

## LEAVES OF ETHNOMEDICINAL PLANTS BALI, NUTRITIONAL AND ORODENTAL HEALTH

I Gusti Ngurah Alit Wiswasta<sup>1</sup>, I Gusti Ayu Ari Agung<sup>2</sup>,

<sup>1</sup>Postgraduate School of Regional Planning and Development, Mahasaraswati Denpasar University

<sup>2</sup>Dental and Oral Health Departement, Faculty of Dentistry, Mahasaraswati Denpasar University

<sup>3</sup>Biology Study Program, Teacher Training Education Faculty, Mahasaraswati Denpasar University

E-mail : alitwiswasta@unmas.ac.id.<sup>1</sup>; ayuariagung@gmail.com<sup>2</sup>

### ABSTRACT

This study is about the use of leaves of Balinese ethnomedicinal plants for nutrition and orodental health which was carried out in some places in Bali. This study was carried for three months with the purpose to know the nutrition, the kind and plants species and the leaves of plants to be used as a traditional treatment for nutrition and orodental health. The study was carried out through literature study, confirmation through interview, and observation; and than to the results of this study described descriptively. The recorded data are names of plant as a local name, general name, and scientific name; nutrition content, the leaves of plants to be useful as a traditional nutrition to treat the orodental health. Most parts of the plants used for the traditional orodental nutrition and health are leaves of the plants which most commonly consumed is *Piper betle*, *Saurophus androgyros*, *Centella asiatica*, *Jatropha curcas*, *Pithecelebium dulce*, *Erythrina orientalis*, *Hibiscus tiliaceus*. The research found that 11 species of leaves of ethnomedicinal plants usually can be used for medicinal treatment for the orodental diseases. The nutritional and antioxidant content of the leaves of the plants for orodental health are chlorophyll, vitamin A, B, C, and mineral Mg, K, Ca, Fe, P.

**Keywords** : *Ethnomedicinal Plants Bali, Nutrition, Orodental, Health*

### Introduction

As a trend of life style “back to nature” now, thus the use of traditional medicine increases, supported with more of medical circles as enter to developed it, even in the big cities begin to appear doctors combined the medicinal method with traditional drugs. An increase trend the use of traditional drugs can be based on several reason: (1) a price of fabrication drugs today was more and more expensive, that is why the community begin to look for an alternative as a cheaper and easily acquired but not defeated efficacious with patent fabrication drugs, (2) Side effect as cause of the traditional drugs is very low, and than amount of certain plants species until now not showed yet side effects absolutely, 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. That synthesis

product be continued with clinical tests to the animal and human until the last time acquired a compounds as a restorative power for prevent and treat a certain disease.

The traditional medicinal in some west states were in places and in some hospitals. Food research center in United State was study for a long time use of *curcuma* (*Curcuma longa* or *Curcuma domestica*). The result of this study found that a rhizome of *curcuma* content a compound as *curcumin* as a restorative power to improved lever function and characteristic of an heparprotective mean that can protected lever function from disturbing the toxic compound. *Curcuma* also contain antibacterial compound and antiinflammatory until that can cure the inflammation of lever. In Indonesia the drugs with basic commodity *curcumin* was sale in the drug store, once of that with basic commodity as an extract rhizome of *curcuma* (*Curcuma purpurascens*). Some of hospitals even was make use of liquid rhizome *curcuma* as a liquid

an infusion for a victim of a lever disease (Agromedia, 2003).

A main duty of dental is chewing tool, because as a protrusion at a dental, a foods is easy to softened. Oral and dental also help a human to speak will be study in a profound manner. Oral as borders of cheek, lip, with orthopharynx in the distal area, upper and lower jaw with dental as an organ in the oral have a main function as a softened. Some diseases in this area can mentioned as decreased 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. But if saliva to be increase also influential to self confidence (Agromedia, 2003).

People in taking care of dental and oral health is very simple with rinse the oral. In the village brush the dental with hull of rice ash, refined concrete brick, and in some place with chew betel can also help to clean the oral. The patient with lose the dental is connived because he can not eat yet. Therefore the act to soften a food in the first phase be done to make the stomach easier to its duty. There implication caused the diseases in the soft and tissue as stomatitis, injured in gums, the tongue like burned, and injure in the side of the oral (Mujosemedi, 2005).

