Volume: II, Issue: II
ISSN: 2581-5830
GAP GYAN - *An International Peer-Reviewed Open Access Journal of Social Sciences*

RUKMINI TATTWA: BALINESE TRADITIONAL BEAUTY RECIPE

I NyomanArsana*1dan Ni KetutAyu Juliasih1
1Department of Biology, Faculty of Information and Science Technology, University of Hindu Indonesia, Jl, Sangalangit, Tembau, Penatih, Denpasar Bali,
**Author coresspondance: e-mail: arsanacita@gmail.com*

Abstract

Lontar "RukminiTattwa" contains traditional knowledge about the use of plants as a beauty ingredient for harmonizing husband and wife relations. One recipe for beauty is "Nymphaea flower (NymphaeastellataWilld), lotus (Nelumbiumnelumbo), cow milk, woodfordia flower (Woodfordiafruticosa), all mashed into one, used as face powder, face will glow like a full moon". This study aims to find out the scientific foundation of rukmini beauty recipe in prevent of skin aging due to sun exposure. The library research method was used in this study. The results showed that the ingredients of rukmini beauty recipe have striking colors, such as Nymphaea which has a blue color, white lotus, and a red Woodfordia. Generally, plants with striking colors contain more secondary metabolites than colorless plants. Secondary metabolites such as sterols (nymphayol), alkaloids, saponins, tannins, and flavonoids have been isolated from Nymphaea flowers. Meanwhile, Lotus flowers (Nelumbonucifera) contain flavonoids, including anthocyanin, Mirsetin, quercetin, kaempferol, isorhamnetin, and siringetin. Secondary metabolite such as flavonoids, saponins, and tannins also have been isolated from Woodfordiafruticosa. The flavonoid compounds in addition to forming flower colors are also known to act as antioxidants.The antioxidants can prevent oxidative stress due to exposure to sunlight on the skin. Concluded, plant in lontar "rukminitattwa" have function as antioxidants, which are thought to be able to prevent the skin aging due to exposure to sunlight.

Keywords : *Rukmini's beauty recipe, Skin aging, Sunlight.*

INTRODUCTION

Traditional Balinese culture contains knowledge that touches all aspects of life. One of knowledge in Balinese culture is about beauty care. The source of knowledge is stored in ancient manuscripts, it is called lontar. One of the lontar of the treatment of beauty care is rukminitattwa'slontar. This lontar tells the story of DewiRukmini who expects help from DewiSaci to harmonize husband and wife relations. DewiSaci then gave a way to beautify herself so that her husband loved her by giving various kinds of beauty recipe.

One of the beauty recipe were writed in rukminitattwa'slontar is "Sarintunjungbiru, padma, pehanlembu, bungansiddhowayah, ikatapipiskabehdenalembat, anggenpupurmuka, kadihullanpurnamamukadenya". It means "Nymphaea flower (NymphaeastellataWilld), lotus (Nelumbiumnelumbo), cow milk, woodfordia flower (Woodfordiafruticosa), all mashed into one, used as face powder, face will glow like a full moon".

The ingredients of rukmini beauty recipe have striking colors, such as Nymphaea which has a blue color, white lotus, and a red Woodfordia. Generally, plants with striking colors contain more secondary metabolites than colorless plants. It indicates that the herb is thought to have a high antioxidant content. Antioxidants can prevent oxidative stress due to sun exposure to the skin. The ingredients of rukmini beauty recipe are thought to be able to prevent the skin aging due to sun exposure. This study aims to find out the scientificfoundation of rukmini beauty recipe in prevent of skin aging due to sun exposure.

RESEARCH METHODS

The library research method was used in this study. Library research is research that emphasizes literature as the object of research, which in this study is carried out by examining the results of related studies that have been published in scientific journals. The unit of analysis of this research is rukminitatwa'slontar from the collection of Bali Culture Service which was translated by Drs. A.gr. K. Suweda. The data obtained were analyzed descriptively.

RESULTS AND DISCUSSION

The concept of beauty

Beautiful is very universal and relative, because beautiful have meaning is very broad. Beautiful is not only physically beautiful but also the most important is beautiful from the heart. The meaning of Beautiful were changed namely; from fertile women, fair yellow skin, long and black hair in the past, become being slim, white, and have long and black straight haired in the present, and in the future. Beautiful meanings are healthy women because they are well maintained (Savitri, 2012). For a man, beautiful meanings of a woman not only from outer beauty such as white, smiling, cheerful face, clean and good appearance, but also inner beauty such as soul and heart, mind and good personality (Syata, 2012).

