, which of course is sourced from the holy book that has been elaborated by the saint.

One Mantra in Lontar Kuranti Bolong attachment 1 and 2 (Sumawa, 2013) mentions that,*Iti Kuranta Bolong. Nga, Pangetanakena, dalaning kadewatan, wisia dunga-dungi katen den ta wong wruh, ma. Ah ring ude ring tingal, Ang Brahma abangin tingal, Mang Mahadewa kuningin netra, Ung Wisnu, irengin netra, putihin ati Bhatara Siwa, tungtungin irung sadasiwa, slaning lalata Bhatara Guru tunggal, biruning netra Hyang sambhu, maka panginebang swarga tan sinung gelap suda kawenang. Telenging waru kumalasa Sanghyang Acintya mahening, Ah, Ah, Ah (3x), reh amusti ring anan batis karo sikunia sinemu dang entud. Iti paguruan Dewa, nga. Rehnia nguyup Surya, ma. Ung Ong Dewa turun marupa Sanghyang tan parupa, asih Bhatara lawan manusa, Bhatara Iswara asih lawan manusa, Ong ong Dewa maguru lawan Bhatara Wisnu, Bhatara Brahma lawan Bhatara Indra, Bhatara Mahadewa asih lan manusa : Ung Ang Mang, Poma (3x), jeg telas, Iki pengenduh bhuana agung, pamatuh agung, paingkup agung denya. Sampun putus sasaringan sastra ongkaramreta :*



Asih (3x), patuh(3x), sa. Tan pasastra. Iki pacetet jati temen tan kawasa ajan wera, aja bucecer, pingita temen. Iti sanghyang pangawasa, ma. Ong Ong Ong (3x), Erana ta ya katemu, pada nemu ta ya, Ung Ung Ung manjing maring sunia rasa, Sanghyang Taya manjing ring karba ring netra, Ung Sanghyang meleng mulih ring tungtunging tingal, katon Sanghyang Maya-maya, Ong Pasupati Ungkara ring bayu pramana jati, Ung Ang Mang (3x), reh masuku tunggal, tangan kiwa anukupi silit, tangan tengen anukupi siwadwara, sunia katon. Pamiak kala, ma. Ong sila-sila gama, sila-sila Bhatara iswara, angrakat Bhatara Brahma, pinayungan kala cakra, anunggang lembu putih akalihan lawan Bhatari Uma, angagem sarwa sanjata prawatek dewata nawasanga danda, trisula, padma swatang, job sira Bhatara kalasawadwanira kabeh mwanng bala urahan mulih maring nariti pritiwi, teka kedep sidi mandi mantranku, sa. Waribang sekarakena,

Free Translation.”This is what *Kuranta - Bolong* calls, which is very useful for knowing things that are sublime and about the negative things caused by those who want to poison and by the spirits, all of which will be known to those who Wise or one who has knowledge of the deity. The *mantra* used to know it, is as follows;

Ah, *Iswara* should be imagined in the middle of the eye circle, Ang, *Brahma* should be

imagined in the red eye, Mang, Mahadewa should be imagined in the yellow of the eyes, Ung, *Vishnu* is in the black of the eyes, *Bhatara Sadha Siwa* envisioned at the tip of the nose, while in the eyebrows between The forehead should be imagined *Bhatara* - the Sole Master, the blue color of the eyes should be conceived *Sanghyang Sambhu*, as a brightly lit path without any darkness to the heavenly realm, to find the holy *Sanghyang Acintya nirmala* who amidst a flat gemstone. Ah, Ah, Ah, (3X), do it with the attitude of *arnusti* (concentration of mind) with the two toes together and knee-level elbows.

This is called or named after the Gods, the way it sees or enters the sun into the self, with a *mantra*; *Ung, Ong Dewa* descends the world in the form of nothing, love man to God, like the love of God - *Iswara* to man. *Ong, Ong* the Gods studied at *Bhatara Wisnu*, such as *Bhatara Brahma* and *Bhatara Indra* and *Bhatara Mahadewa* are very affectionate to humans. *Ung, Ang Mang*. Pay close attention to it (3X). Done

This is the so-called compassionate, compassionate world of great merit. Let's have known the intisarinya from the knowledge of the purity of *Ongkara* which became the center in this universe. This is the holy letter (the picture is the same as above), pronounced three times, *asih* (3X), obedient (submissive) (3X). The use literature (letters). This is the ultimate compassion, if it is not properly controlled, it should not be discussed with others, nor should it be underestimated, because it is very sacred to its existence. This is how to present *Sarighyang Pangawasa* (the Almighty), the way is to use the *mantra*; *Ong, Ong, Ong*, (3X), hope all meet with goodness, *Ung, Ung, Ung*, enter into the very sacred realm *Sanghyang Taya* enter into the essence of eyes, *Ung, Sanghyang Meleng* back to the end of sight then it seems *Sanghyang Maya Maya, Ong Pasupati* The sacred scriptures, *Ung*, exist in the right breath power (*Pranayama*), *Ung, Ang, Mang*, (3X). In uttering this *mantra* should be done by closing the butt hole with the left hand and the right hand is used to close the *Siwadwara* (crown), then it will be able to see all the occurrences in the unseen world. This is how to keep *kala* is a kind of spirits are often disturbing; The *mantras* are as follows; *Ong, gay sila, Bhatara Iswara's bravado, Bhatara Brahma*, simultaneously carrying conch trumpets, riding white cattle along with *Bhatari Uma*, carrying all the weapons of the Gods *Nawasanga*, such as; *Danda, Trisula, Padma*, and so on, wishing to keep *Bhatara* and his followers alive, returning to all of them in the ground, may I perfect the *mantram* I uttered; The means used in reciting this *mantram* are red flowers of all kinds.

It further explained that, other means may be used, such as; Leaves of *temen, dapdap, jepun*, hibiscus, and *teleng* leaves, added by means of rice polpol placed on a *klatkat* which is covered with banana leaf, with its fish ball *gagending*, red and white rice, finished. Accompanied by a *mantra*; *Ong, I am the teacher of the Three Sacred deities, I am the teacher of all the so-called sakti kramat, I am also the teacher of the Three Sacred Sanghyang, there is still a witchcraft of all the leyak, Sundanese effusions, Jaran Guyang utensils, Of your yogic powers, now go away from the land of Bali, for your pretend always hurt the innocent, using all your efforts, I shall drive you out, for I am the teacher of the terrible Three Gods who will destroy all the utterances you use, Lose it all, like; In order to magically disappear, in order for the wind to disappear, in order to disappear, to lose water.*

From this description shows that there are various diseases in *Lontar, Aksara, and Mantra-Mantra* which is used as a means for treatment, used for the loving that we dikasi by others. To

eliminate witchcraft, and so forth in accordance with the pain that we suffered both in a prepreventive and curative treatment.

CONCLUSION

From the above description, to answer the question of modre script as a treatment? Can be done in three ways: (1) The first treatment is done with *ngreringkes aksara modre*, from twenty to 1 one letter that is Om or Ongkara, as a self-medication which is prepreventif. (2). Both treatments are carried out by combining the *aksara modre* character by means of fruit, leaves, trees and other means, as a curative medication, ie treatment after being attacked by the disease. (3). The third is to deepen the disease, treat it, which is on the palm using the script, and *Mantra-Mantra* including for compassion for us dikasi by others. To eliminate witchcraft, and so forth in accordance with the pain we suffered both in a prepreventive and curative treatment.

References

- Budha Gautama, Wayan. 2009: *Lontar Tutur Aji Saraswati. (Terjemahan)*. Surabaya: Percetakan Paramita.
- Nala, Ngurah 2002. *Usada Bali*. Denpasar: Cetakan ke V Penerbit PT Upada Sastra Pusat Pertokoan Kertha Wijaya Blok D 11 Jalan Diponegoro.
- Harimurti Kridalaksana, 2008. *Kamus Linguistik Edisi Ke Empat*. Jakarta: Penerbit Perusahaan Terbatas Gramedia Pustaka Utama.
- Dinas Pendidikan Dasar Propinsi Bali Dati I Bali, 1991. *Kamus Bali Indonesia*: Denpasar: Dinas Pendidikan Dasar Dati I Bali.
- Koentjaraningrat, 1985. *Pengantar Antropologi Pokok-Pokok Etnografif*. Jakarta: Penerbit Rineka Cipta:
- Sukartha, I Nyoman 2016. *Makna Lontar Sebagai Penunjang Pola Ilmiah Pokok (PIP) Universitas Udayana*. Denpasar: Pusat Kajian Bali, Universitas Udayana.
- Sumawa, I Wayan 2013. *Kuranto Bolong*. Surabaya: Penerbit Toko Buku Dan Percetakan Paramita.
- Toko Buku Ria, dan Percetakan. 1994. *Kerakah Modre II*. Denpasar: Percetakan dan Toko Buku Ria, Jln. Plawa No. 43 denpasar.
- Watra, I Wayan 2015. *Yoga Aksara Suci Agama Hindu (Berdasarkan Dasaksara) Berpola Dasar Jnana Kanda*. Bersifat Rahasia Tidak diperjual Belikan.
- Watra, I Wayan 2016. *Mantra Samhita Buddha Vaisnawa dan Pandita Hindu*. Penerbit Paramita Surabaya
- Watra, I Wayan 2016. *Pengantar Filsafat Hindu (Tattwa I)*. Surabaya: Penerbit Paramita Surabaya Bersama dengan Universitas Hindu Indonesia.

NAWAWIDA BHAKTI **AS THE FORM OF PSYCHERELIGIUS HEALING**

I Gusti Ketut Widana
igustiketutwidana1805@gmail.com
Hindu Indonesia University

Abstract

Every Hindu is obsessed with reaching jagadhita and moksa, enjoying physical and spiritual well-being. If all hope is achieved there are at least four healthy conditions that can be realized and enjoyed, ie healthy body (body / physical), healthy mind (mind / mind), healthy soul (psychical) and healthy spiritual (spiritual). If the opposite occurs, does not achieve prosperity and away from happiness, then the four elements that had been expected to be healthy all, can actually make a person sick. In relation to the healing effort, underpinned by the quality of sraddha and its devotion, people can apply the concept of Nawawida Bhakti teachings in its various forms, all of which are intimated in the worship of God's majesty by all His attributes, in the hope of being granted health, well-being and happiness, Physical-spiritual or material-spiritual.

Keywords: *nawawida bhakti, psikoreligius*

INTRODUCTION

In the midst of the dynamics of contemporary life with the spirit of pursuing worldly pleasures, human beings are blinded by their thoughts and consciences and even darkened by the light of Atmanya, until God is in them often people do not know, do not realize or even care. People just remember God, when giving a ritual dish, accompanied by a prayer request to fulfill all desires.

Cool man with self and his world loaded with the mind to mensiasati life in order to still exist to fulfill all needs, or desires. In fact, even when the yadnya beradacara, humans or people mostly much more memorized about how to look, rather than remember and focus on who is presented, let alone want to interpret the purpose and purpose of bhakti is done.

If questioned, "have we begged the way for the brightness of the mind, the cleanliness of the conscience and the brightness of the Atma to reach the peak of spiritual consciousness?". It seems still far from expectations. Except when experiencing a problem, a disaster or a disaster, suffering

or illness, remembering to say a prayer by calling on the name of God for His mercy to get help to avoid or immediately free from any unpleasant matter. It seems that an unpleasant situation as well as a state of illness can be one of the motivators of man to remember and then show a religious attitude through a devotional way of approaching Him in the hope that his illness will be healed immediately.

The way of devotion through religious paths in the hope that to be healed from this state of illness can be called psychoreligious healing. Based on the problem, this paper intends to unveil and reveal about: 1) what is the teaching of nawawida bhakti? ; 2) how is the form of psychoreligious healing?

DISCUSSION

As Capra (2007: 3) points out, "At the beginning of the twentieth century, we find ourselves in a serious global crisis, a complex and multidimensional crisis that touches every aspect of life, health and livelihood, Environmental quality and social, economic, technological and political relations. These crises are a crisis in the intellectual, moral and spiritual dimensions"

Among the multicrisis, which crisis is considered the most dangerous? This question seems irrelevant to find the answer. Much more significant if we have the view that in all dimensions of crisis always open the door wide to the critical point. When a critical point has taken place, like the eggs on the horns, all our civilizations, cultures and religious life will instantly experience destruction, as Capra says further, that we will be faced with threats of the real extinction of the human race and all life forms On this planet.

Taking a lesson from the above statement, the last and final backing is precisely the most important is to turn to the "religion", that is to re-bind itself as closely with the "spiritual" power. From here it is expected to grow the passion of "Religiosity" and spirit of "Spirituality". Because basically man is religious (homo religious) and also spiritual (homo spirituality). This is characterized by his ability to understand and reach out to the transcendent world, which is beyond him, even those that infiltrate and encompass it. This ability causes it to experience ecstasy (both naturally and supra-natural). The experience of something totally different and not derived from the scope of the world and the ordinary human experience is called religious experience (Mangunwijaya, 1986; King, 2001: 58; Hardjana, 2005: 28)

This is the true content and essence of the experience of religious life, which is the appreciation of God that causes human beings to have the ability, the ability and the sensitivity of feeling to know and understand the existence of the Divine (Maman, et al., 2006: 1), which can then be dikanalisasi into the form of attitude and Behaviors that reflect obedience to what religions are taught as "worth" (goodness and truth). That a religious person is essentially a servant of God who obeys orders and avoids his prohibitions.

Thus religion in the dimension of religiosity, sociologically can demonstrate didactic power constructively, regulatively, formatively and normatively, within the framework of building the life order of society, especially in societies where religious values and norms are accepted and acknowledged to exist (Kahmad, 2000: 66).

Strengthening the aspect of religiosity, and by adding a touch of the dimension of “spirituality,” creates a crystallization of appreciation that the true nature of religion and religion is not merely about the issue of indoctrination, but more importantly the internalization of transcendental “divine” attributes in order to manifest into “humane” “(Civilized, cultured).

Indeed, what is called religiosity and spirituality is not merely to be associated with religion, since both terms and their insights may be removed from the religious context. However, it should be realized that the term religiosity and spirituality is born out of the spirit of religious life, and religion itself (whatever the name) remains the main foundation. The question is, what element is the essence of religiosity and spirituality? It turns out that none other than spirit is awakening “self-awareness” (*atatur ikang atma ri jatinya*).

That religious life (Hindu), should not stop or feel is finished by only fulfilling and fulfilling obligations, such as yajna, especially if only ritualistic-symbolic-expressive dimension. Because behind the ritual (yajna) there is a “spiritual” dimension (other than religiosity) which should be strengthened by its “spirit” spirit in order not to stop moving in the level of symbols and meanings, but so as to actualize or behavior worthy of goodness and truth.

Moreover, in connection with Capra’s statement above that in this decade there has been a multidimensional crisis, so that more and more people who actually have a religious hand, but are often released due to their neglect to strengthen the self-religiosity or self-spirituality that actually allows them to overcome All sorts of problems that whack or at the same time tell, such as experiencing health problems body, mind and also his soul. For that it takes serious effort and focus how to keep the people constantly improve the quality of sraddha and its devotion to stay healthy through the way of religion walafiat in the form of bhakti activity, especially the so-called Nawawida Bhakti, which also as a form of psychoreligious healing.

Understanding

Nawawida Bhakti

Nawawida Bhakti is a Hindu concept that teaches its people to always be in good health, both outwardly-physical and spiritual-that can be done as part of the practice of Hindu teachings obsessed to achieve the purpose of life jagadhita moksa. The source of Nawawida Bhakti’s teachings is written in the Bhagawata Purana, VII.5.23: “Sraavanam kirtanam visnoh smaranam on sevanam, archanam, vandanam, dasyanam sakhyam atmanivedanam”.

Psychoreligious Healing

The word “healer” (meaning healing) implies a process, a way, a healing act or a restoration so that it becomes healthy (recovered) as it once was (<http://kbbi.web.id/sembuh>). While ‘religiosity’ according to Gazalba (1987) comes from the word ‘religion’ in Latin ‘religio’ whose root is ‘religare’ which means ‘binding’. Thus, the meaning of religion or also called religion in general has the rules and obligations that must be obeyed and implemented by adherents.

