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# Betel (*Piper Betle* L.) in Bali : The Magic of Nutrition, Orodonal and General Health, and Low Cost

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## ABSTRACT

5 Betel (*Piper betle* L.) is glorified as evergreen and perennial plant that God designed and have given the shape of his own heart. The heart shaped of betel leaves are initiate in ancient *Sanskrit* texts, include *Charaka*, *Sushruta Samhita* and *Astanga Hridayam*. Betel leaf regard as “Green heart”. The purpose of this study is to know about the aspect contained betel chewing, provides the magic of nutrition, orodental and general health, religious and low cost in Bali. The method used in this research is the method of participatory observation with qualitative approach, while the data analysis technique used is qualitative data analysis technique using data collection technique of interview, observation and documentation. This review was conducted in accordance with the Preferred Reporting Items for Systematic Review. A systematic database search was performed from 19 December 2009 to 29 January 2020. The database included Pubmed, Google Scholar and other journal database with keywords “betel, nutrition and orodental health” The results of the research note that in ancient Bali betel leaves are considered auspicious and still extensively used as nutrition, health, medicine and during religious functions in Bali. Betel is one of the invaluable medicinal plants where its leaves have been used for many medicinal purposes, because rich in nutrients, minerals, vitamins, antioxidants, phytochemical and low cost. The fresh betel quid has higher nutrition, antioxidant and cytoprotective activities. The fresh leaves of betel leaves have been wrapped together with the fresh areca nut, mineral slaked lime, catechu, are chewed since the ancient time. The conclusion is betel have aspect that are very important for the life on the community at the time, the aspects contained in betel include nutrition, orodental and general health, religious and low cost in Bali.

*Keywords : Betel, nutrition, orodental health,*

## Introduction

1 Betel quid chewing is a popular habit in Southeast Asia. It is believed that chewing betel quid could reduce stress, strengthen teeth and maintain oral hygiene (Sazwi *et al.*, 2013). The habit of chewing betel has been known by the people of Bali since the 6<sup>th</sup> century and carried from generation to generation. But now it is very rare that it still betel, even though by sucking betel provides a miracle of health, and inner beauty (calmness, peace and happiness). Betel is blessed as evergreen and perennial plant, that has God created and have given the shape of his ownheart. 10

The heart shaped betel leaves are found in ancient *Sanskrit* texts, including *charaka, sushruta Samhita* and *Astanga Hridayam* (Pradhan *et al.*, 2013). Betel has been referred to in *Saktatantra* as one of the means of achieving *siddhi*. It was believed that without betel chewing and offering betel to Guru no *siddhi* can be gained (Sunil *et al.*, 2016).

The fresh leaves of betel have long been use in the Bali local system of medicine. In ancient Bali betel leaves are considered auspicious and still extensively used during religious functions in Bali. Betel is one of the invaluable medicinal plants where its leaves have been used for many medicinal purposes. The fresh leaves of betel leaves have been wrapped together with the fresh areca nut, mineral slaked lime, catechu are chewed since the ancient time, this activity is famous for the term *Nginang*. The guests are welcome in every socio-cultural, religious activity to chew betel and areca nut first. Because if not do chew betel can be considered not respect the host.

## Research Method

The method used in this research is the method of participatory observation with qualitative approach, while the data analysis technique used is qualitative data analysis technique using data collection technique of interview, observation and documentation (Alit Wiswasta *et al.*, 2017). This review was conducted in accordance with the Preferred Reporting Items for Systematic Review (Liberati *et al.*, 2009). A systematic database search was performed from 19 December 2009 to 29 January 2020. The database included Pubmed, Google Scholar and other journal database with keywords “betel, nutrition and orodental health”.

## Result

Betel, a member of the Piperaceae, which is a large plant family, is also known *base* in Bali. Betel is one of the invaluable medicinal plants where its leaves have been used for many medicinal purposes. Chewing betel has been a culture for Balinese people since time immemorial. *Nginang* is a term for chewing betel in Balinese, which requires other ingredients, such as fresh areca nut, lime, catechu, and tobacco. This *nginang* material is usually sold on the market in the form of a series called an *base lekesan* (Alit Wiswasta *et al.*, 2019).

