

## Nutrition Bali Holy Medicinal Plants For General and Oro dental Health

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### Abstract

Zero Hunger and Food  
Sovereignty (12)

Bali holy plants as functional food, always there as a means of ceremonial prayer, but not unusual for consumption. Dental and oral health is very important and is related to overall health. There are 38 traditional Bali medicinal plants being studied. Though this plant is grown in almost every home and grows fertile, but not yet used as a functional food or health therapy. Apparently still a little bit is researching nutrition Bali holy medicinal plants for general and orodental health. This study learns the nutritional assorted of holy medicinal plants efficacious traditional Balinese medicine that efficacious for general and orodental health. This study was conducted for two months, and aims to determine the type of plant or plant species, part of the plant used, and the type of nutrients it contains. This research is an observation research, by reviewing the holy plants that have been used for health and therapy at least, data is taken through interview, the result is described (reviewed) with articles in e-library such as PubMed, EBSCO and others. The results of this study found a number of four holy plants which has been used for medicinal properties, including base (sirih) (*Piper betle* L.), buah (pinang) (*Areca catechu* L.), selasih miik (tulasi)(*Ocimum sanctum* L.), jepun (kamboja) (*Plumeria* sp.). The essential nutrients contained are proteins, vitamins beta carotene (provitamin A), B, C, D, E, K, minerals of calcium, potassium, magnesium, iron, phosphorus, iodine, fluoride, sulfur, manganese and chlorophyll. The most nutrient content found in the leaves, after that in the flowers and lastly in fruit or seeds.

**Key words** :Nutrition, Holy Medicinal Plants, Oro dental Health

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### 1. Introduction

Plants have been intimately mankind even before beginning of human civilization. A number of plants are used to perform religious ceremonies and ritual of different kind everywhere and are thus sacred to mankind. They are so important that the religious ritual cannot be performed without their availability. The use of medicinal plants are increasingly popular and increasingly expanding globally with development of science (Jaya Edy, 2017).

Bali has a diversity of holy plants with nutritional advantages for health, especially for oral and dental health. But until now the people of Bali are still not used to take advantage of the benefits of the holy plant nutrition for health *as base (sirih), buah (pinang), selasihmiik*

*(tulsi), jepun (kamboja), tunjung (teratai), bingin (beringin), cempake (cempaka), sandat (kenanga) and mitir (kenikir)*, has been commonly implemented in the countries of India and China (Wiswasta, 2006; Ari Agung, 2017a).

As trend of life “back to nature” now, thus that made the traditional medicinal more increase, supported with more of medical circles as enter to developed that, until in the big cities was begin appear in members the doctors as combination medicinal method with traditional drugs. A trend increased use of traditional drugs be based on several reason : (1) A trend of life style “back to nature” use of traditional drugs be based on several reason (Wiswasta, 2006) : (1) Now a price of fabrication drugs was more and more expensive, (2) Side effect as cause of the traditional drugs is very low, and (3) Chemical compound be contained in a traditional drugs in a fact as a fundamental modern medicinal medical because fabrication drugs is made with use from chemical compounds as a synthesis from natural compounds of a traditional drugs.

Some diseases in this orodentalarea can mentioned as decreases saliva cause there disturbing the saliva gland, as cause decreased any element in the saliva. Implication of this there disturbing of balance oral microorganisms, halitosis, difficult to swallow food, and less fluent to speak. The people in take care of dental and oral health is very simple with chew betel can also help to clean the oral and increase saliva healthy (Mudjosemedi, 2005).

Knowing the relationship between nutritional status and oral and dental health is important because there is often a characteristic of various tissues in the oral cavity that are more sensitive to nutritional deficiencies, so when the body has nutritional deficiency it is often the tissue in the oral cavity that first shows the effects of the deficiency (Ari Agung *et al.*, 2017a).