In contrast to the medically healing process that relies on the use of chemical drugs, or the healing of herbalists that make herbal medicine as a means of recovery, psychoreligious healing takes more religious approach (spirituality) by placing God as the ultimate and absolute healer. So psychoreligious healing, in fact restore the state of an unhealthy person (become disturbed) to be healthy again with a way to get closer and more intense focus to God through obedience / obedience to perform the obligations as taught by God in the holy books.

Another view expressed Anshori (1980) which distinguishes between the term 'religion' or religion with 'religiosity'. If religion refers to formal aspects relating to rules and obligations, then religiosity refers to aspects of religion that have been lived by a person in the heart. This opinion is similar to the Dister in Subandi (1988) which defines 'religiosity' as a religious because of the internalization of religion into a person. Monks et al. (1989) defines religious as the higher attachment of man to the Almighty who gives a feeling of security. Added, religion as a system of credo (belief) over the existence of the Absolute and a system of norms (rules of rules) that regulate human relationships with fellow human beings and with the natural surroundings, in accordance with the order of faith and order of worship.

According to some experts in man there is an instinct or instinct called religious instinct, the instinct to believe and worship a force that exists outside of man (Spinks, 1963, Subandi, 1988). It is this instinct that drives people to do activities that are religious. Furthermore it is said that some other scholars do not mention directly that the impulse is religious instinct, but they argue that the instinct or drive to achieve a wholeness is the root of religion.

N.S. Dister in his book "Experience and Motivation of Religion" (1989) suggests that humans are essentially religious or human beings are creatures that develop into religious. So basically humans are religious beings.

From the various opinions above can be deduced that religion or religiosity refers to the level of individu attachment (umma) to his religion. This shows that the people have lived and internalized their religious teachings so that they are influential in all their actions and worldviews. In the development of religiosity experienced by humans have characteristic according to the level of development as well.

Human Religious Needs

Basically, humans awaken on three elements, namely: 1) body (physical / physical-material); 2) mind (mind) and soul (soul) is closely related to the state of the body that morally (mental-moral-spiritual). The building or body of the human body (sthula sarira) requires the intake of biological nutrients derived from the elements of food and drink, while the element of mind (mind) is in need of calm but focused. While the components of soul (soul / psyche), the subtle body (sukma sarira) emphasizes the stimulus of spiritual energy to meet the needs of the soul.

If the human body is disturbed to make the body unhealthy (sick), the healing that is often taken is through medical diagnosis and cured or restored through chemical treatment, but can also be organic or herbalist or combined. However, for healing or recovery of health caused by psychological problems, whether tekait with mental disorder, moral degradation and spiritual

unconscious, then so-called psychoreligicity healing becomes an option. For, as Howard Clinell's study, cited by Dadang Hawari (2016: 36) states that humans basically have ten (10) religious needs:

- 1) Basic trust (basic trust)
- 2) Meaning of life vertically and horizontally
- 3) Commitment to ritual worship and its relation to daily life
- 4) The wholeness of charging the faith (charge) and continuity of relationship with God
- 5) Be free of guilt and sin
- 6) Self-acceptance and self-esteem (self-acceptance and self esteem)
- 7) Secure, secure, and future safety
- 8) Achieving an increased degree and dignity and personal integrity
- 9) Maintenance of interaction with nature
- 10) Live in a religious society

If the ten religious needs are fulfilled, it is believed that not only the body condition, the human mind is healthy or recoverable from the disturbance (sickness), but the state of soul (mental, spiritual or spiritual) can also be maintained mental health, moral nurture and increased or more conscious awareness Spiritual. Even in an effort to improve the quality of religious consciousness (spiritual), as taught by Hinduism, humans are very important to build three relationships, so that obsession reaches the totality of purpose of life; Well-being outwardly (jagadhita) and happy in spiritual matters (moksa) can be achieved (Widana: 2011: 106).

The three relationships are the awareness of building a religious relationship to God, a synergistic relationship with among human beings, and a harmonious relationship with the natural environment and all its contents. This is called the concept of Tri Hita Karana's teachings that are textually and conceptually derived from the Bhagawadgita scriptures, III. 10: *"Verily, from the beginning, God has created man through his yad, and in this way thou wilt thrive, as the oxen is milked for thine own sake"* (Pudja 1981: 76).

The practice of Tri Hita Karana's teachings is vertical-horizontal, so touching, and in the context of psychoreligious healing can make human life always surrounded by healthy, prosperous and happy state, both born and inner, material, mental, moral and spiritual. In essence, if the physical body needs nutritional supplies, then the need for the soul is the passage of spiritual energy, which is membathin, and it is only obtained through religion. Thus religion according to Darajat (1978: 32) plays a significant role in the context of maintaining and taking care of health, not only physically but also mentally, morally and spiritually, so as to avoid gangguan or sickness, as well as a medium to heal or restore it.

Especially realized and also believed that every life will experience the process of birth (janma), death (mrtyu), old age (jara), illness (vyadhi), suffering birth and inner (duhkha), and mistake (sin). This material world is shackling everyone. Someone who is unresponsive or unaware of this reality becomes vacillated in the vast oceans of life. Not a few who crashed and suffered health problems (pain). At the time of sickness or suffering they then screamed for God's name for help.

This is natural, because God is truly our true Father. He is also the closest friend and relative to be asked for his help, as it is written in the following sloka:

*Tvameva mata ca pita tvameva
Tvameva bandhusca sakha tvameva
Tvameva vidya dravinam tvameva
Tvameva sarvam mama deva-deva*

(O God of Mahaesa, You are my true Mother and Father, beloved friend and companion, You are the source of knowledge and riches, for Your servant is all He is, supreme god) (Titib: 1993: 4).

Aspects of Religiosity

Religion is a system consisting of several aspects. Daradjat (1993) argues that religion includes religious awareness and experience of religion. Religious awareness is a mental aspect of religious activity, whereas religious experience is a feeling that leads to the beliefs that action results.

Hurlock (1973) says that religion consists of two elements, namely the element of belief in religious teachings and elements of the implementation of religious teachings. Spinks (1963) says that religion includes the existence of beliefs, customs, traditions, as well as individual experiences. The division of the dimensions of religiosity according to Glock and Stark (in Shaver and Robinson, 1975, Subandi, 1988, Alfiatin, 1997) consists of five dimensions:

No	Religious Dimension	Description
1	The dimension of belief (the ideological dimension)	The dimension of belief is the degree to which a person accepts and acknowledges the dogmatic in his religion. For example, the belief in the existence of God with its properties, the Gods as a manifestation of God, the existence of the Rsi, heaven, hell and others
2	The dimension of religious worship or practice (the ritualistic dimension)	This dimension is the degree to which a person performs ritual obligations in his religion. Examples include praying, prayer, offerings, tirthayatra, and so forth

3	Dimension of feeling or appreciation (the experiential dimension)	Dimension of appreciation is a feeling of religion that has experienced and felt like feeling close to God, peaceful, comfortable while praying, touched and stirred while listening to chant verses of scripture, there is a feeling of fear of sin, feel happy and believe the prayers are granted, feel Happy to enjoy prasadhham
4	The dimension of religious knowledge (the intellectual dimension)	This dimension is how much a person knows and understands his or her religious teachings, especially those in scripture, or other sources of sacred literature
5	Dimensional effects or practices (the consequential dimension)	The dimension of practice is the extent to which the implications of religious teachings affect one's behavior in social life. For example giving punia funds, doing social activities, such as making friends, visiting sick people, helping the poor, and the like.

Religious Motivation

What drives people to behave religiously or be devoted? Of course this question must first be addressed and answered by theology, but the answer given is unaffordable for psychology. The standard answer, Theology replied that God's grace encourages people to believe and then express it by religious behavior (bhakti). This theological motif is certainly beyond the perspective of psychology as an empirical science. So what we are asking now is the psychological motives for gamelan behavior, not theological or philosophical motives. Psychology is not only want to look and paint the object but also want to understand. To "understand" means to know its causes, and because human behavior is understood by psychology, its cause is called "motive" or "motivation" (Ofm, 1988: 71).

Basically, every human behavior, including religious behavior (hereinafter referred to as bhakti behavior), is the result of mutual dynamics between the three factors. All three play a role in the birth of human action, although in action one factor is one greater role and in another action the other factors play a role more.

The three factors are: *First*; A spontaneous and natural movement or impulse occurring in humans, such as sexual urges, appetite-drinking, the need for sleep, and so on. *Second*; To-humanity as the central core of his personality. Thanks to the I'm human being is free and a bit much can melaksanbakan or reject what happened to him. That is why human behavior can sustain its autonomy against the spontaneous impulses that are the origin of behavior, such as delaying the natural urge to eat, drink, rest, have sex, and so on. *Third*; The human situation or the environment. Human actions and behavior can not be separated from the surrounding world. Of course I am the one doing certain deeds to carry out my plan (= the factor of ego), but the plan I accept not only from the spontaneous impulses that are on me (= instinct factor) but also from stimulants coming from the world around me (= factor environment). (Ofm, 1988: 72).

Connection to the Hindu family's religus behavior seems more dominantly driven by intrinsic motivation, born and growing from within, based on a firm belief in God. About intrinsic motivation

itself Campbell and Campbell (1966) understand it as an internal appreciation that a person feels when working on something. Some of the following research tries to describe it as Deci and Ryan (1987) conclude that intrinsic motivation is a form of motivation that has great power in which a person feels comfortable and happy in performing tasks tailored to the value of the task.

Added Beach (1980) which states that intrinsic motivation as a thing happens as long as a person enjoys an activity and gained satisfaction during engaging in the activity. Elliot et al. (2000) define intrinsic motivation as an impetus in individuals who are happy and happy after a series of tasks. Working by them is fun and especially for the individuals who are interested in it. Wiersma (1992) also suggests that intrinsic motivation is someone who is intrinsically motivated when the individual is at work and on the move not to get the reward itself.

Lepper and Ryan (in Gufron, 2012: 86) add that intrinsic motivation is a form of interest and comfort in doing activity in the work itself, while the research of Hirst (1988) reveals that intrinsic motivation is the individual's belief about the level, Can be done comfortably and on the basis of self desire. This intrinsic concept and motivation exists not only in its practical definition, but intrinsic motivational concepts are also included in theories like Maslow's hierarchical theory which states that intrinsic motivation exists within the highest hierarchy of self-actualization

The study of some of the research that has been done by the experts above can be taken the essence that intrinsic motivation is a form of motivation that comes from within the individual in addressing or doing something which then give it the inner satisfaction for the individual itself. Finally Ofm (1988: 71) concludes that motivation is essentially a psychological cause that is the source and purpose of a man's actions and / or deeds. This cause is both causal and final. That is, humans do good deeds because driven or because interested, or because the needs, desires, both conscious and unconscious.

The Foundation of Attitude / Religious Behavior

With the motivation to be religious, simultaneously will be moved to show attitude and or religious behavior. As for religious attitudes and / or behavior in the form of bhakti before the Lord, especially the Hindu family through rituals (yadnya) has its basis:

1) Sraddha (belief / faith)

The word "Sraddha" comes from the root word "Srat" or "Srad" which means "Heart". Then the additional word "Dha" means "put / put". The complete word Sraddha means "putting one's heart on something". In Wajasaneyi Samhita, it is stated that Sraddha is "truth", instead Asraddha means "falsehood". Srddha's function is (1) as the basic framework / foundation of Dharma. Like looking at a Hindu religious housing, the skeleton is Sraddha. Therefore Sraddha that embodies the birth shape of the Hindu religion as a buffer to house building. (2) As a means of governing man to God. This understanding can be seen in the book of Yajur Weda XIX, 30 which states: Sraddhaya satyam apyati (with Sraddha people will reach God), Sraddham satye prajapatih (God established, with Sraddha to Satya).

The Sraddha or faith itself has a conceptual textual foundation on the holy book of Bhagawadgita, IX. 3, and XII. 2 and 20:

“Those without faith, who follow this path, do not reach Me and will return to the path of the world of suffering death”;

“Those who concentrate their minds, worship Me, always control it, with belief (faith or faith), they are the ones I perceive to be perfect in yoga;

“He is the one who carries out the doctrine of dharma that has been revealed by following him, the one who believes and makes Me a destination, this believer whom I most dearly love” (Pudja 1981: 206, 284, 294).

On the basis of Sraddha or belief then every people is obliged to worship, glorify and devote in order to obtain protection from Him, as it is written to us Bhagawadgita, IX. 14, 22:

“By glorifying me always, striving steadfastly to bow to me in dedication and with the discipline of the devoted soul unto me;

Those who worship Me alone, meditate on Me always, to them I bring all that they do not have and I protect all that they have “(Pudja, 1981: 212, 215).

What is presented above relates to sraddha or religious beliefs (Hinduism) is actually a category of motivation that relies more on theological and philosophical level and is further psychologically internalized, precisely in religious intuition (rasa). This religious flavor arises from the more supra empirical (transcendent) theological motif in the form of belief which is then shown concretely in the form or attitude of bhakti to the Creator. Like religious people, the position of belief (sraddha) does occupy the highest hierarchy because it becomes the foundation of faith in religious life which should be strengthened.

Further scrutiny, the meaning of the above Bhagawadgita book summarizes the reinforcement of human behavior as a religious person both understood psychologically, and by the intuition of feeling subordinated to Him, leading to a much stronger intrinsic motivation, in addition to its position as well A virtuous being, who at once as a religious or religious person. With his position as a religious person, causing the movement of life along with the behavior of the people is fully encouraged by his (very) high belief, so that any form of religious duty is believed to be “the command of God” which is not even for his servant to set aside let alone dare to leave.

2) Theological and Philosophical Consciousness

The bhakti behavior of Hindus, also driven by theological and philosophical consciousness as written in the Bhagavadgita Scriptures, III sloka 12, 13, 14:

“Surely the desire for pleasure has been given to you by the Gods because of your yadnya, while he who has gained pleasure without giving yadnya is a thief”;

“He who eats the remainder of his yad shall be cut off from all sin (but) He who cooks

only food for himself actually eat sin”;

“The existence of living things because of food, the existence of food due to rain, the rain due to yadnya, and the existence of yadnya because karma” (Pudja, 1981: 78, 79)

This realization of theological and philosophical awareness mobilizes Hindus in religious behavior (bhakti) which in practice level is realized by carrying out Yadnya ceremony along with various types and levels of Upakara or Bebanten. In Lontar Yadnya Parkrti, the ceremony with upakara yadnyanya contains symbolic meaning that is:

- (1) As a symbol of the universe (*pinaka angga buwana*).
- (2) The symbol of the One God (*pinaka rupaning bhatara*).
- (3) The symbol of self (*pinaka raganta tuwi*).

Referring to the opinion of the Son (1982: 3) it is stated that the existence of upakara bebanten in a ceremony (ritual-yajna) has a function:

- (1) As a means of concentration to worship Hyang Widhi / God
- (2) As the embodiment (*peragayan*) Hyang Widhi
- (3) As a symbol of a people’s (bhakti) feeling
- (4) As a means of request / request (*nunas ica*)
- (5) As a means of consecration of the innate (*wahya adhytmika*)

Observing the upakara bebanten function above, the true practice of yadnya ceremony with upakara bebantennya not purpose, but only as a way, means, media or symbols. Meanwhile, if understood, the practice of religious behavior in the form of bhakti mayad it also has several functions, namely:

- (1) Closer to God as the Creator
- (2) As an expression of gratitude for all the blessings that have been given and enjoyed
- (3) As a self-reinforcement that is not easily shaken from any disturbance
- (4) As a life guide to goodness, righteousness and virtue
- (5) As an opportunity to ask for blessings or grace, such as health, well-being and happiness.

Thus the practice of diversity as well as in the example mayad through ritual offerings can and be one of the means or form of psychoreligious healing, which emphasizes the spiritual and spiritual approach in an effort to get closer together and ask for the blessing of health or the restoration of sickness (body, mind, Soul).

Nawawida Bhakti As Psychoreligious Healing Form

The most essential element in Hindu life is trust and devotion to God. In any situation, whether in a healthy state, especially when in a state of illness it is important to integrate a medical approach with non-medical, no other so-called psychoreligious healing. A form of healing by bringing together and practicing the duty of the faithful as a servant of God, in the hope that God with all His omnipotence can give grace healing, then health.