The results of the research note that in ancient Bali betel leaves are considered auspicious and still extensively used as medicine and during religious functions in Bali. Betel is one of the

invaluable medicinal plants where its leaves have been used for many medicinal purposes. The fresh leaves of betel leaves have been wrapped together with the areca nut, mineral slaked lime, catechu are chewed since the ancient time. A preliminary study has reported betel leaves extract contains large numbers of bioactive molecules. Betel contains a wide variety of biologically active compounds whose concentration depends on the variety of the plant, season and climate. Pharmacological profile has shown antiplatelet, antiinflammatory effects as well as immunomodulatory, gastroprotective and antidiabetic activity, bad breath, boils and abscesses, conjunctivitis, constipation, headache, itches, mastitis, mastoiditis, leucorrhoea, rheumatism (Hossain *et al.*, 2017; Shah *et al.*, 2016).

It was reported that fresh leaves contains : calcium 230 mg, phosphorus 40 mg, iron 7 mg, ionisable iron 3.5 mg iodine 3,4  $\mu$ . (Chauchan *et al.*, 2016). It also contains different vitamins like vitamin-C, nicotinic acid, vitamin A, thiamine, riboflavin. They have a high content of potassium nitrate (0.26-0.42%). It also contains the enzyme like diastase and catalase. Betel leaves are earlier reported to possess anticancer potential (Chauhan *et al.*, 2016; Hossain *et al.*, 2017, Shah *et al.*, 2016). The betel quid has higher antioxidant and cytoprotective activities (Sazwi *et al.*, 2013).

## Discussion

It was reported that fresh leaves betel builds orodental and general health, because they have a high content of potassium nitrate, vitamins like vitamin-C, nicotinic acid, vitamin A, thiamine, riboflavin. Besides that because it is quite a healthy and calming mineral content as calcium, phosphorus, iron, ionisable iron, and iodine (Ari Agung, 2017; Chauchan *et al.*, 2016; Hossain *et al.*, 2017, Shah *et al.*, 2016). Fresh betel leaves contains vitamin C and antioxidant is high, so it can strengthen teeth and cure canker sores and toothache. Betel contains essential oils (the largest of *chavicol* and *Rephenol*) (Surono, 2016). General betel leaf cures urticaria and as per *Ayurvedic* medicine, it recovers the loss of equilibrium between the three “humours” namely, *Vatha*, *Pitha* and *Kapha* (Dwivedi *et al.*, 2014). The betel leaves has the great potency to act as natural antioxidant. The antioxidant property is correlated with different biological activities like hepatoprotective, antidiabetic, antiarthritis, antistroke and anticancer properties. The leaf poses the broad spectrum antimicrobial activity against various bacterial strains. Beside this, the leaves also poses the antifungal and antiprotozoal activity against pathogen, which causing typhoid,

<sup>2</sup> cholera, tuberculosis, etc. The leaf extract shows the gastroprotective activity by enhancing the mucus rather than decrease the acid production (Pradhan *et al.*, 2013).

*Nginang* is a habit of eating betel actually it does not merely cause pleasure, there is an interesting impact to be considered in people's lives about the aspects and benefits contained in *Nginang*. Today's generation does not understand the aspects of *Nginang*. In *Nginang* there is a real expression of the wisdom of the previous generation in living a harmonious life. These aspects are now not so much noticed because they are covered by other things that are already modern, and our *Nginang* habits are rarely encountered. *Nginang* activities are still found at Balinese social events such as the main treats and the honor of welcoming guests. Therefore researchers want to reveal what aspects are contained in *Nginang* which make this habit still survive. *Nginang* has become a habit in various layers of Balinese society, *nginang* habits have a broad impact on people's lives such as social culture, religion, medicine, beauty. <sup>6</sup> So it is best natural substance and its rating as second most popular daily consummation item in Asia, which contribute the best oral hygiene to oral cavity.

Many of the health <sup>8</sup> benefits bonded with betel (locally known as *base*) belongs to the *Piperaceae* or *pepper* family. It has been an important herb distributed throughout of world. Betel 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 factory, antihyperglycemic, antidigestive, appetizer, aromatic, expectorant, stimulant, antibacterial/dental plaque, euphoria-inducing, antiprotozoan, carminative, anti-fungal, aphrodisiac, and antifertility (Arambewela *et al.*, 2014; Sharma *et al.*, 2013). <sup>1</sup> The leaves are also supposed to harden the gum, conserve the teeth and to prevent indigestion, bronchitis, constipation, congestion (Shah *et al.*, 2016). Betel is one of the invaluable medicinal plants where its leaves have been used for many medicinal purposes, because rich in nutrients, minerals, vitamins, antioxidants, phytochemicals and low cost.