## Research Method

To collect data in this study about the use of traditional drug plants for medicine for the dental diseases are found as a conclusion with descriptive method. Such a thing feasibility with : 1) Literature study for inventory some plants as a restorative power to medicinal the dental diseases such read book and recorded the paper of some study of plants as a traditional drugs especially for dental diseases, 2) Interview to confirm data with community people such an interview with community people or public figure especially “Balian Usadha”, a leader of community people, and a people in the village as make use of drug plants for the traditional medicinal, and 3) Observation.

## Results and Discussion

### The Plants Leaf Use for Nutrition and Oro dental Health

Based on the result of literature study, interview, and observation in some village in Bali, found that 11 species leaves of ethnomedicinal plants usually used and can be used for medicine for the dental diseases. Most of all used of the species for a ethnomedicinal are leaves of the plants. The parts of plant as most of all used as a traditional drugs are the leaves of plants. Most of all parts of plant as a drug plants content compounds as possess the disinfectan and antiseptic agent or antibiotics like : alkaloids, phenolics, iodine, alcohol and other. Iodine is a strong and rapidly acting bactericidal is the drug are used for acute leukaemias, lymphomas, and embryonal tumours. Phenolics have been used as dressing to disinfect root canal, they are cheap and effective, strongly antiseptic, and have a wide range of antibacterial activity.

In Bali, there is a known drink called *loloh*, made from the leaves of medicinal plants. The efficacy of *loloh* as a health drink is believed by the people of Bali is declining, especially after the tendency of people to look for alternative natural treatments derived from plants. On the island of Bali there were 11 types of *loloh* made from leaves of medicinal plants (Yusa and Suter, 2013). 3 types of which are made from the leaves of medicinal plants have been produced / marketed namely : *loloh cemcem*, *loloh don bluntas*, and *loloh don jempiring*.

### The Leaf of Plant, the Most Commonly Consumed

#### *Piper betle* L.

*Piper betle* L. is glorified as evergreen and perennial plant that God designed and have given the hape of his own heart. The heart shaped of *Piper betle* leaves are initiate in ancient Sanskrit texts, include Charaka, Sushruta Samhita and Astanga Hridayam. *Piper betle* leaf has been described from ancient times as an aromatic, stimulo-carminative, astringent and andaphrodisiac (Sundrik *et al.*, 2012; Chu, 2001). The leaves are created with wound healing property, along with tradomedicinal uses which signify the tremedous potensial of *Piper betle* to come out as green medicine (Pradhan *et al.*, 2013).

The local name/the general name is *base/sirih*; the scientific name is *Piper betle* L. simplisium is a leaf; the chemical compound contents as volatile oil, betel phenol, chepibol,

and sesquiterphen; and the restorative power as a drug is the dental disease. The nutrition content of the *Piper betle* are Proteins (3-3.5%), Carbohydrates (0.5-6,1%), Minerals (2.3-3,3%), Fat (0.4-1%), Essential oil (0.08-0.2%), Vitamin-C (0.005-0.01%), Nicotinic acid (0.63-0.89 mg/100gms), Vitamin-A (1.9-2.9 mg/100gms), Thiamine (10-70 µg/100gms), Riboflavin (1.9-30 µg/100gms), beside this it contains minerals such as Calsium (0.2-0.5%), Iron (0.005-0.007), Iodine (3.4µg/100gms), Phophorus (0.05-0.6%), Potassium (1.1-4.6%) (Guha, 2006). The leaves are very nutritive and contain substantial amount of vitamin and minerals. The leaves also contain the enzymes like diastase and catalase besides a significant amount of all the essential amino acids except lysine, histidine and arginine, which are found only in traces; hence it has great potency to entry to the nutraceuticals industry as food additives (Pradhan *et al.*, 2013). Focusing on traditional use and medicinal use of *Piper betle* can cure many diseases and reduce the oral cancer which actually happens due to sliced *areca nut*, slaked lime not because of betel leaves. *Piper betle* leaf are rich in many nutrients like water, energy, protein, fats, calcium and iron etc. and the antioxidants present are flavonoids, tannins, saponins alkaloids, terpenoids etc.

*Piper betle* helps in curing various diseases like diabetes, hypertension, brain toxin, halitosis, boils and abscesses, wound healing, voice problems, conjunctivitis, constipation, headache, hysteria, itches, mastitis, mastoiditis, leucorrhoea, otorrhoea, ringworm, swelling of gum, rheumatism, abrasion, cuts and injuries. *Piper betle* helps in curing boils and abscesses, conjunctivitis (Chauhan *et al.*, 2006).