Religion as a modality in the healing of psychoreligiosity makes people feel more meaningful life, aim and have guidance based on the guidance of religious sacred teachings. With religion, people will be led to think, say and do positive, always acting under the control of conscience. With religion, every issue, including when in a state of unhealthy, mental strength will be awakened, becomes an important capital in the healing of physical pain. Furthermore, religious healing, believed to be the driving force behind good relationships and harmony within the family, is due to God's role in knitting interpersonal relationships, which ultimately has implications for family life as a whole.

Thus, every Hindu can make the space and time of his family as a medium of psychoreligious healing. How is the form and / or method of psychoreligious healing applied to the Hindu family? There is nothing else to behave religiously through bhakti activities, which can be practiced in order to strengthen and nourish all family members, especially when in sickness, both physical (medical) and nonphysical (nonmedical) pain. In the Bhagawata Purana, VII.5.23 is nine forms of bhakti (Nawawida): "*Sravanam kirtanam visnoh smaranam on sevnam, archanam, vandanam, dasyanam sakhyam atmanivedanam*".

Wiana (2007: 66) further details and explains about the meaning and form or the way each bhakti is applied, namely:

1) Sravanam

The word "Sravanam" comes from the vein of the word "sru" which means to hear, while "nam" means to worship. Sravanam means devoting or worshiping God by listening to the chants of the Vedic sloka / mantras, or simply listening to religious sacred stories, such as stories in Itihasa (Ramayana and Mahabharata) or the Puranas. With Sravanam, the people will be brought to a situation that seems to us to be a witness of a religious story full of lessons and guidance.

2) Kirtanam

Kirtanam means to memorize by singing or reciting repeatedly a religious chant that contains or worshiped and praised God with the greatness of His attributes. By repeating the name of God repeatedly accompanied by deep feelings and desires is expected to cause sacred vibrations that can awaken God's power within, not least Atman. The rise of Atman's strength to the Brahman will give birth to a healthy physical, physical and spiritual condition which is healthy and always conscious, controlled and managed to dominate the bursts of worldly passions or senses that are always bound by matter.

In essence, Kirtanam or chanting religious hymns full of devotion, expressed through deep feelings and appreciation will make the people, not only healthy but pushing on the condition of

chastity. This is not a matter of vocal in the art of sound, which concerns the beauty of sound alone, but more importantly, how Kirtanam's rebound can be done in earnest, sincere and profound manner that will lead to the athlete bersmana in every creature so that the closer, And converge on Brahman.

3) Smaranam

Derived from Sanskrit, from the vein of the word "smrt" which means to remember. The purpose of this way of bhakti Smaranam is to always remember the Lord in all his manifestations. The more routine and disciplined remembering the Lord, the more powerful we remember the existence and omnipotence of God, the stronger the vibration of God's sanctity is felt to have a positive effect on the totality of bhakti, as well as to strengthen our health.

If the power of God has become an integral part of our totality, then that holy power will drive all our life activities. People who have been fully influenced by the power, power and holiness of God, his life will run without many obstacles so as to obtain or enjoy health, well-being and happiness. Religious behavior by remembering God, at least in this heart is called Bhakti Smaranam or namasmaranam.

4) Arcanam

Is a form of worship before God through His manifestation in the form of "Arca" (Pratima / pralingga). Arca is none other than a symbol (nyasa) which serves as a medium / means of concentration in worshipping God is indeed the Supernatural (abstract). The worship of God with the statue media (not the usual statue) has become the bhakti tradition of Hindus in its efforts to get closer through materialization of transcendent Godhead ideas become more immanent so that it appears more personal in various forms / forms with various laksana such as Dewi Saraswati, Shiva, Ganesha, Brahma, Visnu, and so on.

Thus, Arcanam has become the ultimate form of worship before God, which can be done every day wherever it may be. Arcanam this includes worship belonging Saguna Upasana by using statue media. Instead Nirguna Upasana worship does not use any tangible means (nirupam).

5) Vandanam

The form of religious behavior (bhakti) is done by reading stories / religious sacred stories, sloka-sloka, mantras of Vedic scripture and literature. The word Vandanam means to worship, only by reading religious scriptures or literature with its various contents, such as those pertaining to mythology as it is in Itihasa (Ramayana and Mahabharata) and Purana. According to Swami Siwananda, the purpose of reading religious mythology is to not only know, understand but also appreciate the meaning, the message and the doctrine contained therein, which in turn will serve the motivation and inspiration in expressing religious sika in the form of bhakti behavior.

By repeated reading of sacred religious mythology, let alone done with full sense of devotion, the power of buddhi will be more so that manah and ahamkara will be mastered, at least controlled so as not to manifest wrongly. Doing Vandanam this also means creating conditions so that the fog of rajah and tamah can also be mastered, so that manah becomes sharply strengthened buddhi. So

the Atmapun will illuminate life to *wiweka*, able to sort and choose what is good / right and which is bad.

6) **Dasyanam**

Coming from the word “*dasyam*” means to serve or serve, in this case to God. Why *Dashanam* is seen as a form of devotion, not because by serving or serving, all ego or *ahamkara* attributes must be released, at least curbed. In the *Bhagavadgita* it is stated that what keeps people away from God is because of attachment, anger and ego.

In Bali what is called *Dasyanam* is synonymous with the tradition of “*ngayah*”, a form of karmic activity (work) that is done sincerely and unconditionally. This is the so-called “*karma yoga*”, through the way *karmah* (serve and serve) the people can bring together, feel and enjoy God’s grace in its various forms, such as health, strength, prosperity and happiness.

7) **Padasevanam**

Padasevanam comes from the word “*On*” which means foot, and “*seva*” means serving or serving. Similar to the meaning of *Dasyanam bhakti*, only that *Padasevanam* is meant to devote to God by serving on his *padma* or commonly called “*worshiping the feet of God*” (the most holy leg). In India the tradition of worshiping the feet of God’s *padma* is so popular that *dilakukaan* with the attitude *Nipata* or *Sastangga*, the prayer by prostration, the position of the forehead to touch the ground / floor or altar *Mandira* / Temple / Temple / foot statue of God, manifestation of God who wants adored.

Another way is with the attitude of *Dandawat* or *Ata* is lying down (like a stick fall) face down in the *natar Mandira* / Pura / Temple or in front of the statue of the worshiped God. Both ways of devotion / worship are commonly applied in India, whereas among *Hindus* archipelago, especially Bali commonly done is the attitude of *Krtanjali* that is by covering the two palms with different positions in the order of *sembahnya*.

By serving or serving on the feet of God, the people are promised to get the gift of health, well-being and happiness. The symbolization of grace is manifested in the form of receiving *Tirtha Wangsuh On* that no other holy water that comes from the foot *padma* or commonly called *banyun cokor Ida Bhatara*.

8) **Sakhyanam**

Derived from the word “*sakha*” which means “*friend / friend*”. *Bhakti* in the form of *Sakhyanam* is high in rank, which can not be done by a person whose spiritual level is still far below. *Sakhyanam* is a form of devotion to God like a close friendly relationship. Close feeling like a friend of course can not be done by someone who is still covered with tattoos and warmth. *Bhakti* that cause a sense of close to God can only be done by people who have mastered *budhi*, *manah* and *sensual*. This mastery of *manah*, *budhi* and *sensa* can be done if the power of the *atman* can be driven by continuous spiritual activity with full orientation and concentration to address only as a devotional form to God.

9) Atmanivedanam

It means worship done with surrender (atman) completely to God. This is not easy to do, requires full unanimity called self-totality. Swami Siwananda in his book All About of Hinduism states, bhakti through total surrender to God there are two stages: Markata Nyaya and Marjara Nyaya.

Markata Nyaya is a form of devotion by way of surrendering to God like a monkey (markata) who tightly hold on to his mother's stomach. Wherever his fate is taken and dependent on his mother. The analogy of bhakti the way this monkey implies that such is the human or religious person, in the case of bhakti should every faithful strengthen its faith in order to wholeheartedly surrender themselves to the power and or the will of God.

While Marjara Nyaya, is a form of devotion by way of surrender as well as a kitten (marjara) to its mother. Not an active kitten, but the parent who carried wherever the movement to secure the state of his son. That is, in terms of God's bhakti that fully determine where and how our life. Let God work for which He already has the will of what should be a part of our life.

The surrender emphasized here is not in the passive sense by simply waiting for fate, but a dynamic and active surrender form, of course, through karmic activity in the form of each swadharma (obligation). By doing each swadharma undoubtedly the power and will of God will side with us on all result of all good or positive, can be health, prosperity and happiness.

CLOSING

With the teachings of Nawawida Bhakti it is clear that what is called religious attitudes in the form of devotional behavior to God does not merely include the hands in a way kramaning worship at a temple or a place of worship. Devoting to God can be done in various ways, whose essence is to express the wonder and wonder of God with all his omnipotence through bhakti behavior in various ways.

The form/manner summarized in the teachings of Nawawida Bhakti as described above is the concept of the form of bhakti that is taught to humankind, in particular the religious (Hindu) in order to improve the quality of sraddha and bhakti, so as to strengthen the faith and at the same time enrich the bhakti, so what is obedient setriap Ummah Hinduism reaches jagadhita and moksa can be achieved.

The benefit, by applying Nawawida Bhakti, is expected whatever the people experience, regardless of circumstances, including when in a state of illness, can be immediately cured and / or restored as before, be healthy, strong, prosperous and happy. Thus the concept of Nawawida Bhakti is a form of psychoreligious healing that can be implemented by every people, not only when experiencing pain to get healed, but it will be very good if it is applied as part of daily life as religious people with religious socialistic character. Characterized, always want to get closer and attach themselves through the devotion before God, so it is believed God will give blessings of grace in the form of health, spiritual-born, spiritual body, even niskala sakala.

References

- Capra, Frintjof. 2007. *The Turning Point : Titik Balik Peradaban Sains, Masyarakat dan Kebangkitan Kebudayaan* (terjemahan). Yogyakarta : Jejak.
- Daradjat, Zakiah. 1978. *Peranan Agama dalam Kesehatan Mental*. Jakarta : Gunung Agung
- Dister Ofm, Nico Syukur. 1988. *Pengalaman dan Motivasi Beragama*. Yogyakarta : Kanisius.
- Hawari, Dadang. 2016. *Pendekatan Holistik Pada Gangguan Jiwa Skizofrenia* (edisi ke- 3). Jakarta FKUI
- Pudja, G. 1981. *Bhagawadgita (Pancama Weda)*. Jakarta : Mayasari.
- Putra, Ny. I Gst. Ag. Mas. 1982. *Upakara Yadnya*. Denpasar. IHD Denpasar
- Titib, I Made. 1993. *Dainika Upasana (Doa Umat Hindu Sehari-hari)*. Denpasar : Yayasan Guna Werdhi.
- Wiana, I Ketut. 2007. *Sembahyang Memuja Tuhan (dengan Sembilan Bentuk Bhakti)*. Denpasar : PT Empat Warna Komunikasi.
- Widana, I Gusti Ketut. 2011. "Ritual Sebagai Media Pendidikan Spiritual", dalam *Jurnal Widyanatya*, volume 1, Nomor 01, Agustus 2011, diterbitkan : Fakultas Pendidikan Agama Dan Seni, Universitas Hindu Indonesia Denpasar.
- Lontar Yadnya Prakerti, milik Pusat Dokumentasi Provinsi Bali
<https://nitafitria.wordpress.com>>terapi-psikoreligius

HYPERLIPIDEMIA INDUCES DEGENERATION OF SPERMATOGENIC AND LEYDIG CELLS

I Gede Widhiantara¹, I Wayan Rosiana²

widhiantaragede@yahoo.co.id¹

Biology Departement, Universitas Dhyana Pura, Badung, Bali^{1,2}

Abstract

Hyperlipidemia or commonly known as hypercholesterolemia is a social problem in many developed countries. Hiperlipidemia caused by the tendency of fatty and high cholesterol foods consumption were increase the blood lipid levels. The most common clinical features of elevated of total cholesterol, triglycerides and Low Density Lipoprotein (LDL) levels and decreased High Density Lipoprotein levels (HDL). Increased cholesterol in body tissues can lead to increased oxygen production of Reactive Oxygen Species (ROS) and lipid peroxidation. This becomes an important factor in the development of abnormal cells in the organs of the body. Several studies have shown elevated lipid levels that play a role in the formation of free radicals. ROS is toxic in sperm quality and decreases testosterone secretion. Spermatozoa are susceptible to induced oxidative stress because of the large amount of fatty acids present in the spermatozoa membrane. Oxidative stress acts as a mediator of damage to the plasma membrane, thus reducing the number and quality of sperm. ROS induces lipid peroxidation which is the causative agent of morphological changes of sperm. Oxidative stress induces DNA damage that accelerates apoptosis of germinal epithelial cells, thus decreasing the number of spermatozoa and Leydig cell degeneration.

Keywords: Hyperlipidemia, degeneration, spermatogenic and Leydig cells

BACKGROUND

Infertility is a very disturbing thing that can threaten the integrity of a household. Fertility problems occur due to disruption of the reproductive system in women and the decrease in the quality and quantity of sperm in men. According to world demographic data, 12.5% of couples of childbearing age have difficulty acquiring children. Male infertility factor accounts 50% for all cases (Agarwal and Said, 2005). Infertility is particularly prevalent in big cities because of a stressfull, emotional, hard work, lifestyle and a less balanced of diet (Anonymous, 2015).

The tendency to consume fatty foods and high cholesterol is at risk of causing an increase in blood lipid levels known as hyperlipidemia. The most common clinical features include elevated total cholesterol, triglycerides and Low Density Lipoprotein (LDL) levels and decreased High Density Lipoprotein (HDL) (Almatsier, 2004). Hyperlipidemia is emerging as an important cause of adverse health outcomes including cardiovascular complications, obesity, metabolic disorders, and infertility (Zappalla and Gidding, 2009).

Increased cholesterol in body tissues can lead to increased production of Reactive Oxygen Species (ROS) and lipid peroxidation. This becomes an important factor in the development of abnormal cells in the organs of the body. Some studies have shown an increase in lipid levels that play a role in the formation of free radicals that affect male reproductive system. The condition of hypercholesterolemia plays an important role in increasing free radical production and incompatibility of lipid peroxide development at the tissue level. So the condition triggers the so-called oxidative stress which is a pathophysiology of infertility in men (Agarwal and Said, 2005).

ROS potentially disrupts the reproductive system. In addition to being toxic in damaging germ cells also play a role in disrupting the hypothalamo pituitary gonadal axis. So the secretion of reproductive hormones such as LH (*Luteinizing hormone*) and testosterone can be disrupted. Reproductive function of the testosterone was at cleavage process of germ cells to the spermatozoa formation, especially meiotic division secondary spermatocytes (Ascobat, 2008). The presence of testosterone is vital in maintaining the spermatogenesis. Testosterone is produced by Leydig cells in the interstitial seminiferous tubules. The regeneration and function Leydig cells are strongly influenced by LH. Absence of both hormones lead the spermatogenic and Leydig cells degeneration.

DISCUSSION

Hiperlipidemia and spermatogenic cells

Lipids are water-insoluble organic compounds, which are essential for many normal functions of living organisms. They are important components of cell membranes and they are used to store energy also they play a significant role as enzyme co-factors, hormones, and intracellular messengers (Rifai *et al.*, 1999; Smith, 2006).

Cholesterol is one of the most important bio-molecule in animals and has significant role in cellular function and integrity. It is essential for membrane composition, permeability, fluidity, endocytosis and intracellular signalling. It is also a precursor of all sexual hormones. Cholesterol has crucial functions in the area of male and female reproductive physiology, from sex differentiation to gamete formation. The sperm membrane is composed from heterogeneous mixture of phospholipids, glycolipids and sterol and plays an important role in sperm capacitation and fertilization. It is known that the acrosome reaction and sperm-oocyte fusion both are membrane associated events (Cross, 1998).

Besides this, the lipids of the spermatozoa have been suggested to be important for viability, maturation and function of spermatozoa. Cholesterol's ability to order saturated phospholipids contributes to the formation of rafts that have distinctive protein composition and are supposed to play an important role in signal transduction pathway (Maqdasy *et al.*, 2013).

Several studies have shown that in infertility there is an increase of ROS in seminal. In elevated ROS also accompanied by an increase in LDL concentration in hyperlipidemic patients, but not always accompanied by increased HDL concentrations. This is what spurred the emergence of oxidative stress. Oxidative stress a rises as a consequence of the excessive increase of ROS production and leads to disruption of defense mechanisms by antioxidants. At the same time,

the condition of hypercholesterolemia and hypertriglyceridemia lead to ROS increase and lipid peroxide levels in tissues associated with decreased antioxidant effects (De La Cruz *et al.*, 2000).