Bali is a tropical climate and fertile land. This situation led to many plants thrive, including holy medicinal plants. Bali has a lot of holy medicinal plants and easily found around us because the plants thrives Bali society have long used plants in Hindu religious ceremony as. Bali holy medicinal plants play an essential role in primary healthcare as they are used to treat wide varieties of oral diseases because they process antioxidant and anti-inflammatory properties. Bali holy plants as functional food, always there as a means of ceremonial prayer, but not unusual for consumption. Apparently no one is researching nutrition Bali holy medicinal plants for general and orodental health. There for his study learns the nutritional

assorted of holy medicinal plants efficacious traditional Balinese medicine that efficacious for general and orodental health.

To collect data in this study about make use of Bali Holy medicinal plants for nutrition and medicated the general and orodental healthy are found as conclusion with descriptive method. Such a thing feasibility with : 1) Literature study for inventory some holy plants as a restorative power to nutritional and medicinal, and 2) Observation to know some medicinal plants for a traditional drugs such an observation about leaf, flower, fruit and seed of that drug plants

### **Nutrition Bali Holy Medicinal Plants For General and Orodental Health**

Based on the result of literature study and observation in some village in Bali, be found that 4 species drugs plants, are sirih (*Piper betle* L.), pinang (*Areca catechu* L.), kamboja/jebunkuning (*Plumeria* sp.), and selasih (*Ocimum sanctum* L.), as usually and can use for medicinal the general and orodental diseases. Still today all these plants can be found planted in most homes in Bali and is most respected and honored herb do to its continuing importance in healing, religion, spirituality, medicine and decorative aesthetics. Sirih, pinang, jebun kuning (yellow frangipani), and selasih is spiritual meaning, used means to call the Gods in Hindu praying ceremony (Ari Agung, 2017a).

The most nutrient content found in the leaves (iodin, iron, magnesium, potassium mineral, chlorophyll, vitamin C, beta carotene (pro vitamin A), riboflavin antioxidant, protein); after that in the flowers (antioxidant, beta carotene (pro vitamin A), riboflavin, vitamian C, lastly in fruit or seeds (protein, carbohydrates, fiber, fats, important vitamins and minerals). Most of all used of the species for a drugs is a plants of leaf (Wiswasta, 2006; Ari Agung, 2018). Some species Bali Holy medicinal plant as usually used as a traditional drugs as medicinal the general and orodental disease are :

#### *Sirih (Piper betle* L.)

*Piper betle* L. known as “base” in Bali, “sirih” in Indonesia, “betel” in English is an very important for general and orodental therapeutic potentials. Sirih is blessed as evergreen and perennial plant, that has God created and have given the shape of his own heart. The heart shaped betel leaves are found in ancient Sanskrit texts, including Charaka, Sushruta Samhita and Astangga Hridayam. Betel is to revels the potential effect of this plant in the development of therapeutically active herbal drugs agains different microbial infection especially for oral

cavity, which also gives the opportunity to pharmaceutical companies interested in formulation and production of natural product based drugs targeted towards specific ailments (Pradhan *et al.*, 2013).

Many of the health benefits bonded with *Piper betle* (locally known as “Base”) belongs to the Piperaceae or pepper family. It has been an important herb distributed throughout of world. Betle leaves are the most valued part of the plant, in the past were routinely used as a chewing agent to restrict offensive breath, and found various medicinal value, potential natural antioxidant, analgesic, antidepressant, anticholesterolemic, anti-adherence effect of dental plaque on saliva-coated glass surfaces, skin antiseptic, antidermatophytic, anti-platelet aggravating factor, antihyperglycemic, antidigestive, appetizer, aromatic, expectorant, stimulant, antibacterial/dental plaque, euphoria-inducing, antiprotozoan, carminative, anti-fungal, aphrodisiac, and antifertility (Sharma *et al.*, 2013; Arambewela *et al.*, 2014). The leaves are also supposed to harden the gum, conserve the teeth and to prevent indigestion, bronchitis, constipation, congestion (Shah *et al.*, 2016).