### ***Centella asiatica***

The local name is *piduh*; the scientific name is *Centella asiatica*; simplisium is a leaf; the nutrition compound contents as vitamin A, C and mineral kalium, natrium, magnesium, kalsium besi. The results of the study report that the content of vitamin C *loloh don piduh* (*Centella asiatica*) is quite high at 8.771 mg / 100 g. The content of vitamin C is very good for dental and oral health. This traditional Balinese drink contains pretty good nutritional value so it has the opportunity to be developed into a

functional beverage (Hapsari *et al.*, 2015; Herlina *et al.*, 2011).

### ***Sauropus androgyrus***

The local name is *kayu manis*; the scientific name is *Sauropus androgyrus*; simplisium is a leaf; the nutrition compound contents as protein, calsium, phosphorus, iron, and vitamin; and the restorative power as a drug is oral ulceration. In Bali known as the product called *loloh don kayu manis*, the nutritional content of vitamin C has been reported, which is quite high at 14,643 mg / 100 g (Hapsari *et al.*, 2015). *Sauropus androgyrus* is also quite high containing chlorophyll (Mayus, 2013). The high content of vitamin C and chlorophyll is increase immunity, very good for dental and oral health.

### ***Blumea balsamifera***

The local name is *sembung*; the scientific name is *Blumea balsamifera*; simplisium is a leaf; the nutrition compound contents as protein (0,97%), calsium, phosphorus, iron, and vitamin; and the restorative power as a drug is oral ulceration. In Bali known as the product called *loloh don kayu manis*, the nutritional content of vitamin C has been reported, which is quite high at 14,643 mg / 100 g (Hapsari *et al.*, 2015). *Sauropus androgyrus* is also quite high containing chlorophyll (Mayus, 2013). The high content of vitamin C and chlorophyll is increase immunity, very good for dental and oral health. *Blumea balsamifera* is used in traditional herbal medicine for the common cold and as a diuretic. It is also used for infected wounds, respiratory infections, and stomach pains in Bali medicine (Sakee *et al.*, 2011).

### ***Gardenia angusta* Merr.**

The local name is *jempiring*. *Jempiring* leaves contain saponins, flavonoids, polyphenols, and essential oils that are efficacious as thrush drugs, fever, shortness of breath and high blood pressure (Adi, 2008). The study reports high levels of vitamin C and chlorophyll, which is very good for immunity and orodental health. Making *loloh don jempiring* using *jempiring* leaves, avocado leaves, and dried *piduh* leaves, enough clove flowers and sugar, boiled (Hapsari *et al.*, 2015).

***Jatropha curcas***

The local name/the general name is *jarak/jarak pagar*; the scientific name is *Jatropha curcas*; simplisium is a leaf and an exude sap; the nutrition/chemical compound contents as vitamin C, magnesium, kalsium, chlorophyll, alkaloid, amalinin, serpenthin, oil/fat, lipolitic enzyme; and the restorative power as a drug is an oral ulceration (Sutomo *et al.*, 2006). The high content of vitamin C and chlorophyll is increase immunity, very good for orodental health.

***Pithecelebium dulce***

The local name/the general name is *cemcem/keluncing/kecemcem*; the scientific name is *Pithecelebium dulce*; simplisium is a leaf and an exude sap; the nutrition/chemical compound contents as vitamin A, C, mineral magnesium, kalium, chlorophyll, alkaloid, citric acid, calcium oxalate; and the restorative power as a drug is the dental disease (Sutomo *et al.*, 2006). The high content of vitamin C and chlorophyll is increase immunity, very good for orodental health.

***Erythrina orientalis***

The local name/ the general name is *dadap lengis/dadap tis*; the scientific name is *Erythrina orientalis*; simplisium is a leaf, a tree bark, and an exude sap; nutrition/chemical compound contents as vitamin A, C, mineral magnesium, kalium, phenol, eritrinin, cyanid, alkaloid, erythralin, hipoparin, and erysodin; and the restorative power as a drug is the mouth wash (Sutomo *et al.*, 2006). The high content of vitamin C and chlorophyll is increase immunity, very good for orodental health.

***Hibiscus tiliaceus***

The local name/the general name is *waru/waru*; the scientific name is *Hibiscus tiliaceus*; simplisium is a leaf; the chemical compound contents as hibeizetine and tannin; and the restorative power as a drug is oral ulceration. *Waru* leaves are good for health because they contain various important nutrients and minerals needed by the human body. It mainly contains vitamin C, chlorophyll and antioxidants is increase immunity, very good for orodental health (Sutarjadi, 1992).