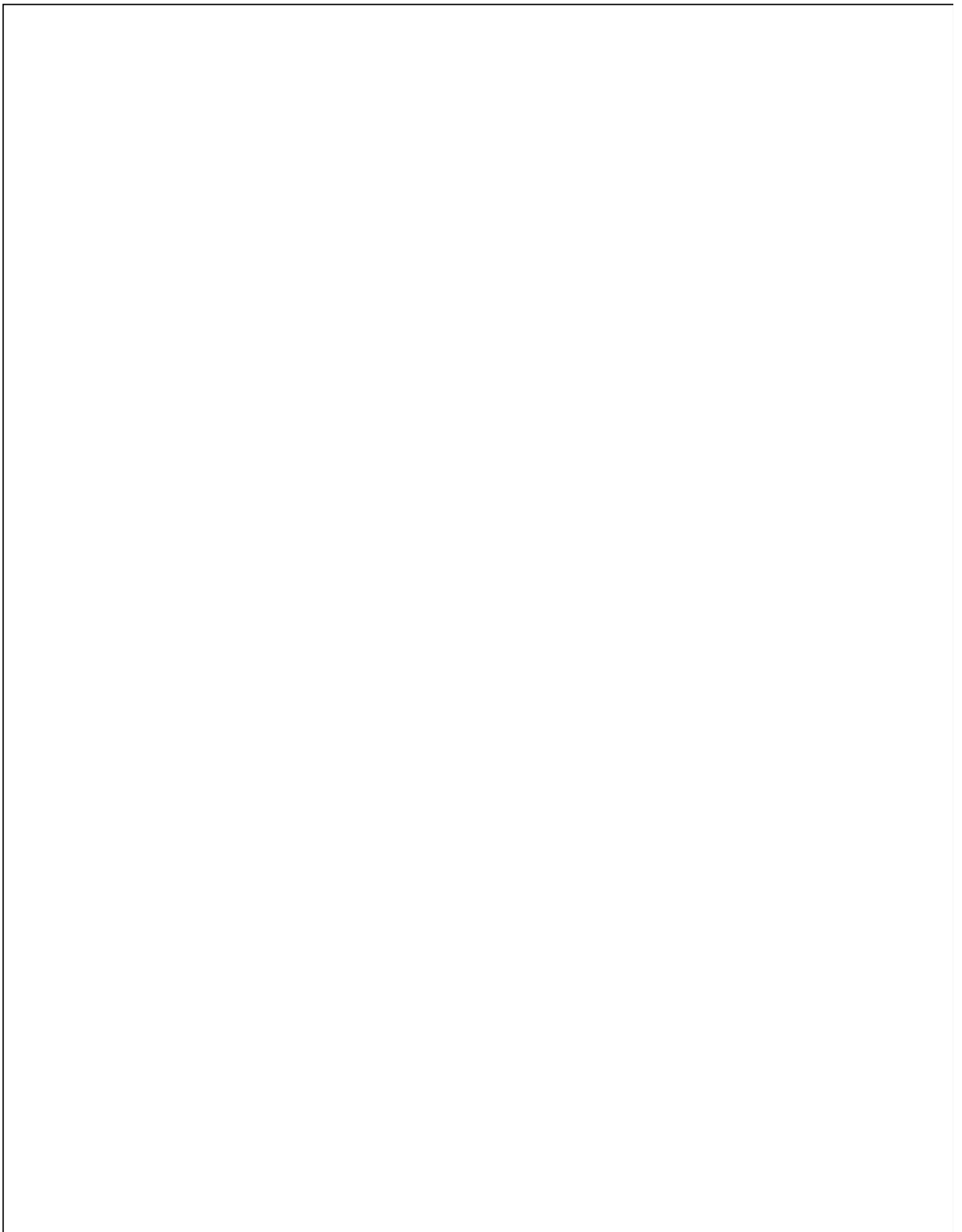
## Conclusion

1. Betel has great potential of nutrients, medicinal, inner beauty, religious value in Bali, and low cost.

2. In ancient Bali Betel leaves are considered auspicious and still extensively used during religious functions in Bali.
3. *Nginang* is a habit of chewing betel in Bali, there is a real expression of the wisdom of the previous generation in living a harmonious life. These aspects are now not so much noticed because they are covered by other things that are already modern, and our *nginang* habits are rarely encountered.

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