Based on this concept, it can be said that beauty is a combination between satyam or truth (spirit), siwam or purity (Mind), and sundaram or beauty (Body), so that beauty is not only outer beauty (physical, especially face) but also inner beauty (inner beauty). Outer beauty is not enough, even though only the outer beauty is looks like a beautiful face, clean and smooth skin. The beauty of the face will lose out (leburdening) with the beauty of the skin, because a beautiful face if not followed by skin that is healthy, smooth, and looks clean, it will not have any meaning. Furthermore, the beauty of face and skin will lose (leburdening) with the health of reproductive organs, because a beautiful face and smooth skin will not have any meaning if reproductive organs smell. Facial beauty, skin beauty, and health of reproductive organs will lose (leburdening) with the ability of sexual intercourse, because it's all will not have any meaning if unable to sexual intercourse. Facial beauty, skin beauty, reproductive health, and the ability to have sexual intercourse will lose with spiritual beauty (inner beauty), because althout someone is very beautiful, but if his spirit or soul is unhealthy as reflected in behavior or courtesy, attention or love, it all does not have any meaning .

Rukmini's beauty recipe

Traditional balinese knowledge of beauty has been around for a long time, as contained in the rukminitattwa'slontar. Lontar tells the story of DewiRukmini's conversation who expected for help from DewiSaci to harmonize the relationship between husband and wife. DewiSaci then gave a way to beautify herself so that her husband loved her by giving various kinds of beauty recipe.

The recipes also contains ways to maintain the reproductive organs of both men and women so that it are always in good health, such as the following sentence “Nihanpamahayunkuari. Kulitjuwukpurut, jehekeling, phala raja, babakankamaloko, samabaga, pipispahalit, lepana yoni, tama, wiadiningngaraniaabwa, magrah, maliud, yatikailangdeninglepana, mwangamuharakasubagianangwangdenya, muahatal, akahtabia bun, lengis, pehan,

samabagacurnnangkreta, wedakena". Meaning: "This recipe is for beautifying. Kaffir lime skin, black ginger, nutmeg, kamaloka skin, each one the same, crushed until smooth, applied to the vagina, very good for removing odor, bleeding, vaginal mucus. All diseases will disappear due to ointment, and happiness will continue. Use the atal fruit, the root of tabia bun, coconut oil, milk, each one the same, crushed, made into a powder ". Meanwhile, the recipe for maintaining skin beauty contained in rukminitattwa'slontar is "Sarintunjungbhiru, padma, pehanlembu, bungansiddhowayah, ikatapipiskabehdenalembat, anggenpupurmuka, kadihullanpurnamamukadenya". It means "Nymphaea flower (NymphaeastellataWilld), lotus (Nelumbiumnelumbo), cow milk, woodfordia flower (Woodfordiafruticosa), all mashed into one, used as face powder, face will glow like a full moon".

The ingredients of rukmini beauty recipe have striking colors, such as Nymphaea which has a blue color, white lotus, and a red Woodfordia. Generally, plants with striking colors contain more secondary metabolites than colorless plants. Nymphaea flower is widely used in the ayurvedic system to treat diabetes mellitus, inflammation, liver, menorrhagia, menstruation, and as an aphrodisiac. Secondary metabolites such as sterols (nymphayol), alkaloids, saponins, tannins, and flavonoids have been isolated from Nymphaea flowers (Raja et al., 2010). Flavonoids, in addition to forming the color of flowers are also known to act as antioxidants, anti-inflammatory, antimicrobial, anti-tumor (Zhu et al., 2012).

