



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF  
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology  
Vol. 08, Issue, 11, pp.6487-6489, November, 2017

## RESEARCH ARTICLE

### BETEL LEAF PRODUCT PREPARATION AND ITS NUTRITIONAL ANALYSIS

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#### ARTICLE INFO

##### Article History:

Received 28<sup>th</sup> August, 2017  
Received in revised form  
19<sup>th</sup> September, 2017  
Accepted 21<sup>st</sup> October, 2017  
Published online 30<sup>th</sup> November, 2017

##### Key words:

Paper mill effluent,  
Soil quality, Soil,  
Nutrients availability.

#### ABSTRACT

Piper betel or Betel vine deep green heart shaped vary famous leaves belongs to the family Piperaceae called Paan leaves in India, rich in nutrients, minerals, vitamins, antioxidants, phytochemicals. Piper betel is mostly used to chew with sliced areca nut, slaked lime, coriander, aniseed, clove, cardamom, sweetener, coconut scrapings etc, but less used remedy. It is cultivated in hotter and damper part in country following the traditional methods in India on about 55,000 Hectare with an annual production worth about Rs. 9000 million. Focusing on traditional use and medicinal use of piper betel cure many diseases and reduce the oral cancer which actually happens due to sliced areca nut, slaked lime not because of betel leaves. Leaves are rich in many nutrients like water, energy, protein, fats, fiber, calcium and iron etc. and the antioxidants present are flavonoids, tannins, saponins, alkaloids etc. Piper betel helps in curing various diseases like diabetes, obesity, wound healing, itches, mastitis, mastoiditis, leucorrhoea, ringworm, hypertension, voice problem, constipation, headache, hysteria, conjunctivitis, swelling of gums, rheumatism, abrasion, cut and injuries etc. So, in this study highlight these nutrients rich betel leaves and its benefits. This paper put a light on nutraceutical properties of betel leaves and says that developed value added product by using betel leaf and this product increased to cure the disease.

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#### INTRODUCTION

Betel or Betel vine deep green heart shaped vary famous leaves belongs to the family of Piperaceae and has over 2000 species and indigenous to India. A well prepared betel quid is still regarded as an excellent mouth freshener and mild vitalizer, routinely served on the social, cultural and religious occasions like marriage, religious festivals, sraddha ceremony (religious function performed after cremation) etc. The most likely place of origin of Piper betel vine is Malaysia but it is also cultivated in India, Sri Lanka, Bangladesh, Burma and Nepal. Piper betel leaves are popularly known as Paan leaves in India, which are consumed by about 15-20 million people in the country. It is cultivated following the traditional methods in India on about 55,000 hectare with an annual production worth about Rs 9000 million. On an average about 66% of such production is contributed by the state of West Bengal where it is cultivated on about 20,000 hectare encircling about 4-5 lakh Borj employing about the same number of agricultural families. In India for instance, the tobacco industry introduced a convenient and imperishable mixture of areca nut, lime, catechu, sandalwood, and tobacco known as Gutka.

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This same mixture without the tobacco added is referred to as Paanmasala; both of these products are now provided by most Indian tobacco manufacturing companies. Other commercial products include *Supari* (roasted and flavored pieces of areca nut), *Mainpuri* (areca nut, tobacco, slaked lime, camphor, and cloves), and *Mawa* (areca nut, tobacco, and slaked lime) to name a few. Consequently, it is estimated that over 600 million people now use some form of this substance worldwide.

**Bael:** Is commonly called as Bengal quince, wood apple, golden apple, elephant apple, bilwa, monkey fruit, stone apple, bili and scientifically known as *Aegle marmelos*. It was first originated in India however, presently found throughout the Southeast Asia. It is widely cultivated in Thailand, Sri Lanka and other regions of the southern Asia. It is the most sacred fruit in India traditionally used as a medicine, home remedy, ritual purposes and etc in India since 2000 BC. Every parts of this fruit means tree, root, leaves, seeds are usable for medicinal purposes because of its high level of nutritional values. The health benefits of Bael Fruit or Wood Apple include relief from constipation, indigestion, peptic ulcer, piles, respiratory problems, diarrhea, and dysentery. It also boosts the immune system, fights off bacterial and viral

infections, reduces inflammation and various inflammatory conditions, prevent cancer.

**Cherry:** Also come in different shapes from round to heart; They can be eaten as snacks and are also used in making tarts and cherry pies or juice. They benefit us in many ways as it is a source of nutrients and vitamins. They also help in burning fat, however they do not show a drastic loss in weight, you can substitute them with higher calorie food in order to reduce your daily calorie intake. Read below to know few cherry benefits. They contain anthocyanins which are good for maintaining a healthy body. The anti oxidants help in inhibiting the oxidation promoted by oxygen and anti oxidants that help protect the body from damaging the preradicals or ORAC (oxygen radical absorption capability) it also measures the total anti oxidant value. Our body should at least contain about 3000-5000 oral units daily to reach the significant oxygen capacity that is required in the blood. Cherries contain melatonin which is five times more than the blackberries, strawberries and helps cure insomnia (which is a sleep deficiency) and maintaining healthy joint function.