The abnormal lipid metabolism caused by high fat diet can result in problem of the male reproductive system has a certain negative affect by the disorder of lipid metabolism (Traish *et al.*, 2016; Hammoud *et al.*, 2006). There are many groups of treatment of rats with cholesterol caused many deleterious changes in the testis and epididymis. These changes include: reduced cells of the spermatogenic layers, thickened walls of the blood vessels, highly dilated intertubular connective tissue with edema, distorted Leydig cells which contained karyolytic nuclei and degenerated cytoplasm. This was accompanied with decreased number of mature sperms inside the testis and epididymal tubules. Degenerative changes observed in this study post-cholesterol treatment may be due to hydroxyl radical formation. Decreased collagen fibers were observed in the seminiferous tubules and in the epididymal tubules with common fibrosis inside the epididymis. Nuclear changes observed in the present study are in accordance with the results of Nayana and Janardhanan (2000), who stated that reactive oxygen species (ROS) such as superoxide anions (O⁻), hydrogen peroxide (H₂O₂), hydroxyl radical (OH) and nitric oxide (NO) are directly or indirectly (Elnaga, 2012).

The spermatogenic cells are immature formation from mature spermatozoa they develops in the testis seminiferous tubule. At the time of proliferation and development of spermatogenic cells depend on testosterone and very susceptible to free radicals (ROS). Exposure to free radicals can decrease the number of spermatogenic cells thus decreasing the number of spermatozoa. The generation of ROS has become a real concern because their potential toxic effects on sperm count and function (Sikka, 2001). Spermatogenic cells are particularly susceptible to oxidative stress induced damage because their plasma membrans contain large quantities of fatty acids (Alvares and Storey, 1995). Oxidative stress mediated damage in the spermatogenic plasma membrans may account for defective sperm function (Iwasaki and Gagnon, 1992). ROS induced lipid peroxidation is a causative agent of morphological changes in sperm (Sanchez *et al.*, 2006). Oxidative stress induced DNA damage may accelerate the process of germ cell apoptosis (Agarwal *et al.*, 2003) leading to decline sperm counts.

Yammamoto *et al.*, (1999) reported that hypercholesterolemia could be attributed to defects in the secretory function of the sertoli and Leydig cell resulting in impaired spermatogenic cell maturation process. Purohit and Daradka (1999) reported that the seminiferous tubules from testes of animals fed on cholesterol for 2 months were wavy in outline and shrunken. As a result, the interstitium was enlarged. The spermatogenesis was arrested at the primary spermatocyte stage. However, a few secondary spermatocytes with karyolytic nuclei were seen. As the tubule had a large number of primary spermatocytes, it seems that the meiotic divisions were inhibited.

Hiperlipidemia and Leydig cells

Leydig cells were the main cell of androgen secretion, which located on the loose connective tissue between the seminiferous tubules of the testes, synthesizing testosterone through a complex biological process (Maeda *et al.*, 2014). The steroidogenic acute regulatory protein (StAR) plays a critical role in trophic hormone-stimulated steroid biosynthesis by facilitating the transfer of

cholesterol, the substrate for all steroid hormones, to the inner mitochondrial membrane where it is converted to pregnenolone by the P450 Side chain cleavage enzyme (P450scc) (Clark *et al.*, 1994; Lin *et al.*, 1995; Stucco, 1997; Wang *et al.*, 1998). After then reacted with steroid synthetic enzyme and gradually transform into testosterone (Bilbao *et al.*, 2013; Sasaki *et al.*, 2014).

With the improvement of people's living standards, irrational diet and lifestyle resulted in lipid metabolism disorder and obesity appeared in more and more people, also, the function of the male reproductive system had a certain negative affect by the abnormal lipid metabolism. Researchs showed that people with obesity disorders, particularly male, had reproductive function reduced and testosterone levels decreased (Yassin *et al.*, 2014)

In the animal study, feeding of a diet containing cholesterol to rats increased plasma total cholesterol, triglycerides and LDL, while it results in a decrease of HDL. Plasma testosterone level in hyperlipidemic rats significant decrease (Bhasandy, 2007). The decrease caused by the increased number of degenerating Leydig cells, reduction of Leydig's cell nuclear diameter, decreased LH level (Tanaka *et al.*, 2001) and testicular activity of 17 beta hydroxysteroid dehydrogenase (Gromadzka-Ostrowska *et al.*, 2002).

Lack of testosterone and androgen receptor (AR-null), results in the failure of differentiation and development of young Leydig cells into mature (O'shaughnessy *et al.*, 2002). The development of function and morphology of Leydig cells ranging from precursor cells located in the peritubular region of the interstitium and differentiating into progenitor cells does not require stimulation of testosterone. But from the development of the new formation of Leydig cells into adult Leydig cells, testosterone has had a very important role in it. Testosterone helps activate steroidogenesis enzymes such as P450c17 and 17 β -Hydroxysteroid dehydrogenase (17 β -HSD) that support Leydig cell differentiation activities.

Generally the role of testosterone in the differentiation and development of Leydig cells are stimulates the differentiation and proliferation of progenitor cells into adult Leydig cells, maintaining the process of developing the morphology of young Leydig cells into adult Leydig cells, stimulating the movement of adult Leydig cells into the middle of interstitial space, and inhibiting the differentiation of precursor cells to maintain the number of Leydig cells Adults remained constant (Mendis-Handagama and Ariyaratne, 2005). Without testosterone the young Leydig cells are still able to differentiate but will fail to develop into Leydig cells according to their morphological characteristics (O'shaughnessy *et al.*, 2002 ; Misro *et al.*, 2008).

Hyperlipidemia influence hypothalamus-hipophyse-testicular axis caused decreased LH secretion. LH has a regenerative effect that stimulates the differentiation and proliferation of Leydig cells. LH helps to activate several enzymes such as 3 β -HSD, cytochrome P450scc and P450c17 essential for the activity of cleavage and proliferation of young Leydig cells (Mendis-Handagama and Ariyaratne, 2005). This is also consistent with that stated by Baker and O'Shaughnessy (2001) in addition to stimulating the function of leydig cells, LH is also essential for the growth and development of young Leydig cells into adult Leydig cells.

Cui and Guan (2016) found that lipid metabolism disorder reduced the proliferation of rat Leydig cells through detecting the expression of Ki67. Their study showed a significant decreasing

trend of Ki67 expression in the group of abnormal lipid metabolism rats fed with high fat diet compared with the control group.

Epithelial cell transforming sequence 2 oncogene (Ect2). ECT2 is a guanine nucleotide exchange factor (GEF) for Rho family GTPase related to cytokinesis (Niyya, *et al.*, 2005; Harra, *et al.*, 2006; Niyya *et al.*, 2006). GEFs catalyze the exchange of GDP for GTP, thereby activating the Rho GTPases in signal transduction. ECT2 expression is dynamically controlled throughout the cell cycle. Upon breakdown of the nuclear envelope during mitosis (Elbaz *et al.*, 2010), ECT2 is dispersed throughout the cytoplasm, then ECT2 becomes localized to the mitotic spindles during metaphase, the cleavage furrow during telophase, and the mid-body at the end of cytokinesis (Nalini *et al.*, 2013). We suspected that Ect2 might be a critical protein regulating Leydig cell proliferation influenced by lipid metabolism disorder. The results of RT-PCR verified and showed that Ect2 mRNA of rat Leydig cells was significantly lower in the group of abnormal lipid metabolism rats fed with high fat diet compared with the control group, which suggested that lipid metabolism disorder might affect rat Leydig cell proliferation by regulating expression of Ect2.

CONCLUSIONS

Hyperlipidemia increased production of Reactive Oxygen Species (ROS) and lipid peroxidation. ROS mediated damage morphology, DNA, apoptosis germ cell lead decrease sperm count. Lipid metabolism disorder also influence the hypothalamo pituitary gonadal axis and inhibit testosterone and LH secretion. All that conditions induces degeneration spermatogenic and Leydig cells.

acknowledgment

The author is highly thankful to the Head of the Dhyana Pura University for providing necessary facilities.

References

- Agarwal, S. R. A. Saleh and M. A. Bedaiway, 2003. Role of reactive oxygen species in the pathology of human reproduction. *Fertil. Steril.*, 79: 829-843.
- Agarwal A, and Said T. M. 2005. Oxidative stress, DNA damage and apoptosis in male infertility: a clinical approach. BJUI
- Almatsier, S. 2004. *Penuntun Diet*. Edisi baru. Jakarta: Gramedia Pustaka Utama:
- Alvarez, J. G. and B. T. Storey, 1995. Differential in incorporation of fatty acids into periodative loss of fatty acids from phospholipids of human spermatozoa. *Mol. Reprod. Dev.*, 42: 334-346.
- Anonymous. 2015. *Infertility in men*. Available at: http://www.husadautamahospital.com/artikel_15.php. accessed: 3th August 2015
- Ascobat P. 2008. Androgen, antiandrogen & Anabolik Steroid. Dalam: *Farmakologi dan Terapi edisi 5 FKUI*. Gaya Baru. Jakarta: 456-466
- Baker, P. J. and O'Shaughnesy, P. J. 2001. Role of Gonadotrophin in Regulating Numbers of Leydig and Sertoli Cell During Fetal and Postnatal Development in mice. *Reproduction* 122; 227 – 234. *Journal of Andrology*, Vol. 21, No. 2.

- Bashandy A. E. S. 2007. Effect of fixed oil *Nigella sativa* on male fertility in normal and hyperlipidemic rats. *Intl. J. Pharmacol.* 2(1): 104-109.
- Bilbao M. G. Di Yorio M. P. and Faletti A. G. 2013. Different levels of leptin regulate different target enzyme involved in progesterone synthesis. *Fertil Steril*; 99: 1460-1466.
- Clark B. J., Wells, J., King S. R and Stocco D. M. 1994. The purification, cloning, and expression of a novel luteinizing hormone-induced mitochondrial protein in MA-10 mouse leydig tumor cells. Characterization of the steroidogenic acute regulatory protein (StAR). *J Biol Chem*; 269: 28314-28322.
- Cross, L. 1998. Role of cholesterol in sperm capacitation. *Biol Reprod* 59:7-11
- Cui, L. and Guan Qing-Bo. 2016. Regulation of lipid metabolism in rat leydig cells testosterone synthesis and proliferation. *J Clin Exp Med*;9(5):8224-8229
- De la Cruz, J.P. L. Quintro, M.A. Villalobos and F.S. De La Cuesta, 2000. Lipid peroxidation and glutathione system in hyperlipemic rabbits: influences of olive oil administration. *Biochem. Biophys. Acta*, 1485:36-44.
- Elbaz J, Reizel Y, Nevo N, Galiani D and Dekel N. 2010. Epithelial cell transforming protein 2 (ECT2) depletion blocks polar body extrusion and generates mouse oocytes containing two metaphase II spindles. *Endocrinology*; 151: 755-765.
- Elnaga, N. A. M. A, 2012. Effect of Cholesterol and /or Methionine on the Testis of Rats. *The Egyptian Journal of Hospital Medicine Vol.*, 49: 857-878.
- Gromadzka-otrowska, J. M. Przepiora and K. Romanowicz. 2002. Influence of dietary fatty acids composition, level of dietary fat and feeding period in some parameters of androgen metabolism in male rats. *Reprod Biol.*, 2: 277-293.
- Hammoud, A. O, Gibson M, Peterson C. M, Hamilton, B. D and Carrell, D. T. 2006. Obesity and male reproductive potential. *J Androl*; 27: 619-626.
- Harra, T. Abe, M. Inoue H, Yu L. R. Veenstra T. D. Kang Y. H. Lee K. S. and Miki T. 2006. Cytokinesis regulator ECT2 changes its conformation through phosphorylation at Thr-341 in G2/M phase. *Oncogene*; 25: 566-578.
- Iwasaki, A. and C. Gagnon, 1992. Formation of reactive oxygen species in spermatozoa of infertile patients. *Fertil, Steril.* 75; 409-416
- Lin, D, Sugawara T, Strauss JF 3rd, Clark B. J, Stocco D. M, Saenger P, Rogol A and Miller W. L. 1995. Role of steroidogenic acute regulatory protein in adrenal and gonadal steroidogenesis. *Science.* 267: 1828-1831.
- Maeda, N. Okumura, K. Tanaka, E. Suzuki, T. Miyasho, T. Haeno, S. Ueda, H. Hoshi, N. and Yokota, H. 2014. Downregulation of cytochrome P450scc as an initial adverse effect of adult exposure to diethylstilbestrol on testicular steroidogenesis. *Environ Toxicol*; 29: 1452-1459.
- Maqdasy, S. Baptissart, M. Vega, A. Baron, S. Lobaccaro, J.M. 2013. Cholesterol and male fertility: what about orphans and adopted? *Mol Cell Endocrinol* 368: 30-46.
- Mendis-Handagama, S. M. C. L. and Ariyaratne H. B. S. 2005. Differentiation of the Adult Leydig Cell Population in the Postnatal Testis. *Biology of Reproduction* 65, 660-671.
- Misro M. M., Ganguly A. R. and Das, P. 2008. Is Testosterone Essential for Maintenance of Normal Morphology in Immature Rat Leydig Cells?. *International Journal of Andrology. Volume 16 Issue 3, Pages 221 - 226*

- Nalini, V. segu. R. deepa, P. R. khetan, V. Vasudevan, M. and Khrisnakumar S.2013. Molecular Insights on Post-chemoteraphy Retinoblastoma by microarray Gene Expression Analysis. *Bioinform Biol Insights*, 7: 289-306.
- Niiya F, Xie X, Lee KS, Inoue H and Miki T. 2005. Inhibition of cyclin-dependent kinase 1 induces cytokinesis without chromosome segregation in an ECT2 and MgcRacGAP-dependent manner. *J Biol Chem*, 280: 3650236509.
- Niiya F, Tatsumoto T, Lee KS and Miki T. 2006. Phosphorylation of the cytokinesis regulator ECT2 at G2/M phase stimulates association of the mitotic kinase Plk1 and accumulation of GTP-bound RhoA. *Oncogene*, 25: 827837.
- O'Shaughnessy, P. J. Johnston, H. Willerton, L and Baker, P. J. 2002. Failure of normal adult Leydig cell development in androgen-receptor-deficient mice. *Journal of Cell Science* 115, 3491-3496.
- Purohit, A. and H. M. M. Daradka, 1999. Effect of mild hyperlipidemia on testicular cell population dynamics in albino rats. *Indian Journal of Experimental Biology*. Vol. 37: 396-398.
- Rifai, N. Bachorik, P. S. and Albers, J. J. 1999. Lipids, lipoproteins, and apolipoproteins. In: Burtis, C.A., Ashwood, E.R. (Eds.), *Tietz Textbook of Clinical Chemistry*. WB Saunders, Philadelphia, Pennsylvania, pp. 809-861
- Sanchez, E. E. T., M. L. Marquette, D. B. Brown and N. H Ansari, 2006. The effect of oxidative stress on human sperm morphology. *Fertil, Steril*, 86; In Am Soc. Reprod. Med. 62 nd Annual Meeting.
- Sasaki, G. Zubair, M. Ishii, T. Mitsui, T. Hasegawa T and Auchus, R. J. 2014. The contribution of serine 194 phosphorylation to steroidogenic acute regulatory protein function. *Mol Endocrinol*, 28: 1088-1096.
- Sikka, S. C. 2001. Relative stress and role of antioxidnats in normal an abnormal sperm function. *Front. Biosci.*, 1:78-86.
- Smith, E. 2006. Lipid in the aortic intima. The correlation of morphological and chemical characteristics. *J. Atheroscl. Res.*, 7: 171 - 186.
- Stucco D. M. 1997. The steroidogenic acute regulatory (StAR) protein two years later. An update. *Endocrine*, 6: 99-109.
- Tanaka, M. S. Nakaya, T. Kurnai, N. Watanabe, N. Matsumoto and S. Kobayashi, 2001. Impaired testicular function in rats with diet induced hypercholesterolimia and or streptozotocin induced diabetes mellitus. *Endocrinal. Res.* 27: 109-117.
- Traish, A. M, Haider, A, Doros, G. and Saad, F. 2014. Longterm testosterone therapy in hypogonadal men ameliorates elements of the metabolic syndrome: an observational, long-term registry study. *Int J Clin Pract*; 68: 314-329.
- Wang, X. Liu, Z. Eimerl, S. Timberg, R. Weiss AM, Orly J and Stocco DM. 1998. Effect of truncated form of the steroidogenic acute regulatory protein on intramitochondrial cholesterol transfer. *Endocrinology*, 139: 3903-3912.
- Yamamoto, Y. K. Shimamoto, N. Sofikitis and I. Miyagaula. 1999. Effect of hypercholesterolemia on Leydig and sertoli cell secretary function in overall sperm fertility capacity in the rabbit. *Human Reprod.* 14: 1516-1521.