Lotus flowers (Nelumbonucifera) contain flavonoids, including anthocyanin 21.4 mg / 100g wet weight, Mirsetin 12.5 mg / 100 g wet weight, quercetin 100.1 mg / 100 g wet weight, kaempferol 87.8 mg / 100 g wet weight, isorhamnetin 15.4 mg / 100g wet weight, and siringetin 1.3 mg / 100g wet weight (Chen et al., 2013). All parts of the lotus can be used for a variety of treatments, including traditional Ayurvedic medicine, traditional Chinese medicine. Rhizome extract can be used as antidiabetic and anti-inflammatory. Leaves as hematemesis, epistaxis, hemoptysis, hematuria, and menorrhagia. Seeds can be used to treat tissue inflammation, cancer, and skin diseases. Embryo is used to treat neurological disorders, insomnia, and cardiovascular. The flowers can be used to treat diarrhea, cholera, fever, and hyperdipsia (Paudel and Panth, 2015). Velusami et al. (2013) showed that methanol extract of lotus flower (Nelumbonucifera) was anti-obesity by inhibiting fat storage into adipocyte cells and increasing lipolysis. The methanol extract of lotus rhizome also shows antioxidant activity (Yang et al., 2007).

Woodfordiafruticosa is a one of the Lytheraceae family has red flowers. Mukkamala et al. (2010) showed that the methanol extract of flowers and leaves had the ability as an anti-ulcer because of the presence of several compounds such as flavonoids, saponins, and tannins. Meanwhile, Baravalia et al. (2011) showed that the methanol extract of Woodfordiafruticosa flower had the ability as hepatoprotective in rats which was diclofenac sodium-induced.

Molecular mechanisms for skin aging and the role of "rukmini" beauty recipe.

The skin can experience the aging process, even the most visible signs of aging on the skin, such as wrinkles, rough and dry skin, and pigmentation. Wrinkles occur due to a decrease in collagen synthesis in the skin (Helfrich et al., 2008). Aging is a biological process that occurs naturally in all living things, and includes all body organs such as the heart, lungs, brain, kidneys, including the skin. There are two types of aging, namely chronological or intrinsic aging and extrinsic aging. Chronological aging, aging that occurs naturally in line with age, while extrinsic aging is caused by environmental factors such as sun exposure, cigarette smoke, air pollution (Sjerobabski-Masnec and Šitum, 2010).

Sunlight consists of an electromagnetic spectrum with different wavelengths such as; ultraviolet (UV: 290-400nm), visible light (400-760nm), and infrared (760nm-1mm). UV light is divided into UVB (290-320nm) and UVA (320-400nm) (Ichihashi et al., 2009). The harmful effects of UVA and UVB on the skin are damage to cells, tissues, certain enzymes, and DNA damage due to the formation of free radicals.

Sunlight on human skin is absorbed by endogenous chromophores, melanin, so that a photochemical reaction occurs that turns stable molecules into highly reactive molecules. The result of photochemical reaction are known as photo products, including CPD molecules (Cyclobutan pyrimidine dimmer) as a result of the photoadition reaction, Cis-urocanic acid derived from trans molecules in photoisomerization reactions, and ROS (Reactive Oxygen Species) such as superoxide ions (O2-•) , hydrogen peroxide (H2O2), hydroxyl radical (OH•), and peroxyl radical (OOH •) as a result of the photooxidation reaction. ROS cause oxidative damage to cellular components such as cell membranes, mitochondria, and DNA (Kariosentono, 2004).

ROS also plays an important molecular mechanism. This mechanism involves two important regulators in collagen production, transforming growth factor (TGF) and activator protein (AP-1). TGF is a cytokine that increases collagen production. While AP-1 is a transcription factor that inhibits collagen production and increases collagen degradation by increasing the production of the enzyme matrix metalloproteinase (MMPs). Degradation of collagen causes skin aging (photoaging) (Helfrich et al., 2008).

"Rukmini" beauty recipe is thought to contain compounds that can prevent skin aging by donating electrons to free radicals so that it can prevent lipid peroxidation of cell membrane (Zarena and Sankar, 2009). In addition, it is also thought to work as an inducer that triggers the expression of antioxidant genes through activation of Nrf2 (Son et al., 2008). That compound activates Nrf2 directly or through a series of pathways through interactions with specific proteins such as PKC, p38, ERK, JNK, and PI3K. Under normal conditions, Nrf2 is bound to Keap1 in the cytoplasm with the actin protein of cytoskeleton (Mann et al., 2007). On the contrary, in the condition exposed by the compound acting as an inducer, the inducer then reacts with cysteine in Keap1 resulting in the release of Nrf2 from Keap1. NRF2 were translocated to the nucleus and binds to ARE (antioxidant Respone Element) with the CSF protein to activate the expression of cytoprotective genes such as HO-1, Prx-1, Trx-1, xCT, GST, and NQO-1 (Son et al., 2008). These antioxidants are able to reduce free radicals on the skin exposed to sunlight so that it will prevent skin aging. The mechanism is illustrated in Figure 1.