The proximate analysis of the leaves of *Piper betle* showed that it contained nutrients as well as phytochemical are protein (3-3,5%), fat (0,4-1,0%), carbohydrate (0,5-6,1%), nicotinic acid (0,63-0,89%), vitamin C (0,05-0,01%), vitamin A (1,9-2,9µg/100g), riboflavin (1,9-30 µg/100g), iodine (3,4 µg/100g), iron (0,005-0,007%), calcium (0,2-0,5%), potassium (1,1-4,6%), phosphorus (0,05%) and chlorophyll (0,01-0,25%)(Verma *et al.*, 2010). Betel leaf contains vitamin C and antioxidant (vitamin A, riboflavin and chlorophyll) is high, so it can strengthen teeth and cure cancer sores and toothache. Betel contains essential oils (Surono, 2016).

#### *Kamboja (Plumeria sp.)*

*Plumeria* sp. known as “Jebun” in Bali, “Kamboja” in Indonesia, is an very important for orodental therapeutic potentials. The Balinese people commonly use the sap of *plumeriasp.* to treat swelling of the gums and toothache. Wrasiniati (2012) and Santhi (2009) has reported that *plumeria* sp. flowers high enough in vitamin C, antioxidants, and antiinflammatory beneficial for health.

*Plumeria* sp. flowers are known for their diverse medicinal uses in indigenous medicine, mainly as purgative, rubefacient, emmenagogue, febrifuge or diuretic, and for treatments of dropsy dysuria, diarrhea itich, bronchitis, cough, asthma, fever, piles, dysentery, blood disorders and tumors (Tohar *et al.*, 2006). The flower infusions of *Plumeria* sp. are used

for *Plumeria* sp. the treatment of Diabetic mellitus in Mexico (Andrade, 2005). This happens probably because the *Plumeria* sp. flowers contains high antioxidants nutrition.

“*Jebun cendana*”( *Plumeria* sp.) contains high enough antioxidants, good for oral health (Wrasiniati, 2012). Hariana (2005) confirmed that the sap of jebun can help with cavities. It is asserted by Ismawan (2014) that the value of jebun's health is evident as an anticancer, anti-inflammatory (leaf extract shows markedly), antipiratics and antinosiseptics (pain reduction activity) due to the ability of juniper leaves to reduce inflammation, antioxidants, antimicrobials (Gupta *et al.* 2009).

The leaves of *Plumeria* sp. are used in ulcers, leprosy, rheumatism, and as rubefacient (Dabhadkar *et al.*, 2012). The root bark of *Plumeria* sp. is bitter, pungent, heating, carminative, laxative and traditionally used to treat asthma, leprosy, constipation, and ulcers (Gopi *et al.*, 2011). In Indonesia, bark of *Plumeria* sp. is being used to treat gonorrhoea. This happens probably because the bark contains iodine nutrition (Wiswasta, 2006).

*Pinang (Areca catechu L.)*

*Areca catechu* L. known as “*Buah*” in Bali, “*Pinang*” in Indonesia is an very important for general and orodental therapeutic potensials. Some time immemorial, *areca* nut is being used for chewing as it is believed to have lots of medicinal properties. It is traditionally used in a number of ailments due to its laxative, digestive, carminative, antiulcer, anti-diarrheal, anthelmintic, anti-malarial, anti-hypertension, diuretic, prohealing, antibacterial, hypoglycemic, anti-heartburn activities (Jaiswal *et al.*, 2006; Keswhavabhat *et al.*, 2016; Bhat *et al.*, 2017). It was reported that *areca* nut extract was antilipidemic at a dose of 100 mg/kg or more (Bhat *et al.*, 2017).

Pinang has a potential and good nutrition in general and orodental medicine such as antioxidant, linoleic acid, mineral calcium, potassium, phosphorus and iron. It also contains vitamin B<sub>6</sub> and vitamin C. The unsaturated fatty acid such as linoleic acid of *areca* nut might be responsible for reducing cholesterol level as the cholesterol lowering of linoleic acid is already established in human conditions. The nut of this plan is also reported to maintain healthy fat metabolism and reduce the conversion of carbohydrates into fats, thereby decrease the body weight. On the other hand, chewing of betel quid which contain several other ingredients such as *betel* leaf or inflorescence, slaked lime, catechu, other condiments and tobacco, is reported to increase cholesterol and obesity in human being. It might be the

synergistic activities of all these ingredients which contributed for the elevation of cholesterol (Bhat *et al.*, 2017). Hollist (2004) reported that about 10 different oral/dental conditions are treatable with plants in traditional health practice, toothache/decay, gingivitis, ulcerative gingivitis, angular stomatitis, angular cheulitis, mouth ulcers, swollen tonsil, oral thrush, tonsillitis, and black tongue.