- Yassin D. J, Doros G, Hammerer P. G. and Yassin A. A. 2014. Long-term testosterone treatment in elderly men with hypogonadism and erectile dysfunction reduces obesity parameters and improves metabolic syndrome and health-related quality of life. *J Sex Med* 11: 1567-1576.
- Zappalla F. R, Gidding S. S. 2009. Lipid management in children. *Endocrinol Metab Clin North Am* 38: 171-183.

ETHICS VALUES IN *THE GEGURITAN OF GADANG APADANG* (APPROACHING OF RELIGION SOSIOLOGY)

I Wayan Wirata

iwayanwiratastah@yahoo.co.id

State of Hindu Collage of Gde Pudja Mataram

Abstract

Galang Apadang Geguritan is an expression of a writer's feelings that can provide experience, knowledge, and insight for literature lovers through language media. The relationship between literature and society is influenced by the ability to analyze literature as well as the interpretation of the substance of the text. The *Geguritan Galang Apadang* is assumed to be a prophetic literature centered on the social and transcendental dimension. The social dimension refers to a human life in the real world or is profane (sacred), while the transcendental dimension gives the depth of spiritual values, so that the literary work is vertical. Thus, the literature is considered a path to God (*Ida Sang Hyag Widhi Wasa*) and is a means of introspection to the introduction of the self natural. Thus, *the Geguritan Galang Apadang* is considered as a symbol system that serves to direct the behavior in symbolic form which is considered to be a store of meaning.

The meaning of ethics in *Geguritan Galang Apadang* as follows: 1) Ethics behave in good and right in implementing *swadharma*; 2) Ethics speak polite words in communicating with others; And 3) Ethics provide the correct response and thought. Ethics behave well expressed in the form of tolerance, solidarity and give the example in order to realize the happiness and peace of life. The word-spoken ethic is shown by communicating good and polite to others, and ethics provide constructive and educational responses and thoughts in order to improve the intelligence and professionalism of the community.

Keywords: Ethics Values and *Geguritan Galang Apadang*.

INTRODUCTION

Geguritan Galang Apadang is a creativity of literary works that express the idea or experience of the author's imagination and provide experience, knowledge, and insight for his readers through the language medium as his tool. Literary works have changed the concept of thinking and one's perspective and analysis based on the scientific approach. In thinking requires the touch of human reason through the analysis of knowledge through the five senses, processed, and intended to achieve the truth.

The existence of dynamic motion in the field of literature has resulted in a symbiotic relationship with other fields or sciences, in addition to providing ethical value especially to the literary connoisseurs. The existence of literary works in the midst of society can be assessed

rationally and emotionally from the reader based on his approach and analytical ability. Literary works produced and constructed from public relations to literary works which is a reflection of the social life of the community. Society has the foundation and back of the existence of the author's life that gives a significant influence on the development and motivation of the community to live and assimilate and interact with other communities. This is confirmed by Damono (1984: 3-4) explaining that in determining everything written by the author, how to write it, what is its purpose, and for whom the literary work is written, the result of literary works which are the products of the members of society will reflect the dynamics of public life or on the contrary to be mirrored by society.

Geguritan as central prophetic literature or central to the meeting of social dimension with transcendental can construct social dynamics of society. The social dimension refers to the life of humanity in the real world or is profane (*sekala*). The transcendental dimension refers to a higher life (*niskala*), culminating in God Almighty or *Ida Sang Hyang Widhi Wasa*. In the transcendental dimension can provide depth to the literature *Geguritan Galang Apadang*, so upholding the spiritual values that make *Geguritan Galang Apadang* can communicate a person's experience vertically. Thus *Geguritan Galang Apadang* is seen as a way to God or worship of beauty and is a means to the discovery and reintroduction of human nature. In addition to *Galang Apadang Geguritan* can function as a symbol system that directs human behavior that is considered as a medium of meaning storage

DISCUSSION

In *Geguritan Galang Apadang* is loaded with philosophical values, especially moral philosophy namely about ethics. In understanding the philosophy is expected to think critically, systematically, and rationally, even pragmatically, thus construct coherent, cohesive, systematic, and comprehensive thinking. This is in accordance with the views of Meglino and Ravlin (1998: 21) explaining that values are regarded as beliefs about internalized behavior, and the consequences of behavior towards self. This is confirmed by Beekman (1973: 12) in his book *Philosophie, Philosophy, Filosoferen*, which gives the following definition: "Philosophy plays a role in relation to all sciences. Philosophy must not only extract information from the side of science alone, but give as like leadership to all knowledge.

Geguritan Galang Apadang is a work of art that has artistic and cultural values and is always oriented towards religious values. It was confirmed by Agastia (1994: 8) states that *Geguritan Galang Apadang* is a poetry literature that has certain rules. The outline of the rules of the form is to have a certain number of syllables in each stanza, and in a certain number of syllables of the stanza it uses certain sounds (eg. sounds a, i, and u).

Geguritan Galang Apadang has given enlightenment associated with moral values that have fully philosophical values and contains moral values in the teachings of Hinduism. This is confirmed by Bandem (1983: 31) states that *Geguritan* is a type of poetry that uses metric and Balinese language. *Geguritan Galang Apadang* is a legacy of the noble who have the values of the wisdom of Hindu teachings. These moral values contain eternal truth. Values like these should be transmitted and transformed in an effort to build a spiritual awareness.

The early verses of *Geguritan Galang Apadang* have told about the concept of life related to the concept of *rwa-bhineda*. The concept indicates a difference to construct the harmonization and equilibrium of the universe. Balance is a fundamental concept in life. All that exists are both the micro world (micro cosmos) and in the macro world (macro cosmos). The existence of the concept of *rwa bhineda*, then the law of balance of the universe becomes a guide in behaving and doing in the world. The explanation can be explained as follows:

Kotamaning Ida Hyang Surya, setata medal ri enjing, engseb rikalaning sandya, Ida Hyang ratih nginutin, Ical panas kengentosin, antuk sabeh wastu dayuh, dauhe memargi dabadab, tan dados tawah akidik, ne puniku, arang sane ngarasayang.

Idupe taler punika, kadi cakraning pedati, mekadi toyan segara, patut anggen wimba sai, sampun mebet aad malih, sebet demen saling sambung, punika patut rasayang, ring jroning sarira yukti, benjang pungkur, mangdane tan kapupungan

Its application in daily life, the existence of life through the life cycle namely the sun rises from the east and then spins to the west next set. Then the heat of the sun is replaced with rain. This is due to the conditions of the earth cycle circulation process. The concept of *rwa bhineda* will be an introduction to another very powerful natural law that has been rooted in the daily life of the society of karma law that rests on balance in other forms. Whatever is done in this life, one day produces similar results. If the good is planted, then the happiness is harvested. Conversely, if the evils do, then suffering will be accepted. Everything about choose in living a life that has its own consequences. This is confirmed by Rekeach (in Wirata, et al, 215: 22) explaining that in values reflects three important characteristics that include: 1) the cognition of definitions; 2) affective, with related emotions; and 3) behavior that leads to action, when activated.

In addition to life is analogized like wheel rotation pedati, in time is above and there are times below. It is used as a living reflection to know the natural cycle as part of the process of life on earth. To know the cycle is needed the ability to analyze the natural phenomena that occur in the world, so as to create conditions that provide good behavior value in accordance with the teachings of Hinduism. The same thing with the statement Ratna (2004: 45) explains that the medium of the message through the language, both spoken and written. Interpretation is conveyed through language, not just to the language itself, but there is a hidden or deliberately hidden meaning. The same thing is emphasized Poerwadarminta (2001: 439) explains that interpretation means giving the impression, opinion or theoretical view of something with theoretical approach

In reflecting all the components that exist in *Geguritan Galang Apadang* with the ability to analyze science correctly, it gives a comprehensive and comprehensive meaning. The same thing according to Robbins's view (2007: 21) explains that values contain elements of consideration that bring one's ideas about things that are good and right.

The chapter (4-5) in *Geguritan Galang Apadang* explains as follows: *Sekantun kabaos nyeneng, jiwa lan ragane nunggil, idup kabaos punika, kulawarga sami asih, napimalih nyeneng sugih, katah sawitrane ngajum, mapi-mapi ngastityang, mangdane mangguhang shanti, dening iku, ring jagate sami.*

Yening atmane matilar, angkihane nenten kari, punika kabaos seda, tan wenten gunanne malih, samian pacang mabading, pitresnane dadi dudu, rauh rabine ngedohang, tan wenten sutindih malih, matikaplug, mangdoh panggihne saratang.

In looking at the moral values in the above explanation that while still alive, soul and body unite, the whole family is always dear and caring, let alone have wealth, many friends who attention even praise, pretend to pray for peace. When the spirit returns, the breath disappears, that is his name dies, there is no use, the condition is the opposite, the attention becomes brittle and blurred, until the wife becomes distant, fidelity fades, thus entirely away from its origin.

Geguritan Galang Apadang gives wisdom to the ethical teachings that examine the values of his philosophy. In this text the concept of self-awareness that controlling oneself and the mind is the most important thing in human life. With the provision of the right knowledge is expected every human being able to practice the values of literary works as a top priority in life. The existence of role models of moral values and norms in human beings and lives greatly determines the totality of the individual self or the identity of man, the social environment, and the life of the individual.

In this connection, *Geguritan Galang Apadang* is examined more deeply so that the philosophical values contained in the manuscript can be comprehended holistically and integrative in order to express all information about various aspects of life, so that the core of the doctrine in the literary work can be understood by readers. The same thing in accordance with the statement Pilling (2004: 17) explains that to understand the technique or art of textual interpretation requires a hidden understanding behind the text. Humans as social beings need an environment to interact to gain knowledge and experience. In social life requires a knowledge or science that is often called sociology. Sociology is a science that studies an empirical, profane, positive experience leading to universal knowledge, about the structure, functions, and changes experienced by a social group and denominational group.

In Hinduism learn *Geguritan Galang Apadang* as a discipline which is part of science that study social condition of society empirically positive which lead to universal knowledge, about structure, function, and changes experienced by society adherents. In *Geguritan Galang Apadang* needs personal knowledge and experience that in life always requires knowledge and self experience to know the nature of life. Thus the existence of social relations occurs for the creation of sense of peace, peace, and prosperity.

In verse 10 it is explained that the value of ethics in carrying out the truth is as follows:

Yening telebang ring kadharman, mayadnya muang subhakti, ngawacen sastra utama, nunas panganugran Widhi, mangastiti sai-sai, ngwacen Wedha ngulik kidung, dyastu antuk papojolan, sinah sweca kang pinuji, yening lampus, manggihin galang apadang.

Meaning: If you have studied and understood the truth by doing sacred sacrifice and devoted to reading Vedic literature, beside please clarify to *Ida Sang Hyang Widhi Wasa*, by applying every day through Vedic reading with the counseling, even if it is limited to reading must have received grace, and if it dies Got a good and right way. Implementation of the explanation indicates that the importance of learning *Geguritan*, because with a lot of reading will know the essence of the Vedic teachings. By knowing the

Vedic teachings can improve deep understanding about the importance of life, so that human beings are expected to behave properly and correctly.

CONCLUSION

From the discussion above, it can be drawn conclusion as follows: to facilitate the understanding of ethical values contained in the *Geguritan Galang Apadang* required an in-depth study of rational implementation contained in script. This is done in order to more easily understand the contents of the script *Geguritan Galang Apadang*.

Self-control especially in *Geguritan Galang Apadang* basically gives an explanation of the importance of advices or teachings to humans to introspect themselves, so knowing the advantages and weaknesses themselves. Human beings as supreme beings among all beings in the world should still feel grateful, in addition to persevering, patient and diligent in practicing the teachings of truth based on religious teachings. In the moral values expected every human being who grows and develops on earth always obedient and obedient to the *rwa bhineda* law, which gives a reflection on the existence of human living in the world.

To improve the quality of self-needed spiritual ascent, in addition, cultivation of character and feeling positive and constructive behavior for the creation of advanced religious and cultured individuals. In social interaction, humans can communicate with each other and the environment. Thus it is expected to create harmonization and tolerance as part of a reciprocals and comprehensive relationship between living things on earth.

Reference

- Agastia, IBG. 1994. *Kesusastraan Hindu Indonesia (Sebuah Pengantar)*. Denpasar: Yayasan Dharma Sastra
- Bandem, I Made. 1983. *Ensiklopedia Gambelan Bali*. Denpasar : Tanpa Penerbit.
- Meglino dan Ravlin. 1998. *Individual Values in Organizations: Concepts, Controversies, and Research*. Journal of Management. Vol 24. pp 351-389
- Pilliang, Yasraf Amir. 2004. *Dunia Yang Dilipat, Tamasya Melampui Batas-Batas Kebudayaan*. Yogyakarta: Jalasutra.
- Poerwadarminta. 1987. *Kamus Besar Bahasa Indonesia (Edisi Ketiga)*. Jakarta: Balai Pustaka.
- Ratna, I Nyoman Kuta. 2004. *Paradigma Sosiologi Sastra*. Yogyakarta: Pustaka Pelajar.
- Robbins. 2007. *Perilaku Organisasi*. Jakarta: Salemba.
- Wirata, I Wayan dkk. 2015. Nilai-Nilai dalam Kidung Mituturin Awak. *Laporan Hasil Penelitian*. Mataram: STAHN Gde Pudja Mataram

ANTIOXIDANT AND ANTIHYPERTENSIVE ACTIVITY OF *LOLOH SEMBUNG* (*Blumea balsamifera*)

IGA. Wita Kusumawati¹, I.M Wisnu A.P², IBA. Yogeswara³, Umar S⁴, Y. Marsono⁵

witakusumawati@undhirabali.ac.id1

Faculty of Health Science and Technology, Universitas Dhyana Pura^{1,2,3}

Faculty of Agriculture Technology, Universitas Gadjah Mada^{4,5}

Abstract

In this study, *loloh Sembung* (*Blumea balsamifera*) was separately extracted in water solvent and the antioxidant activity and inhibitor activity of *Angiotension Converting Enzyme* (ACE) were investigated through in vitro assay. DPPH and FRAP methods were employed to determine the antioxidant activity of *loloh Sembung* and the ACE inhibitor activity was investigated using *Hippuryl-L-Histidyl-L-Leucine* (HHL) as a substrate. The result showed that the *loloh sembung* exhibited high antioxidant activity as well as ACE inhibitor activity. The results suggest that the *loloh sembung* have a potential as a promising source of natural antioxidant and ACE inhibitor.

Key words: antioxidant, antihypertensive, *loloh sembung*, natural plants product, water extract

INTRODUCTION

Hypertension is commonly known as a silent disease. Hypertension is considered as a degenerative disease which is contribute to a high blood pressure (>140 mmHg) and may lead to several diseases such as stroke, coronary disease, peripheral artery disease, renal disease and heart failure (Lawes *et al*, 2008; Francisco *et al.*, 2009). Several risk factors of hypertension are caused by negative life style such as smoking, overweight, high excessive alcohol intake, high sodium dietary intake (Mancia *et al.*, 2007). In 2007, the prevalence of hypertension in Indonesia was 37.1%. Moreover, stroke and cardiovascular disease contribute 54% and 37% respectively to a prevalence of hypertension in the world (Lawes *et al*, 2008).

Several herbal plants have been identified as *angiotensin converting enzyme* (ACE) inhibitor. The phenolic compounds have received considerable attention due to potential beneficial effects for ACE activity inhibitor. ACE has the ability to catalyze cleavage of angiotensin I to angiotensin II. In addition, ACE inactivates the vasodilative peptides bradykinin and kallidin, and also stimulates the release of aldosterone which increases blood pressure (Balasuriya and Rupasinghe, 2011; Lacaille-Dubois *et al.*, 2001; Oboh and Ademosun, 2011; Sakulnarmrat dan Konczak, 2012; Sreerama *et al.*, 2012).