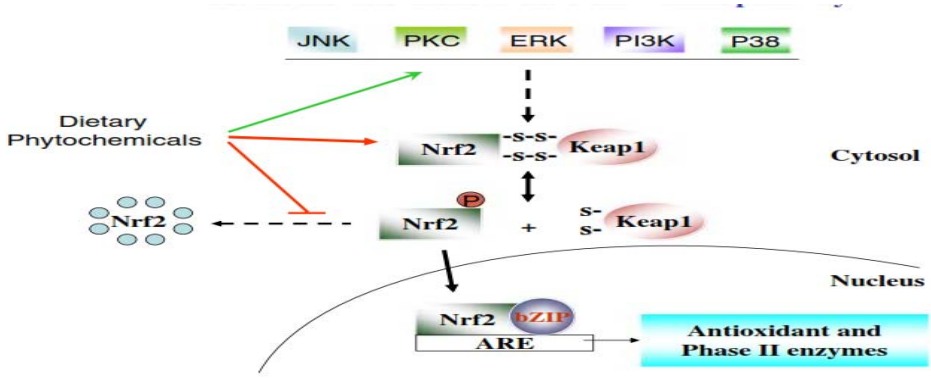

Figure 1.
The mechanism of activation of Nrf2 / ARE by phytochemical compounds (Son et al., 2008).

This condition can be seen from several studies, for example, tomato juice (Lycopersicumpyriforme) is able to prevent skin aging due to UVB exposure by preventing increased MDA levels, AP-1 expression, and preventing a decrease in type-1 collagen expression (Wahyono et al., 2011). Artocarpus extract can work as a tyrosinase enzyme inhibitor in the process of skin pigmentation (Supriyanti, 2009). Tyrosinase enzyme is an enzyme that plays a role in the biosynthesis of melanin. Oleoresin extracted from cinnamon bark can increase collagen levels in skin of wistar rat suffering from oxidative stress due to the induction of hypercholesterolemia (Sunarno and Isdadiyanto, 2010). The Malacca ethyl acetate fraction (Phyllantusemblica) is able to reduce melanin synthesis by inhibiting the activity of the enzyme tyrosinase so that it has the potential as an anti-pigmentation of skin (Hindritiani et al., 2013).

CONCLUSION

Lontar"RukminiTattwa" contains traditional knowledge about the use of plants as a beauty ingredient for harmonizing husband and wife relations. Those plants containing compounds that function as antioxidants, which are thought to be able to prevent the skin aging due to exposure to sunlight.

REFERENCE

Baravalia Y, Vaghasiya Y, Chanda S. 2011. Hepatoprotective Effect of *Woodfordiafruticosa*Kurz Flowers on Diclofenacsodium Induced Liver Toxicity in Rats. Asian Pacific Journal of Tropical Medicine. doi:10.1016/S1995-7645(11)60100-4

Chen S, Y Xiang, J Deng, Y Liu, S Li. 2013. Simultaneous Analysis of Anthocyanin and Non Anthocyanin Flavonoid in Various Tissues of Different Lotus (Nelumbo) Cultivars by HPLC-DAD-ESI-MS. PLoS ONE 8(4): e62291. doi:10.1371/journal.pone.0062291

Helfrich Y R, D L Sachs, J J Voorhees. 2008. Overview of Skin Aging and Photoaging.*Dermatology Nursing*. 20 (3): 177-183.