**Coconuts:** Have slowly become a very hot and versatile food commodity, and are being used in everything from our daily cuisine to our beauty regimens. Not too long ago coconuts had a bad reputation as being an artery clogging, cholesterol packed food that contributed to heart disease. Today however, the coconut is making a huge comeback as the new miracle food. Coconuts are highly nutritious, rich in fiber, and packed with essential vitamins and minerals. From culinary creations to magic beauty potions, coconuts pack a good punch. Supports immune system health: it is anti-viral, anti-bacterial, anti-fungal, and anti-parasite, Provides a natural source of quick energy and enhances physical and athletic performance, Improves digestion and absorption of nutrients, vitamins, and minerals, Improves insulin secretion and symptoms associated with diabetes.

## MATERIALS AND METHODS

The present study was conducted in laboratory of Food Science & Technology and RFRAC, Lucknow.

**Sample preparation-** 30 samples are taken for this experiment in this study, for the development of the betel leaf product.

**Collection of Ingredients:** Fresh betel leaf was collected from local market. The betel leaf were washed with clean water to remove dirt, sand and other undesirable materials before use.

### Ratio of Ingredients

Treatments	Sample preparation	Ratio of Ingredients
T <sub>1</sub>	Gul paan (Betel leaf+other ingredients)	40:60
T <sub>2</sub>	Paan lata (Betel leaf+other ingredients)	50:50
T <sub>3</sub>	Paan chur (Betel leaf+other ingredients)	30:70
T <sub>4</sub>	Paan squash (Betel leaf+other ingredients)	50:50

• **Note: Other ingredients** – T<sub>1</sub> -Fresh coconut, fresh cherry, Colourful souf, Gulkand.

- T<sub>2</sub> –Mava, sugar, Dry fruits.
- T<sub>3</sub> –Piperment, sauf, Gulkand, bale seed.
- T<sub>4</sub> –Sugar, preservati

## Product Development

### Treatment for the preparation

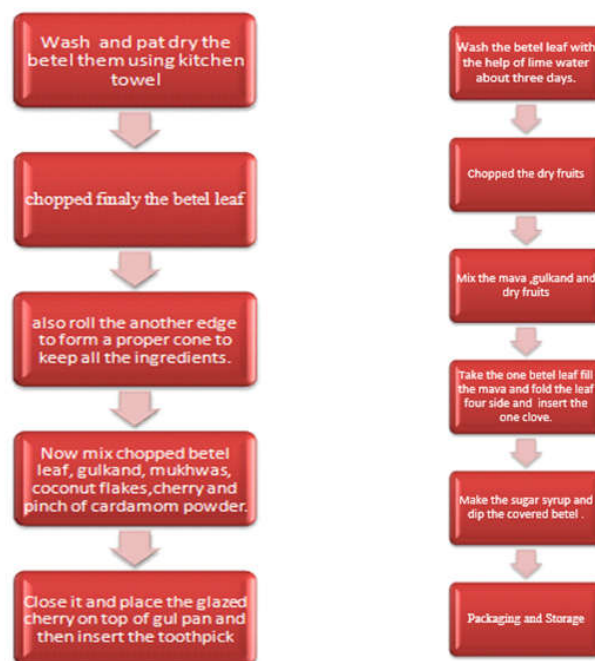


Fig. 1. Gulpaan

Fig. 2. Paan lata

The fennel seeds Combine the betel leaves powder, gulkand, crushed bale seed, mishri, piperment and cardamom powder Clean and dry betel leaf in dehydrator and crush the leaf.

Store in an airtight container and use as required

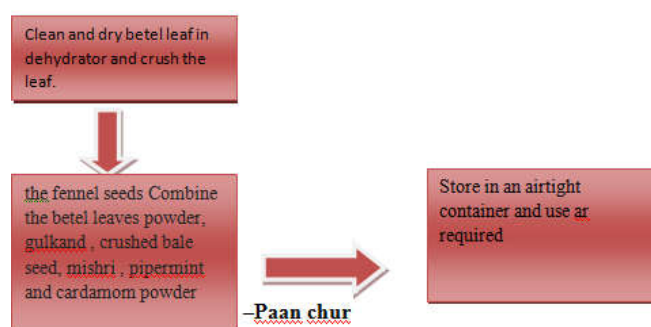


Fig. 3. Paan chur

## RESULTS

### Distribution of Coconut on the basis of Nutritional value

Nutritional Value	Coconut
	Amount (per 100 gm)
Protein	3.3 gm
Total Energy	354 kcal
Carbohydrate	15 gm
Fat	33 gm
Potassium	356 mg
Sodium	20 mg

Source: Nutrient data for this listing was provided by USDA SR-21.