Balinese people have been used plants as herbal drink and passed down from family lord based on the *Usada Taru Pramana's manuscript*. Sembung leaves (*Blumea balsamifera*) is a main ingredient to produce *loloh* or Balinese herbal traditional drink. It is commonly known by Balinese people to treat or cure several diseases such as fever. However there is still lack of scientific information regarding *loloh* sembung as ACE inhibitor. Boiling method can be employed to produce *loloh* sembung with high phenolic content (Wita and Yogeswara, 2016). Previous study by Wita and Yogeswara (2016) reported that *loloh* sembung prepared from fresh and dried leaves were extracted using different methods produced various of total phenolic content, tannin content and antioxidant capacity. Dried leaves were extracted by brewing method exhibit high total phenolic content at 13.15 ± 0.11 mg GAE/g sample. Whereas, dried leaf were extracted by boiling method have shown high tannin and antioxidant capacity at 1.65 ± 0.01 mg TAE/g sample and 5.55 ± 0.01 mg GAE/g sample respectively. However, antioxidant activity and ACE inhibitor of *loloh* sembung have not yet been reported. The aim of this study was to investigate the antioxidant activity and ACE inhibitor of *loloh* sembung.

MATERIAL AND METHOD

Materials

Blumea balsamifera fresh leaves were collected from Bajera Village, Tabanan, Bali, Indonesia and were harvested in March 2016. The leaves were collected and identified in Plant Taxonomy Laboratory, Faculty of Biology, Udayana University, Bali. Folin-Ciocalteu, methanol, ethanol and sodium carbonate (analytical grade, Merck), gallic acid, quercetin, 2,2-diphenyl-1-picrylhydrazyl (DPPH), aluminium chloride, 2,4,6-Tri(2-pyridyl)-s-triazine (TPTZ), and $\text{Fe}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ were purchased from Sigma-Aldrich chemical, aquadest.

Preparation of dried sembung leaves

Fresh sembung leaves were washed, drained, and dried in a shaded place for 14 days (Wita *et al.*, 2014) at a temperature of $31.93 \pm 1.07^\circ\text{C}$. The dried sembung leaves were pounded using a blender (Philips) to powder. Then, the sembung leaf powder was sieved using an 80 mesh sieve. The powder of sembung leaf was kept at a temperature of 4°C prior to the analysis.

Loloh sembung extraction methods

Loloh sembung was extracted using boiling, infusion and decoction methods. Extraction was conducted by dissolving dried sembung leaves in 100 ml water. A boiling method was carried out at a temperature 80°C for variate time (3, 5, 7 and 9 min). An infusion was carried out at a temperature of 90°C for 15 minutes while a decoction was carried out at a temperature of 100°C

for 30 minutes. An Infusion and decoction used the duplex pan, and the sample was placed on the top of the pan. The extract obtained was then filtered. The filtrate is commonly known as a *loloh*. A *loloh* was analyzed for total phenolic content, total flavonoid content, and antioxidant capacity.

Analysis of extract

DPPH assay

The total antioxidant activity of *loloh* sembung was determined using DPPH method according to Hanani *et al.* (2005). Extract (1 mL) was added to 2 mL of 0.004% 2,2-diphenyl-1-picrylhydrazyl (DPPH) (in methanol). The solution was incubated in a dark room for 60 min. Absorbance was measured at 517 nm using Shimadzu 1650 UV-vis spectrophotometer. TAC with DPPH method was expressed as quercetin equivalents (QE) in mg per g of extract.

FRAP assay

The total antioxidant activity of *loloh* sembung was determined using FRAP method according to Konczak *et al.* (2010). Extract (10 μ L) was dissolved in 30 μ L distilled water and added to 200 μ L FRAP (consisting of a mixture of ferric chloride and 2, 4, 6 - tripyridyl - s- triazine). The solution was incubated for 4 min. Absorbance was measured at 600 nm using Shimadzu 1650 UV-vis spectrophotometer. FRAP was expressed as Fe²⁺ equivalents in mmol Fe²⁺ per g of extract.

Inhibitor ACE assay

The inhibitor ACE assay of *loloh* sembung was determined according to Saputri *et al.* (2015) with slight modification. Briefly, 20 μ L of the sample solution was added to 50 μ L of 8 mM HHL as substrate and 10 μ L of ACE solution (0.25 U/mL). The mixture were mixed well and incubated for 1 hour in 37^oC. The reaction was stopped by adding 62.7 μ L HCl 1M. The hippuric acid formed was extracted with 375 μ L of ethyl acetate. Finally, the solution was added to 4 mL of water. The absorbance of hippuric acid was measure by using UV-visible spectrophotometer at 228 nm.

Statistical analysis

All the analyses were performed in triplicate and the results were expressed as mean \pm standard deviation. The differences between the mean values of multiple groups were analyzed by one-way analysis of variance (ANOVA) with Tukey methods range tests using SPSS statistics 20 software. ANOVA data with a $p < 0.05$ were considered statistically significant.

RESULT AND DISCUSSION

Result

Table 1. Total phenolic, total flavonoid, and antioxidant activity (DPPH and FRAP) of lolohe sembung

Extraction method	Concentration	TAA DPPH (%)	TAA FRAP (%)
Boiling 3 min	1%	**78.3±0.19 ^a	45.90±0.21 ^c
	3%	**85.7±0.16 ^a	41.14±0.28 ^a
	5%	**87.3±0.13 ^a	41.89±0.07 ^a
	7%	**88.2±0.21 ^a	42.24±0.28 ^b
Boiling 5 min	1%	**78.79±0.06 ^a	48.05±0.14 ^c
	3%	**84.4±0.38 ^a	38.59±0.50 ^a
	5%	**89.15±0.05 ^a	39.64±0.28 ^a
	7%	**89.76±0.15 ^a	41.29±0.21 ^b
Boiling 7 min	1%	**91.4±0.48 ^a	46.05±0.14 ^c
	3%	**96.1±0.24 ^a	39.29±0.50 ^a
	5%	**97.8±0.11 ^a	40.24±0.28 ^a
	7%	**99.0±0.1 ^a	42.99±0.07 ^b
Boiling 9 min	1%	**78.1±0.17 ^a	47.80±0.21 ^c
	3%	**85.4±0.11 ^a	38.23±0.28 ^a
	5%	**86.6±0.05 ^a	39.49±0.35 ^a
	7%	**88.3±0.11 ^a	42.34±0.14 ^b
Infusion	1%	78.17±0.17 ^a	48.60±0.21 ^c
	3%	85.5±0.17 ^a	36.39±0.21 ^a
	5%	87.2±0.47 ^a	38.33±0.14 ^a
	7%	89.6±0.19 ^a	43.49±0.50 ^b
Decoction	1%	81.0±0.14 ^a	46.65±0.28 ^c
	3%	84.0±0.28 ^a	40.14±0.14 ^a
	5%	86.7±0.09 ^a	38.64±0.28 ^a
	7%	89.1±0.09 ^a	42.79±0.21 ^b

* p<0,05

** Wita et al. (2016)

Discussion

Antioxidant activity

The total antioxidant activity of *loloh* sembung was analyzed to determine the ability as a free radical scavenger in water extract. The TAA of *loloh* sembung was determined using DPPH method was between (78.1±0.17)% and (99.0±0.1)% (Table 1). Further, the TAA of *loloh* sembung was determined using FRAP method, which was between (36.39±0.21)% and (48.60±0.21)% (Table 1). The antioxidant activities of the extract have the activity as a free radical scavenger (Shimada *et al.*, 1992; Catherine *et al.*, 1996). Nesa et al (2004) reported that extract of sembung leaves contained quercetin, rhamnetin, luteolin and luteolin-7-methyl ether reacted rapidly with DPPH radical at concentration ranges from 100–150 g/ml.

There was a highly significant ($p < 0.05$) positive correlation between the DPPH/FRAP and concentration of value for *loloh* sembung (Pearson R for DPPH = 0.011 and for FRAP = -0.433) and between the DPPH/FRAP and method value for *loloh* sembung (Pearson R for DPPH = -0.806 and for FRAP = -0.063). The results indicate that the antioxidant activity is not associated with method value and concentration except concentration value for DPPH.

Antihypertensive activity

Antihypertensive activity of *loloh* sembung was based on ACE inhibitor and HHL as substrate. The *loloh* sembung exhibited high ACE inhibitor was (155.55±16.67)%. This finding was in agreement with See et al. (2016) reported that sembung leaves were dried using oven exhibited lower ACE inhibitor (70.42%) compare to air dried (211.30%).

ACE inhibitor is a target for antihypertensive and cardiovascular disease treatment (Santos *et al.*, 2012). Due to high flavonoid content in plants, the flavonoid play important role for antihypertensive of *loloh* sembung. In addition, Olaleye *et al.* (2013) reported that rutin act as antihypertensive in hypertension rat. Similar result by Shaw *et al.* (2017) reported that *Ocimum gratissimum* extract has ACE inhibitor both in vitro and in vivo. The water extract of *Ocimum gratissimum* has the ability to decrease blood pressure on hypertension rat significantly.

CONCLUSION

In this study, the concentration of 1% of *loloh* sembung exhibited high antioxidant activity as well as ACE inhibitor activity. The results suggest that the *loloh* sembung have a potential as a promising source of natural antioxidant and ACE inhibitor.

Acknowledgement

The authors would like to thank the Ministry of Research, Technology and Higher Education of Indonesia for the financial support through PEKERTI (Penelitian Kerjasama Antar Perguruan Tinggi) research program between Dhyana Pura University and Gadjah Mada University.

References

- Balasuriya, B. W. N., and Rupasinghe, H. P. V. 2011. Plant flavonoids as angiotensin converting enzyme inhibitors in regulation of hypertension. *Functional Foods in Health and Disease*, 5, 172–188.
- Francisco P-V., Juan D., Rosario J., Celestino S-B., and Antonio O. 2009. Review: Antihypertensive effects of the flavonoid quercetin. *Pharmacological reports*, 61:67-75.
- Lacaille-Dubois, M.A., Franck, U., Wagner, H., 2001. Search for potential angiotensin converting enzyme (ACE)-inhibitors from plants. *Phytomedicine* 8, 47–52.
- Lawes, C.M., Vander Hoorn, S., Rodgers, A., 2008. Global burden of blood-pressure-related disease, 2001. *Lancet* 371, 1513–1518.
- Mancia G., De Backer G., Dominiczak A., Cifkova R, Fagard R., Germano G and Grassi G. 2007. ESH-ESC Task force on the management of arterial hypertension. *J Hypertens*, 25 : 1751-1762.
- Oboh, G., Ademosun, A.O., 2011. Shaddock peels (*Citrus maxima*) phenolic extracts inhibit α -amylase, α -glucosidase and angiotensin I-converting enzyme activities: A nutraceutical approach to diabetes management. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 5 : 148–152.
- Olaleye M., Crown O., Akinmoladun A., Akindahunsi A. 2013. Rutin and quercetin show greater efficacy than nifedipin in ameliorating hemodynamic, redox, and metabolite imbalances in sodium chloride-induced hypertensive rats. *Hum Exp Toxicol*, 33: 602-608.
- Sakulnarmrat, K., Konczak, I., 2012. Composition of native Australian herbs polyphenolic-rich fractions and in vitro inhibitory activities against key enzymes relevant to metabolic syndrome. *Food Chem.* 134, 1011–1019.
- Sakee, U., Maneerat S., Cushnie TP, De-Eknamkul W. 2011. Antimicrobial activity of *Blumea balsamifera* (Lin.) DC. extracts and essential oil. *Nat Prod Res.* 25(19):1849-56.
- Santos, P.C.J.L., Krieger, J.E., and Pereira, A.C. 2012. Renin-angiotensin system hypertension and chronic disease : Pharmacogenetic implications. *Journal of pharmacological sciences*, 120 : 77-78.
- Saputri, F.C., A. mun'im., D. Lukmanto., S.N. Aisyah and J.S. Rinandy. 2015. Inhibition of angiotensin converting enzyme (ACE) activity by some Indonesia edible plants. *International Journal of pharmaceutical sciences of research*, 63: 1054-1059.
- Shaw, H-M., Jhih-Ling W., and Ming-Shyong W. 2017. Antihypertensive effects of *Ocimum gratissimum* extract : Angiotensin-converting enzyme in vitro and in vivo investigation. *Journal of functional foods*, 35 : 68-73.
- Wita, I.G.A., I Pt Darmawijaya., and I.B.A. Yogeswara. 2014. Potensi antioksidan *loloh tempuyung* (*Sonchus arvensis* L.) sebagai minuman fungsional. *Prosiding Seminar Nasional Biologi FMIPA UNHI*.
- Wita, I.G.A., I Pt Darmawijaya., I.B.A. Yogeswara, Umar S and Y. Marsono. 2016. Formulasi dan Kemampuan Menangkal Radikal Bebas dari *Loloh Sembung* (*Blumea balsamifera*). *Abstrak Seminar Nasional PATPI Jogja*.
- Wita K, IGA., and Yogeswara, IBA. 2016. Antioxidant and antibacterial capacity of loloh sembung (*Blumea balsamifera*) based on extraction method. *Trad. Med. J*, 21 (3): 143-148.

THE UNDERSTANDING OF THE FUNCTION AND PHILOSOPHY OF WATER IN *PENGRWATAN SAPUHLEGER*

I Made Yudabakti

Faculty of Religious and Art Education,
Hindu Indonesia University

Abstract

In view of water as a vital need in this life, Hindus in Bali venerate it as *pengrwatan* water or penance water (*mala*). One of them is *Tirtha pengrwatan sapuhleger*, namely *tirtha* for purification of children born in *wuku wayang*, namely *tirtha penglukatan Sanghyang Tri Semaya*, *Tirtha penglukatan Asta Pungku*, and *Tirtha penglukatan Agni Nglayang*. These *Tirtha* work effectively (have miracle powers) after being pronounced sacred spells by a puppet master in a performance of puppet *sapuhleger* associated with *pengrwatan* of children who born in *wuku wayang*. All of the three *tirtha* are believed would bring a change in the character of the child from negative to positive.

In accordance with the above description, the importance and the miracle of the water will occur if functioned properly in accordance with each portions. If the benefits and functions of water is deeply understood, there will no reason for human to pollute even though the water in various forms, such as river or sea water, especially water that comes from *pancoran*, *klebutan* (springs), *trebesan*, etc.

Understanding the philosophy and function of water in the *pengrwatan sapuhleger* conceptually indicates how high the honor of Hindus in Bali. Thus, it will have an impact on the preservation of water from pollution or contamination due to utilization in daily life. On the other hand though visible in everyday community members intentionally or unintentionally have polluted river or sea water by taking out the trash so that water becomes dirty and malodorous that finally damaging lives complexly. Recently it is a sign of Hindus have neglected or ignored the concept of water as an embodiment of *tirtha*. It should the concept of water that serves as a form of *tirtha*, have to be supported by the development of ethics in the use of water, so it does not become a habit of contaminating it. Ethic of using the water is not only done when it is needed to be the material of *tirtha*, but also the source of the water is important to be maintained, one of them is not to pollute it. To evoke this ethic is important to socialize the philosophy and the function of water continuously, especially on Hindus in Bali and generally people who live on the island of Bali.

Keywords: philosophy of water, and *pengrwatan sapuhleger*.

INTRODUCTION

Philosophically the water for Balinese people from ancient times until now is highly honored because of its functions and benefits in this life. That means that no creature in the world can survive without water. Physically, living beings are dependent on the existence of water, and

spiritually when human beings suffer from their many crises of life which neutralize their mental turmoil by using the coolness of water. All of that, as evidence that water has a positive function in human life and living things in this world. Related to that, unwittingly due to human dependence on water, then they position it as a very sacred thing. It is as a form of respect for the liquid. Related to the above description, it is appropriate that Thales (624-546 BC) states that water is the origin of the earth / nature and the earth is also on the water (Bakhtiar, 2004: 24). Thales was the first philosopher who examined the origin of water by using a rational approach rather than a myth or belief approach.