Hindritiani R, DiahDhianawaty, M Sujatno, E Sutedja, Setiawan. 2013. PenurunanAktivitasTirosinasedanJumlah Melanin olehFraksiEtilAsetatBuahMalaka (*Phyllantusemblica*) pada*Mouse Melanoma B16 Cell-Line. MKB*45(2): 118-124

Ichihashi M, H Ando, M Yoshida, Y Niki, M Matsui. 2009. Photoaging of the skin.*Anti-Aging Medicine* 6(6) : 46-59

Karieosentono H. 2004. KelainanPigmentasiKulit Dan PenuaanDini Serta PeranPendidikanKedokteranDibidangIlmuKesehatanKulit&Kelamin. *available at*: https://digilib.uns.ac.id. akses. 30 Desember 2015

Mann, G. E., Niehueser-Saran, J., Watson, A., Gao, L., Ishii, T., Winter, P. de.,danSiow, R. C. M. 2007. Nrf2/ARE Regulated Antioxidant Gene Expression in Endothelial and Smooth Muscle Cells in Oxidative Stress: Implications for Atherosclerosis and Preeclampsia. ActaPhysiologicaSinica. 59 (2):117-27.

Mukkamala S K, Ramanam K V, Rambabu P, Kumar P B. 2010. Evaluation of Anti –Ulcer Activity of Woodfordiafruticosa Flowers and Leaves. *Adv.Pharmacol.Toxicol*. 11 (3):141-144

Paudel K R danPanth N. 2015. Phytochemical Profile and Biological Activity of Nelumbonucifera. Evidence-Based Complementary and Alternative Medicine. ID 789124. http://dx.doi.org/10.1155/2015/789124

Raja M K M M, N K Sethiya, S H Mishra. 2010. A Comprehensive review on Nymphaeastellata: A Traditionally used bitter. *J.Adv.Pharm.Tech.Res.*1(3):311-319. DOI:10.4103/01110-5558.72424

Savitri, A I. 2012. PerubahanMaknaPerempuanCantikDalamTigaMasa Yang BerbedaAnalisisIklan "Dove" Versi "What's The Real Beauty" MenggunakanTeoriKonotasi Barthes Dan TeoriMetaforaOdgen Dan Richard. UniversitasDiponegoro. Semarang.

Sjerobabski-MasnecdanŠitum. 2010.Skin Aging. *ActaClinCroat* 49(4):515-519

Son, T. G., Camandola, S. dan Mattson, M. P. 2008. Hormetic Dietary Phytochemicals. Neuromol Med. 10: 236-46

Sunarno, S danIsdadiyanto. 2010. Profil Kadar KolagenKulitdanTulangTikusWistarpadaBerbagaiUmur yang MendapatPerlakuanStresOksidatifHiperkolesterolemiadan Oleoresin KulitBatangKayuManis (*Cinnamomumsp*). *Bioma* 12(2):56-62

Supriyanti F M T. 2009. PemanfaatanSenyawaBioaktif Dari EkstrakKulitBatang*Artocarpussp*Sebagai Inhibitor TirosinasePadaPigmentasiKulit. *JurnalPengajaran MIPA 13(1): 105-115*

Syata, N. 2012. MaknaCantik di KalanganMahasiswadalamPrespektifFenomenologi. UniversitasHasanuddin. Makasar

Velusami C C, Agarwal A, Mookambeswaran V. 2013. Effect of Nelumbonucifera Petal Extracts on Lipase, Adipogenesis, Adipolysis, and Central Receptors of Obesity. *Evidence-Based Complementary and Alternative Medicine.*http://dx.doi.org/10.1155/2013/145925

Wahyono P, Soetjipto, Harjanto, Suhariningsih. 2011. Efek Jus BuahTomat (Lycopersicumpyriforme) terhadapPencegahanFotoagingKulitAkibatIradiasiSinar Ultraviolet-B. JBP 3(3): 169–178.

Yang D, Wang Q, Ke L, Jiang J, Ying T. 2007. Antioxidant Activities of Various Extracts of Lotus (*Nelumbonuficera*Gaertn) Rhizome. *Asia Pac J Clin Nutr.16 (Suppl 1):158-163*

Zarena, A. S., danSankar, K.U. 2009. Study of Antioxidant Properties from Garciniamangostana L. Pericarp Extract. Acta Sci. Pol.Technol. Aliment. 8 (1): 23-34

Zhu M, X Zheng, Q Shu, H Li, P Zhong, H Zhang, Y Xu, L Wang, L Wang. 2012. Relationship between the Composition of Flavonoids and Flower Colors Variation in Tropical Water Lily (Nymphaea) Cultivars. *PLoS ONE* 7 (4): e34335. doi:10.1371/journal.pone.0034335