***Coleus amboinicus***

The local name/the general name is *Jinten/Jinten*; the scientific name is *Coleus amboinicus*; simplisium a seed; the chemical compound contents as potassium, carvacrol, volatile oil, and phenol; and the restorative power as a drug is the oral ulceration. It mainly contains vitamin C, mineral K, chlorophyll and antioxidants is increase immunity, very good for orodental health (Sutomo *et al.*, 2006).

***Plucea indica***

The local name/the general name is *Beluntas/Beluntas*; the scientific name is *Plucea indica*; simplisium is a leaf; the chemical compound contents as chlorophyll, tannin, alkaloid, and volatile oil; and the restorative power as a drug is the oral ulceration and the mouth wash. The chemical content of *beluntas* leaves are alkaloids (0.316%), flavonoids (4.18%), tannin (2.351%), essential oil 4.47%, phenolic, chlorogenic acid, sodium, calcium, magnesium and phosphorus. *Beluntas* leaves contain protein of 17.78-19.02%, vitamin C amounting to 98.25 mg/100 g, and carotene of 2.55 g/100 g (Rukmiasih, 2011). The high content of vitamin C and chlorophyll is increase immunity, very good for orodental health

**Conclusion**

The study found that there are 12 species of traditional drug plants or crops that can be used as medicine to cure the dental diseases. The part of plants that are used as a traditional drugs for medicine to cure the dental diseases are an extract of leaves. The nutritional and antioxidant content of the leaves of the plant for orodental health are chlorophyll, vitamin A, B, C, and mineral Mg, K, Ca, Fe, P.

**References**

- Adi, LT. (2008). *Tanaman Obat dan Jus untuk mengatasi Penyakit Jantung*, Agro Media. 2003. *Ramuan tradisional untuk mengatasi aneka penyakit*. Depok: Redaksi Agro Media Pustaka; 2003. h. 178. *beluntas (Plucea indica Less)* dalam pakan dan dampaknya terhadap performa
- Chauhan ES., Aishwarya J., Singh A., Tiwari A. (2016). A Review : Nutraceuticals Properties of *Piper betel*. *Am. J. of*

- Phytomedicine and Clinical Therapeutics*, 4(2).
- Guha P. (2006). "Betel Leaf : The Neglected Green Gold of India". *J. Hum. Ecol.* 19 (2). p.87.
- Hapsari NMIA., Kartika, IDP., Widnyani AAIS., Widarta IWR. (2015). Kajian Nilai Gizi
- Herlina, K. MT, Hutasoit L. (2011). Pengaruh pegangan terhadap Fungsi Kognitif Belajar. *Proseding Seminar Nasional Sains IV.* IPB. Bogor. Pp. 138 Hipertensi, Kolesterol, dan Stroke. Kakarta. Agromedia Pustaka.
- Mayus S. (2013). Daun Katuk khasiatnya banyak namun jangan berlebihan. <http://jaringannews.com/hidup-sehat/alternatif/44147/daun-katuk-manfaatnya>. Diunduh 19Oktober2014
- Minuman Tradisional Bali. *J. Agrotekno.* Vol. 17. p. 3
- Mudjosemedi M. Jentera ilmu kedokteran gigi. sumbangannya di masa depan. Pidato Pengukuhan Jabatan Guru Besar pada Fakultas Kedokteran Gigi Universitas Gajah Mada, Yogyakarta; (2005). h. 28.
- Pradhan D., Suri KA., Pradhan DK., Biswasroy, P. 2013. Golden Heart of Nature : *Piper Betle L.* *Journal of Pharmacognosy and Phytochemistry*, Vol. 1 issue 6. p.147.
- Rukmiasih. (2011). Penurunan bau amis (off-odor) daging itik lokal dengan pemberian daun
- Sakee U., Maneerat S. (2011). Antimicrobial activity of *Blumea balsamifera* (Lin.) DC. Extracts and essential oil. *Natural Product Research.* 25 (19). 1849-1856.
- Sutomo NK, Undaharti E, Lugrayasa N. (2006). Struktur Komunitas Tanaman Bawah, dan Jenis-Jenis yang Bermanfaat sebagai Tanaman Obat di Kawasan Hutan Lindung Kaliurang.. *Journal Pengabdian kepada Masyarakat, Universitas Udayana*; 5(1). Pp 23-28
- Sutomo NK, Undaharti E, Lugrayasa N. Struktur komunitas tanaman bawah, dan jenis-jenis yang bermanfaat sebagai tanaman obat di kawasan hutan lindung Kaliurang. *Jurnal Pengabdian kepada Masyarakat, Universitas Udayana Denpasar.*(2006); 5(1):23-28.