In addition, in an effort to respect the benefits of water in the world, in the Sindhu river basin civilization (500-1500 BC) humans cannot be separated from the role of water (Phalgunadi, 2006: 5). I.B Suparta Ardhana (2002: 9-10) States that in the pre-Vedic and Vedic days the lives of the Drawids and Aryans were dependent on rivers or water. Evidently they live side by side in the Sindhu river valley. Then they spread from the Panjab area, then spread to the southeast, which enters the valley of the river Ganga and Yamuna called Doab (the area of two rivers). So starting from the birth of Hindu religion human life cannot be separated from the water, until finally the name of Hindu originated from the name of the river named Sindhu in India. This indicates that water from prehistoric times became a vital human need in the world.

In accordance with the above description, as the development of Hinduism from the Vedic period of water is highly respected, as evidenced in the several chronicles of the book of *Catur Weda* mentioned a lot about Weda mantras which mention several sources of water, such as: Ganga, Yamuna, Narmada, Saraswati, Serayu, etc. In addition, some of the names of these *Om Ang Mang Ung Om Panca Dewata Prama sidyam, lila mreta suksma ya namah, serayu saraswatiyem, amunana darma mada angga sindu pawitra gamanem udaka ya namah, adaka ya namah, suksma yogi ya namah, sah Siwa prascita ya namah, Ang Ung Mang, Ang Ah, Ang Wang, ya kening licin, sudha ya namah*(Rota, 1977/1978:78). It is clear that in the making of (holy water) *tirtha*, a preacher, priest, or puppeteer mentions several names of the river when reciting the mantras in the making of *tirtha* resistance, such as serayu, saraswati, narmada, gangga, and sindhu river. All these rivers are believed to be the source of holiness in this world by Hindus especially in Bali. In addition, in a variety of religious rituals in Bali Hindus always use water as a purification water both before, while doing, and after the ritual performed. It is a sign of how respected the existence of water in ritual activity. In the activity of Panca Yadnya water is always functioned as a purification or *penglukatan* (expiate a sin / *mala*) in various forms according to the interests and beliefs of each community.

In addition to the above water functions, which are very important for Hindus in Bali, water is used as one of the very special and unique rituals, namely as the purification of a child born in *wuku wayang* or *Tumpek Wayang* day (*sarisani*). The water in this ritual is referred to as the *tirtha pengeruwatan Sapuhleger* or the water of expiates a calamity / sin, whether caused by human activity in his life or the sin brought from his birth. *Tirtha pengeruwatan Sapuhleger* in Bali is very sacred because it cannot be obtained with an easy process in any place. The uniqueness of this *tirtha* can only be obtained through a *sapuhleger* puppet show performed on the day of birth of the child, which is the range on *wuku wayang* (*wuku wayang* week). This is very rarely obtained if the parent (family) of the child has not been able to performing *wayang sapuhleger* puppet show, which is a masterful and skilled puppeteer performing *wayang sapuhleger* puppet show. Before

or after the show takes place on the stage the puppeteer is entitled to make holy water or *tirtha pengeruwatan sapuleger*. This *tirtha* is made with the pronunciation of very long *penyapulegeran mantras* with several servings of *upakara / banten pengeruwatan sapuleger*. *Wayang Sapuhleger* puppet show is believed to be very haunted because if done without based on the literary guidance will make the puppeteer and family who are cured by the curse of the god Kala who in mythos analogous as the god of death.

Related to the making of *tirtha pengeruwatan sapuhleger*, after the puppeteer finish staging the plays of wayang which commonly take the play of Sang Rare Kumara or Sang Brata and then the puppeteer make the *tirtha*. In order to make *tirtha pengeruwatan* there some *upakara* (offerings) that has been provided by the family of children who are married. In this case, the most important is provided with one vessel/*sangkul*/ jar of fountain (*pancoran*) from one of the sanctified springs, namely water spring (*klebutan*) processed water (water *kumkuman*), eleven color flowers, and incense, as a means of making the *tirtha*. At this time the puppeteer makes *tirtha* by reciting a long enough spell to accompany the strains of percussion *tabuh gender penyudamalan*. After the *tirtha pengeruwatan* made, then the puppeteer purification (*melukat*) children who were on the screen or in front of the stage with a splatter then watering the whole body from head to toe with newly made *tirtha* until soaking wet. This ritual is so unique and sacred that it cannot be underestimated and must be done with careful preparation.

All these purification rituals are performed so that the resurrected child gets the inner and outer salvation of his life. Associated with the above rituals after the purification (*pengelukan*) and on some recognition of the child's parents who have done *pengeruwatan sapuhleger* usually his son experienced a drastic change in attitude to be positive. Especially the occurrence of changes in attitude or circumstances, such as: first naughty, sickly, angry (*bedos*), to be otherwise (healthy and behave deservedly). This is what causes from the past until now *pengeruwatan sapuhleger* very rife done in Bali. This can be witnessed when the *tumpek wayang* holy day seen many parents who have children whose birth day right on the *wuku wayang* busy responding *wayang sapuhleger* to purification (*meruwat*) his son. If they have not been able to see the *wayang sapuleger* show at least they beg / *nunas tirha* puppets in the house of a puppeteer who they believed. This activity always takes place once in six months, which is in *wuku wayang*.

All of these things happen, because the people of Bali in general are very respectful of water as a liquid that can purify if it is believed to exist. Thus, it is appropriate that water be respected and appreciated for it can be functioned either as a necessity of daily living or for self-purification. Related to the above phenomenon, there are some things that will be discussed related to the making of *tirtha pengeruwatan sapuhleger*, namely: 1) the form of the *tirtha pengeruwatan sapuhleger*, 2) the *upakara/banten* (offerings) for making of *tirtha sapuhleger*, 3) the mantras used to make the *tirtha sapuhleger*; 4) stages of making *tirtha sapuhleger* and the process of (purification) *pengeruwatan*; 5) Respect for the existence of water springs.

DISCUSSION

In this draft will be discussed several matters related to the making of *tirtha pengeruwatan sapuhleger* based on several issues that unravel in the introduction.

Tirtha Pengeruwatan Sapuhleger

Etymologically the word *pengeruwatan* derived from the basic word *ruwat* (Javanese) which means purified, while the word *sapuhleger* comes from two syllables, namely *sapuh* and *leger*. Word *sapuh* means cleaning and the word *leger* in ancient Javanese means dirty. So *tirtha pengeruwatan sapuhleger* means holy water that serves as cleaning the sin. Especially for the children who has born in *wuku wayang*. *Tirtha* is made from water obtained from the source of water springs such as *pancoran*, *klebutan*, and *trebesan*. Uniquely this *tirtha* can only be made after the staging of *wayang penyapuhleger* show by the puppeteer who can do it. Given this puppet show is believed to be very sacred or haunted then it is not shown in any place and day. This puppet show is only staged on *wuku wayang* if there is a child who is *diruwat* (purification) related to their birthday. In addition to this puppet *pengeruwatan* at all do not want staged by a puppeteer if not mastered the book *Dharma Pewayangan* because the puppeteer fear of being cursed by the god of Kala.

Looking at the definition of *tirtha pengeruwatan sapuhleger* above, it is a sign of how sacred of its existence. The sacredness arises as a result of its profound function and meaning, so that the general public is afraid of violating the provisions applicable to the process of making the *tirtha*.

Upakara / banten (Offerings) of making *tirtha pengeruwatan Sapuhleger*

Hinduism gives clues to its followers when performing a sacred ritual, inseparable from *puja* (mantra), *yantra* (*upakara*), and *mudra* (art). In the ritual, the people in performing the ceremony cannot be separated from the concept of the *tri kerangka* (three frameworks) of Hindu religion, namely *tatwa*, *susila*, and *upakara*. It means that if a ceremony is done must be based on *tatwa* (literary guidance) and done by ethics (*susila*) in the implementation. Without a second hint of such a concept a ceremony will proceed without clear direction. In addition, a religious ceremony / ritual are considered good if it contains the underlying meaning of the ritual. So the rituals performed are mostly tangible symbols or *nyasa* filled with content of meaning and philosophy. No matter how big a ceremony is taken if the intangible symbols of *upakara* (*jantra*), the absence of a mantra sound of a priest's voice, and the absence of elements of art (*wali* dance) that support the ceremony certainly has not been considered valid. Since one of the three things is not there yet a ritual is considered complete. Moreover, in the implementation process is not based on the concept of the *tri kerangka* (three frameworks) of Hindu religion, in the form of *tatwa*, *susila*, and *upakara* of course a ritual is not considered existed because without clear instructions. In the concept of *yadnya* implementation in Bali elements of *upakara* or *banten* (offering) the most decisive. Without a set of *banten* as *nyasa*, the lack support of *susila* attitude that is done in conducting *upakara* so that *upakara* not considered successful. So, *banten* and ethic is what determines the success of a ritual. Furthermore, after all these things are maturely prepared, then the pastor wants to worship by means of holy mantras. Thus, the new ceremony is considered completed because it meets several requirements.

In relation to the making of *tirtha pengeruwatan sapuhleger* which is intended for children who born in *wuku wayang*, parents of children who will be supposed to prepare a set of *upakara* (offering) that has been suggested by the puppeteer who considered the performance of ritual. As for some things that are important to note in making *tirtha pengeruwatan sapuhleger*, namely:

The puppeteer who performed the *wayang sapuhleger* by taking the plays relating to the hunting of Bhtara Kala to the child who born in *wuku wayang*, and the presence of a set (offering) *upakara penyepuhlegeran*. Without those two things being prepared, the making of *tirtha pengeruwatan sapuhleger* will not be possible. In this case there are some *upakara / banten* (offering) and means in making *tirtha pengeruwatan sapuhleger* on staging *wayang sapuhleger*, among others:

1. *Sarana pentas*, such as: *Gedebong* / wooden banana stems (flower) is still attached, the second *jelujuh* (screen pole on the right and left puppeteer must be hung money as much 250 *kepeng* each pole, *blencong* lamps hung with money as much 250 *kepeng*,
2. After the staging over, there are several *wayang* (puppet) that is still plugged in the face of the screen, such as: Kayonan, Achintya, Shiva, Tualen, which serves or as a means of making *tirtha pengeruwatan sapuhleger*.
3. *Upakara* (offering) prepared for performing and making the *tirtha pengeruwatan sapuhleger*, such as:
 - a) *Upakara/banten* (offering) *wayang*, consist of: *suci asoroh maulam bebek putih, peras ajuman, canang gantal madaging jinah krecen sepehe satus jinah bolong; Sasantun gede soroh pat, madaging jinah 1132 bidang. Ring arep dalang cumawis payuk madaging toya mataktakan wanci, tur sampun madaging segar di samping payuke 11 warna.*
 - b) *Banten* (offering) at *sanggar tawang*, consists of: *suci asoroh maulam bebek putih, ajuman putih kuning maulam ayam putih siungan pinanggung. Sanggar tawange kagantungin jinah 250 bidang/bolong.*
 - c) *Banten* (offering) in front of *kelir* (screen), consists of: *sorohan babangkit asoroh, nasi barak maulam ayam biying mapukang-pukang miwah winangun urip, sampian antuk daun andong.*
 - d) *Banten* (offering) *tebasan sungsang sumbel duang tanding*, consists of: *tumpeng abungkul maulam ayam mapanggung dua ekor, ngapit tumpenge, kepala ayam menghadap ke atas satu dan menghadap ke bawah satu, kacang komak mawadah tamas.*
 - e) *Banten* (offering) *tebasan sapuhleger*, consists of: *tumpeng abungkul, matusuk carang bingin maulam ayam, majaja tabagan, biyu galahan.*
 - f) *Banten* (offering) *tebasan Tadah Kala*, consists of: *nasi polpolan bucu telu mataledan don tunjung, mataktakan saput poleng, sirah nasine bucu telu madaging getih bawi, maulam urab barak urab putih.*
 - g) *Banten* (offering) *tebasan lara-mararadan*, consists of: *nasi kuning mawadah takir, maulam balung, taluh madadar, sami dadi adulang.*
 - h) *Banten* (offering) *daksina panebusan bhaya*, consists of: *beras 8 patan nyuh 8, taluh 8 bungkul, gula 8 bungkul, madaging jinah 8000 nanggu satus.*
 - i) *Buah bancangan, base gulungan mawadah sok, matanceb busung akatih, madaging tuak, arak, berem, lan beras* (Hooykaas, 1973:205—206)

All *upakara* (offering) unraveled above, is an *upakara* (offering) that must be prepared by a family that is supposed to be all that must be complete. Remembering to all the ceremonies as symbols or means of ritual to sanctify the sins. In the implementation of rituals in Bali *banten* (offering) has very important role. Because if there is no *banten* as well as a ceremony does not exist or fail to be implemented.

2.1 Mantra-Mantra of making the *Tirtha Pengruwatan Sapuhleger*

In making *tirtha pengeruwatan sapuhleger* a puppeteer can do if they finished performing and all the *upakara* (offering) is available neatly in accordance with *tatwa*/concept mentioned in *lontar Kala Purana*. In this case a puppeteer who do *pengeruwatan sapuhleger* must be able to deepen the teachings contained in the *lontar Kala Purana* and *Dharma Pawayangan* as guidance in performing this very haunted ritual. If the puppeteer ignores it, then dare to take the ritual then he will be cursed by God Kala. In relation to the above, in a story of *penyapuhlegeran* god Kala figures illustrated threatening the puppeteers who do *pengeruwatan* without deepening the guidance of *lontar Dharma Pawayangan*, as well as his speech in the form of dialogue between *Bhatara Kala* with the puppeteer in the *wayang Sapuhleger* show, among others; *Kala god* said: *Ah,ah, Sang Amangku dalang, dadi kita angringgit, siapa kita nugraha? Weruh kita ring Dharma Pawayangan? Yan tan kita weruh, ku tadah kita mangke* (Hooykaas, 1973:198). Meaning: Hey you are the Amangku dalang, why do you dare to show *wayang sapuhleger*, are you ready to give/allow? Do you know the contents of *Lontar Dharma Pawayangan*? If you do not know, I'll be your prey right now.

If the description is carefully observed and understood, then how difficult is the accountability in performing the *penyapuhlegeran* to child who born on *Sarisani* day (*tumpek wayang*). If the entire directive *penyapuhlegeran* is not honored then the puppeteer has not got the title *Amangku Dalang Samirana*, because after a puppeteer can master the instructions of *lontar Dharma Pawayangan* then he can have title *Dalang Samirana*. Only puppeteers who have been titled *Dalang Samirana* are justified in making *tirtha pengeruwatan Sapuhleger*. Thus, both the puppeteer and the child who is being married are not condemned by *Bhatara Kala*. Thus, there are some things that are important to know and live by the puppeteers, which include: philosophical mastery of puppet show in general, philosophical mastery of *wayang sapuhleger*, philosophical mastery of its *upakara* (offerings), Mastery of the plays that to be staged, mastering some puppet and *penyapuhlegeran* mantras, and mastery the stages of *wayang* (puppet) performance and the stage of making *tirtha pengeruwatan sapuhleger*.

According to the description above, there is the most important thing must be mastered by the *Sang Amangku Dalang Samirana* associated with the making of *tirtha penyapuhlegeran*, the mantras are supposedly very sanctified and has negative impact for the puppeteers and children who are do the ritual if not memorized and lived its meaning. As will be exposed by *upadrawa*, *sosot* and *tulah pamidi* (a kind of curse). For that there are some of the most important spells to be memorized related to the making of *tirtha pengeruwatan sapuhleger*, the mantra *Sanghyang Tri Pususha*, *Agni Ngelayang* mantra, and *Asta Pungku* mantra. The three mantras will be described in the descriptions below.

a) Sanghyang Tri Purusha Mantra

This spell is related to eliminate all forms of *papa* or sin for children who born in *wuku wayang*. Thus, it is very important to say when making *tirtha pengeruwatan sapuhleger*. This spell is part of *Aji Kembang* spell, which is the mantra sung by the *puppeteer* in the process of making *tirtha* with *Aji tembang* rhythmic song, such as *wirama Seronca* in the *kakawin* stanza. This long spell consists of more than 10 stanzas of chant. One example of the *Aji Kembang* chant is as follows: *Sang atapa sakti bakti, asthiti purwa samskara, yan mati yan maurip manih, wisesa sireng bhuana, putih timur abang wetan, rahina tatas apadang, titis ning jaya kamantyan* (Hooykaas, 1973:88).