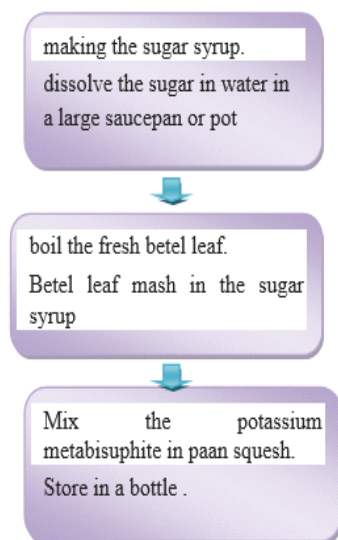


Fig. 4. Paan squash

#### Determination of cherry on the basis of nutritional value

Nutritional value	Cherry
	Amount (per 100 gm)
Total Energy	63 kcal
Total Carbohydrate	16 gm
Protein	1.1 gm
Total Fat	0.2 gm
Calcium	13 mg

Source: Nutrient data for this listing was provided by USDA SR-21

#### Nutritional value of value added product of betel leaf

Nutritional value	Result
Calcium % of Paan squash	0.8
Calcium% of Paan choor	0.4

Source RFRAC, Lucknow

#### Conclusion

Most betel products listed ingredients on the packaging, though some did not explicitly distinguish between those with versus without tobacco. Importantly, seven of seven betel alone and one of three betel/tobacco products omitted any health-related warnings. All products were inexpensive and relatively obtainable in the groceries visited.

#### REFERENCES

Agarwal, T., Singh, R., Shukla, A.D., Waris, I. and Gujrati, A., 2012. Comparative analysis of antibacterial activity of four Piper betle varieties. *Adv Appl Sc Res*, 3, pp.698-705.

Akhter, N. 2004. *Trace Element Assessment of Piper betel (Paan) Plant & Soil in Sindh & Baluchistan* (Doctoral dissertation, University of Karachi, Karachi).

Amin, M.R., Mostofa, M., Islam, M.N. and Asgar, M.A., 2010. Effects of neem, betel leaf, devil's tree, jute and turmeric against gastrointestinal nematodes in sheep. *Journal of the Bangladesh Agricultural University*, 8(2), pp.259-263

Amonkar, A.J., Nagabhushan, M., D'souza, A.V. and Bhide, S.V., 1986. Hydroxychavicol: a new phenolic antimutagen from betel leaf. *Food and chemical toxicology*, 24(12), pp.1321-1324.

Awang, M.N., 1988. Betel quid and oral carcinogenesis. *Sing Med J*, 29, pp.589-93.

Banerjee, H. and Pain, A. 1937. Vitamin C in chewing betel leaf (Piper betel). *Science and Culture*, 2.

Husna, A.A., Islam, M.A., Rahman, M.T. and Khatun, M.M., 2015. Efficacy of vinegar, sorbitol and sodium benzoate in mitigation of Salmonella contamination in betel leaf. *Journal of Advanced Veterinary and Animal Research*, 2(2), pp.190-194.

Khan, J.A. and Kumar, N., 2011. Evaluation of antibacterial properties of extracts of Piper betel leaf. *Journal of Pharmaceutical and Biomedical Sciences (JPBMS)*, 11(11).

Lahiri, D., 1990. Seasonal variation in arrival and prices of betel-leaf in some markets of Midnapur district, West Bengal. *Indian Journal of Agricultural Marketing*, 4(2), pp.184-188.

Maiti, S. and Sen, C., 1979. Fungal diseases of betel vine. *Pans*, 25(2), pp.150-157.

Mollah, M., 2016. *Investigation on the leaf rot and foot and root rot of betel vine (piper betle l.) In sathkhira district of bangladesh* (Doctoral dissertation).

Pin, K.Y., Chuah, T.G., Rashih, A.A., Law, C.L., Rasadah, M.A. and Choong, T.S.Y., 2009. Drying of betel leaves (Piper betle L.): Quality and drying kinetics. *Drying Technology*, 27(1), pp.149-155.

Rayaguru, K., Khan, K., Sahoo, G. and Panda, M.K., 2008. Studies on Storage Characteristics of Betel Leaves. *Ama, Agricultural Mechanization in Asia, Africa & Latin America*, 39(3), p.42.

Shah, B., Sheth, F. and Parabia, M., 2011. Documenting Grandmas' prescriptions for skin ailments in Valsad district, Gujarat.

Sharan, R.N., 1996. THE USE OF BETEL NUT. A reca care chu L. *The Cancer Journal*, 9(1).

Vengaiah, V., 2014. Studies On The Effect Of Betel Leaf Stalk Extraction On Reproductive Metabolic Activities Of Male Albino Rats.

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