Pinang contains high potassium, calcium and antioxidant nutrients, can be healthy, strengthen bone and tooth structure; which is useful to calm, facilitate urine, remove sputum and shrink the pores. Can as mouthwash for dental and thrush treatment (Surono, 2016; Yasin, 2016).

#### ***Selasih Miik (Ocimum sanctum L.)***

*Ocimum sanctum L.* was recognized thousands of years ago by ancient Rishis to be one of the India's greatest healing herbs. They saw this herb is so good for health and healing that it was declared as a God in itself. Tulasi is supposed beloved of Lord Krisna, a reincarnation of Lord Vishnu (Ari Agung, 2017b).

*Ocimum sanctum L.* known as "*Selasih Miik*" or "*Tulasi*" in Bali, Indonesia, '*Tulsi*' in Hindi, and '*Holy Basil*' in English is an very important for orodental therapeutic potentials. "*Selasih Miik*" is often enjoyed as a simple herbal tea and is frequently blended with other herbs and spices for various low cost nutritious food, medicine food and culinary purposes. "*Selasih Miik*" has a potential and good nutrition in orodental medicine such as antioxidant, stearic acid, palmitic acid, oleic acid, linoleic acid, beta carotene, vitamin C, folate and mineral calcium, zinc, manganese, sodium, magnesium, potassium. As orodental diseases are concerned, "*Selasih Miik*" can be promising herb in treatment of many oral disorders due to its antiinflammatory, antibacterial, antioxidant and immunomodulatory properties however more research and studies are needed to establish. Simply by chewing a "*selasih miik*" leaf in the morning and afternoon has been able to provide amazing health benefits. Can also drink leaf tea, or seedstea "*selasih miik*". Nutritional content of "*selasih miik*" seeds are carbohydrates, fiber, fats, important vitamins and minerals"(Singh *et al.*, 2005; Ari Agung, 2017a; Cohen, 2017). Tulasi has also shown significant antioxidant activity (Yanpallewar *et al.*, 2004).

The nutrition and bioactive substances Tulasi as pharmacological properties of the whole herb in natural form, result from synergistic interaction of many different active

phytochemical, consequently, the overall effects of Tulasi cannot be fully duplicated with isolated compound or extracts (Tewari *et al.*, 2012).

Tulasi can be promising herb in treatment of many oral disorders due to its antiinflammatory, antibacterial, antioxidant, and immunomodulatory properties however more research and studies are needed to establish this miraculous herb as treatment modality in dentistry (Chaurasia, 2015).

Tulasi may be used effectively in toothpaste. This particular valuable herb has been utilized for hundreds of years in Ayurveda like a germ-fighting as well as healing supplement for teeth and also the mouth is considered to assist combat bad breath and cavities. Its anti-bacterial qualities turn it into a great option for dental health. Tulasi has the power to fight bacteria in your mouth that lead to dental issues, such as **cavities**, plaque, tartar and bad breath. Tulasi leaves serve as a mouth freshener because they kill the bacteria and germs hiding in your mouth. Tulasi can help diminish ulcers in the mouth, and it's generally thought to stop the growth of oral cancer cells caused by chewing tobacco. For this natural dental care, try adding a drop of tulasi essential oil to your toothpaste or drinking one cup of tulasi tea every day (Cohen, 2017).

Tulasi is often enjoyed as a simple herbal tea and is frequently blended with other herbs and spices for various low cost orodental medicinal, because Tulasi is also known as traditional uses. Chewing of Tulasi leaves also cures ulcers and infections of mouth (Pandey and Madhuri, 2010; Ari Agung, 2018). Tulasi leaves are now regarded by most countries as adaptogens (antistress agents) and have been used widely to promote health throughout the entire body, which is able to control the balance of various metabolic processes of the body and prevent stress (Singh *et al.*, 2005).

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