When almost all of *Aji Kembang* spell is finished by the puppeteer, then the puppeteer begins to utter the core dime which is called *Sanghyang Tri Purusha* mantra which is very sacred. This spell serves to dissolve all sins that arise from within or brought from birth. Furthermore, it will be able to melt the *papa* caused by the environment in this life. Among them, like a strange illness, subject to an unpredictable disaster with common sense until the child experiences prolonged suffering or recurrence. As for the mantra, which is as follows:

- The mantra of the appeal of Sang Amangku Dalang Samirana:

Pukulun Sanghayang Tri Purusha, manusanta anglukata, ekamala, dwi mala, tri mala, catur mala, panca mala, sasthi mala, sapta mala, asta mala, nawami mala, dasa mala; kabeh sama kalukat dening Sanghyang Tri Purusha. Om suddha vari vastu, tat astu astu, ya namah swaha.

- Mantra of invoke health:

Om Sanghyang Tri Purusha, anglukatana pomahan salah pita, mwah papa ka jentaka, udug edan buyan sangar, timpang tinjik bongol bengel beser, manju kuming, bega bisu, kolok, mwang sakwehing dasa mala, ika pada kalukat denira sanghyang Tri Purusha. Om Am Um Mam (Hooykaas, 1973:90).

This *Sanghyang Tri Purusha* Mantra is pronounced by the *Amangku Dalang Samirana* with a deep and silent concentration of mind, so that the magic of the spell is capable of transforming the water that was originally ordinary into having divine miracles. This can happen if the puppeteer and his family are tiling his mind (blending his mind in asking for grace from *Bhatara Kala*).

b) Agni Anglayang Mantra

Literally *Agni Anglayang* means fire that hovers in the sky. This means that holy fire will burn / destroy any kind of gross form whether it is real or unreal. This mantra uttered by the puppeteer of his position is similar to the pronunciation of the *Sanghyang Tri Purusha* mantra. But this mantra is addressed to *Sanghayang Catur Dewata*, they are, Iswara, Brahma, Mahadeva, and Vishnu. The spell pronunciation is started from the position of the east as *sthana* (place of) *Dewa Iswara* according to the concept *pengider-ider* in the teachings of Hinduism in Bali. The description and order of the mantra, among others:

- Mantra appealed to Bhatara Iswara:

Om Agni Anglayang murub sakeng wetan, sakalangan urubira, mijil denira Bhatara Iswara, anglukatana ujar kadukaduhung, kapalisah, angadakaken tan hana, anglinyok sasamanya tumuwuh, Agni Anglayang nggon ingulun asalh mala, papa, pataka ning jadma manusa kabeh, wastu siddhi puja ning ulun. Om Sri ya wai namo namah swaha.

- Mantra appealed to Bhatara Brahma:

Brahma anglukata wong angental, andura-dura sadhu, wong tanpa dosa, anyuduk, anumbak, anulup, amaling, ambahak, anjabung wong, amati-mati sama tumuwuh, anglukata wong angrusuh. Kaluka denira Bhatara Siwa, wastu punah ilang lara roga, mwanng pataka ning jadma manusa kabeh, wastu siddhi ya namah swaha.

- Mantra appealed to Bhatara Mahadeva:

Mahadewa anglukata wong angreh, rabi ning arabi, angambah marga larangan, anglayani gurune, anglayani kadang wargane, anglayani wong atuwa, anglayani anak putune, anglayani wong awiku. Kalukat denira Bhatara Siwa, wastu punah ilang lara roga, mwanng pataka ning jadma manusa kabeh, wastu siddhi ya namah swaha.

- Mantra appealed to Bhatara Wisnu:

Wisnu anglukata wong aneluh anerangjana angleyak, amokpok andesti, angupas, angracun, anyetik,. Kalukat denira Bhatara Siwa, wastu punah ilang lara roga, mwanng pataka ning jadma manusa kabeh, wastu siddhi ya namah swaha (Wicaksana, 2007:252—254).

This *Agni Anglayang* mantra can *mugpug* (relieve) various evil human actions during its former incarnation. When they are born again (incarnate) the characteristics of his suffering will be brought to his birth. This is evident from the apparition on the physical child born, such as: defects in one or more of his limbs or mentally less normal. All that is caused by his actions during his previous incarnation. All these sins would be relieved with the power and the magic of the *Agni Anglayang* mantra. *Agni Anglayang* mantra aims to destroy/relieve various acts, such as: likes to deceive, make-up and all the suffering caused by speech (slander). This will be dispelling by the power of *Bhatara Iswara*. *Bhatara Brahma* Mantra aims to relieve various evil acts, such as stealing, killing people by shooting, spearing, and so forth. *Bhatara Mahadewa* Mantra aims to deceive the various acts of cheating (*anyolong samara*), such as: cheating (*angambah marga larangan*) with teachers, neighbors, parents, children and grandchildren, and a priest. While the *Bhatara Wisnu* mantra aims to relieve various acts, such as: like to poisoning people (*nyetik*), set *upas* (a kind of itching disease that is difficult to lose), and the action of *angeleyak* (black magic). All these deeds will be preempted by the power of *Bhatara Wisnu*. Thus, the various acts committed by man during the previous incarnation, will now appear in his incarnation at birth, such as physical or mental defects which all cause the suffering of his life.

c) Asta Pungku Mantra

The request from this *Asta Pungku* Mantra addressed to *Sanghyang Tri Wisesa* to plead when spoken by the puppeteer can be a master and able relieve various sins caused by human actions while living in the world. In essence this mantra is almost the same purpose and its meaning with the two mantras above, namely to relieve various kinds of human sin. But *Asta Pungku's* mantra is more purifying than just relieve. Therefore it must be pronounced as a cover mantra in the making of *tirtha pengeruwatan sapuhleger*. The series of *Asta Pungku* mantra will be described below.

- Mantra appealed to Sanghyang Tri Wisesa:

Ong atma Paratma nirwigna suddha tasta suksma ya namah swaha. Pukulun Sanghyang Tri Wisesa, manusa aneda anglukata eka mala, dwi mala, tri mala, catur mala, panca mala, sad mala, sapta mala, asta mala, nawa mala, dasa mala, kabeh sama kalukat denira Sanghyang Tri Purusa, Ong Ang Ung Mang.

- *Pukulun Sanghyang Tri Wisesa, manusa anglukata pomahan salah pita, mwah papa kajantaka, udug, edan, buyar, sangar, timpang, tinjik, bongol, bengil, manju, kuming, bega, bisu, kolok, , mwah sakweh ning dasa mala, ika pada kalukat denira Sanghyang Tri Purusha, Ong Sri ya namah swaha.*

- Mantra appealed to the Sanghyang Tunggal:

Ong Witara Sanghyang Tunggal, arupa Taya Wisesa, ingaranan Sanghyang Merti-Tirtha kamandalu, winadahan kundimanik, padyuakena dasa mala, mari mala, marupa jati, waluy jati wisesa, Ong lukat, lukat, lukat.

Ong gunung mas apucak manik, akerikil nawa ratna, inapungan ing naga patra, ingaranan Sanghyang Merti-Tirtha Kamandalu, maka urip ing watek nawa sanga, maka patirthan ira sang Pandita ratu, anglukata anglebura sakweh ing lara wigna, jadma manusa ring Madhya pada, wenang anglebur gering kabeh, lupa, lelep, arip, purna sewu satus ing papa klesa, lara roga, lara wigna, kalukatana upata ning bapa ibu, kaki nini, buyut, Ong lukat, lukat, lukat. Ong Awighnam astu swaha.

Ong Awighnam astu ya namah swaha. Ong Ayu wrddhir yaso wrddhir, wrddih prajnya sukha sriyam, dharma Santana wrddhih syat, santu te saptawrddhayah(Wicaksana, 2007:255—257).

Asta Pungku Mantra mentioned above aims to purify the various sins in the child who was do the ritual. In addition, to complement the power of *Tri Purusha* mantra and *Agni Anglayang* mantra. Thus, the *penyapuhlegeran* mantra becomes very miraculous when it is reserved for a child who born in *wuku Tumpek Wayang*. So, *Asta Pungku* mantra is as a mantra *pemunah ala* which last spoken by the puppeteer after staging the *wayang sapuhleger*. After the three holy mantras are pronounced with full concentration then the puppeteer just doing the *anglukat* process of children who perform the ritual.

The Stages of Making *Tirtha Pengeruwatan Sapuhleger* and Processing of *Pengeruwatan*

After the puppeteer finish performing the *wayang sapuhleger* that took the trip of *Bhatara Kala* prey on people who were born in *wuku wayang*. Then he started storing all his puppets into his usual *gedog*, but the only ones still plugged in the screen were the *wayang kayonan*, *Achintya*, *Shiva*, and *Tualen*. Related to the making of *tirtha pengeruwatan sapuhleger*, there are several stages performed, among others:

1. The first stage, after the puppeteer finish the performance then he gave *banten* (offering) *wayang* to the goddess of *wayang*. Next he gave a *banten* (offering) *sorohan* in the *sanggar surya/tawang*, dedicated to the Dewa Surya who as a witness in the process of *penyepuhlegeran* ceremony. Then the puppeteer continued to offer a series of *banten penyepuhlegeran* to *Bhatara Kala*, namely: *banten sungsang sumbel*, *tebasan penyepuhleger*, *tebasan tadah Kala*, *tebasan lara meraradan*, *tebasan Penulak bhaya*, *daksina penebusan bhaya*, and other various upakara that is related in the *penyepuhlegeran* ceremony of children who perform the ritual.
2. The second stage, after completion of all the gameplay as above, then the puppeteer begins preparing the making of *tirtha pengelukatan*. After the puppeteer facing *sangku*/vessel containing *kumkuman* water and beside it have available flowers of various colors consisting of 11 colors. Then he began to recite the holy mantras while sprinkling the available flowers one by one into *sangku* with the accompaniment of the *tabuh gender wayang* rhythm which is called *sudamala*. The puppeteer from the beginning began chanting the *Sanghyang Tri Purusha* mantra, the *Agni Anglayang mantra*, and *Asta Pungku mantra* with the song or melody resembling the *kakawin* melody with the rhythm of *Seronca*. If this atmosphere was seen or heard are very solemnly. This procession lasted for approximately half an hour, because the puppeteer must combine the utterance with aesthetic spells to sound beautiful and solemn.
3. The third stage, after the making of *tirtha penyepuhlegeran*, the puppeteer begins to do the *pengelukatan* (purification) to the child who was doing the ritual by spraying the *tirtha* 11 times. Furthermore, the child's body from the head to his feet doused with *tirtha sapuhleger* until it run out.
4. The fourth stage, the closing stage in which the puppeteer at this stage gives advice to the child who had the ritual. In addition, all the *banten* used in *pengeruwatan* ceremony brought together when delivering the puppeteer home. On the way home the puppeteer ordered to throw some *banten* when meeting the road junction, intersection, river, market and so forth until all the *banten* until its run out. It is meaningful to give the wages for the *buta kala* (deity) on the road that they pass through. They are happy with the hope that the child who was doing the ritual will not be disturbed anymore because it has been truncated or has been *diruwat* with *tirtha wayang penyepuhlegeran*.

Respect from the People to the Water Springs

Judging from a series of functional and philosophical descriptions of water in the *pengelukatan sapuhleger* ritual, it signifies the magnitude of the role of water in religious life for the Balinese people. That is, all the ritual activities in Bali will not run well and smoothly without

the participation of water in it. Considering that water is very needed as a means of completion/*pemuput* all forms of ceremony that performed. For example, when going to a ceremony or *yadnya* from the beginning of the community through the role of the priest or high priests will purify the area/place of ceremony with *pemarisudha* ceremony. In this case because *parisuda* means clean or holy, the role of *tirtha* is most important. *Tirtha* is certainly made from water obtained from a purified source of water, such as the *klebutan* water. The *klebutan* water which has big stream will be the water of *kelabah*, *tukad*, *pancoran*, and *bulakan*. So whatever the name of the water is the source is one, which is *Klebutan* water, the water that comes from one of the water spring. From the source of the water that flows everywhere causes all the creatures and plants to live well. Along with the development of human civilization in this world, cause they are able to utilize water well in accordance with its interests by using the intellectual ability. Given such a large need for modern human use of water either as a business interest or for daily necessities causes them to unconsciously contaminate the presence of existing water in the neighborhood. In this global era the existence of water is much contaminated by the people who live in the river path. This situation does not just happen in one place, but almost in all the river flows in Bali, especially those already sown. Some of the contamination is in the form of domestic waste disposal waste, pet waste, waste of handicraft (weaving), factory waste, and a lot of pollution done by the people of this global community. Thus the existence of water that was originally sanctified is now without appreciation. Whereas the dominant Balinese Hindus are very knowledgeable about the philosophy and function of water in their lives but they now do not appreciate the existence of water. Evidently they are a lot of water polluting for various reasons that do not make sense. This means that Balinese Hindus are now experiencing mental degradation as evidenced by not keeping water purity.

Seeing the contamination of various forms of water now in Bali, because people start thinking only of economic interests alone regardless of the interests of water cleanliness. In order to maintain the cleanliness of water flowing from upstream to the downstream it is important to Hindus re-interpret the concept as the embodiment of Bhatara Vishnu as the God of water. Thus they will treat and fear with attitude that is treated against the existence of water. Moreover, sea water is very important to be kept clean, because the water that flows from the various rivers from the upper course of course flows into the sea. So how holy is the existence of sea water because according to the philosophical teachings of Hinduism sea water is identical with the story of Ocean *Mantana*, the story of *pemuteran* mount *mandara* in the sea of milk (Ksirarnawa) by the gods and the giants to seek *tirtha amerta*. In addition, Anywhere must adore the source of the water that flows in the world. It can be proved in several strands of sloka weda mentioned several rivers, such as: gangga, serayu, narmada, saraswati, Yamuna, and so forth. This means how magnificent the water resources in the world are.

Related to respecting the important of water for Hindus in Bali to re-remember the concept of water as a source of life and the source of purity. Thus, the intention to pollute will be overcome as early as possible. Without understanding of philosophy and water function properly there will be increasingly severe pollution. If the sources and streams of water everywhere are polluted where we will seek water for drinking and for ceremonial purposes, such as to make a very sacred *tirtha pengeruwatan sapuhleger*.

CONCLUSIONS

Water from prehistoric times has become a vital human need, because without water they will not survive. Evident at the beginning of the development of Hinduism in the valley of the river Sindhu, the Aryans live in the valley of the river until the adherents of this religion survive until today. Related to the respect for the water of Hindus in Bali also greatly respects the existence of water as a purified liquid. Evidently they use it to this day as *tirtha pengeruwatan sapuhleger* to *meruwat* (purify) the child who was born in *wuku wayang (sarisani)*. It is a sign of water in Bali is highly respected.

There are several processes of respect for water in the function as *tirtha pengeruwatan sapuhleger*, among others exploring the process: ritual using a set of *upakara/banten* (offering) *penyepuhlegeran*. Furthermore, the water is given mantra by the puppeteer in the procession with silence.

The above mentioned, as one form of respect for the existence of water. Furthermore, after the Hindus in Bali again realized how great the philosophical of water and water functions in his life. Thus, the desire to exploit water for personal interests that tends to destroy and pollute it can be prevented as early as possible so that water in Bali remains sacred to its existence.

References

- Bakhtiar, Amsal. 2004. *Filsafat Ilmu*. Jakarta: PT. Raja Grafindi Persada.
- Phalgunadi, I Gusti Putu. 2006. *Sekilas Sejarah Evolusi Hindu*. Denpasar: PT. Mabhakti.
- Suparta Ardhana, I B. 2002. *Sejarah Perkembangan Agama Hindu*. Surabaya: Paramita.
- Hooykaas, C. 1973. *Kama and Kala Materisls for the Study of Shadow Theatre in Bali*. Amsterdam: North Hollannnd Publishing Company.
- Mulyono, Sri. 1982. *Wayang Asal-Usul, Filsafat dan Masa Depan*. Jakarta: PT. Gunung Agung.
- Rota, I Ketut. 1977/1978. *Pewayangan Bali Sebuah Pengantar*. Denpasar: Proyek Peningkatan/ Pengembangan ASTI Denpasar.
- Wicaksana, I Dewa Ketut. 2007. *Wayang Sapuh Leger Fungsi dan Maknanya dalam Masyarakat Bali*. Denpasar: Pustaka Bali Post.