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MIMUSOPS ELENGI LINN. (SAPOTACEAE); A PROMISING DENTAL CARE PLANT

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ABSTRACT

Mimusops elengi Linn (Sapotaceae) has been used in Ayurveda, Siddha, Unani and other traditional systems of medicine. This plant is generally found in tropical forests in south Asia, and Northern Australia and grow throughout India. Whole plant shows different activities like antimicrobial, antiulcer, anthelmintic, antidiabetic, cytotoxic, antipyretic, hypotensive, antihistaminic, nematicidal and dental protective activities. The present review highlights the advancement of the research on *Mimusops elengi* projecting it as useful various types of problems related to tooth. Some of the official Indian System of Medicine formulations of *Mimusops elengi* is Bakuladya taila, Bakuladi dantamanjana, Jatyadya taila, Bakula puspa churna, Bakula tvak kvatha useful in the treatment of dental problems.

KEYWORDS: *Mimusops elengi*, Dental care, Bakuladya taila.

INTRODUCTION

Traditionally plants have been well exploited by man for the treatment of human diseases. Ayurveda is a good example. Mimusops elengi is a wild plant distributed in tropical and subtropical regions belonging to the family sapotaceae. It is cultivated in gardens as ornamental plant. It is best propagated by sowing seeds singly in baskets and planting out seedlings in the field, usually after two years in the rainy season. The rate of growth is very slow. *Mimusops elengi* is one of the important medicinal plant since each and every part of the plant is used for curing many of the human diseases especially dental problems.

Agronomy, Botany and Pharmacognosy of *M. Elengi*

Mimusops elengi belongs to the family Sapotaceae cultivated in the gardens for the fragrant of flowers.[1] *Mimusops elengi* is a small to large evergreen tree grows up to 15m height. Leaves are oblong or elliptic, flowers white fragrant, star shaped. The fruit or berry is 2.5 cm long; color is yellow in ripped condition. Seed is brown color, ovoid shape and compressed in size. The entire plant parts flowers, bark, roots, fruit, and leaves are used in medicine.

Taxonomical Classification		**Vernacular Names**	
Kingdom	Plantae	Tamil	Magizhamboo, Magilam, magadam
Order	Ericales	Telugu	Pogada, Vakulamu
Family	Sapotaceae	Malayalam	Ilanni
Genus	*Mimusops*	Kannada	Pagademara
Species	*elengi*	Hindi	Maulsari
Botanical Name	*Mimusops elengi* (L)	English	Spanish cherry, Medlar, Bullet wood

Phyto Therapeutic Chemicals Identified in *M. Elengi*

The main chemical constituents of various parts of M.elengi.[2-7]

From leaves: Leaves contain hentriacontane, carotene, lupeol, qurecitol, β-carotene, d-mannitol, β-sitosterol, and β-sitosterol- β-d-glucose.[8]

Fruits and seeds: Quercitol, quercetin, a triterpine alcohol, ursolic acid, β-sitosterol, alpha spinasterol, mimusops acid, mimugenone, pentacyclic triterpines 3β,6β,19α,23- tetrahydroxy-urs-12-ene and 1β hydroxyl-3β-hexanoyllup-20(29)-ene-23, 28-dioic acid, mi- saponin A, taxifolin, alpha spinasterol glucoside, mimusopside A and B.

Flower: Flower consists of essential oil, β-sitosterol, and its glucoside, ursolic acid, lupeol, Gallic acid, quarcetin and kaemferol.[9]

Bark: Bark chemical constituents are mixture of saponins and fatty acid components. Some other constituents also isolated from the bark, they are alpha-cadinol, Tau-muurolol, penta decanoic acid, Di-iso-butyl phthalate, Hexa decanoic acid, Eicosane, oleic acid, octa decanoic acid, 4-hydroxy 3-methoxy benzaldehyde (vanillin), clindamycin, 2 furan carboxaldehyde, 1,4,5,8 dimethano naphthalene-2,3 diol, alanine N-proparyloxy carbonyl isohexyl ester.[10]

Roots: A new steroidal saponin, 5 alpha-stigmast-9(11) en-3-O beta-D-glucopyranosyl (1-5)-O-beta-D xylofuranoside was isolated.[8]

Prophylaxis of Dental Cares By Herbal Products[9,10,11]

Tooth is the main part in mouth helpful to mechanically breakdown food by cutting and crushing them in preparation for swallowing and digesting. Tooth effected by several problems like Dental Cavities/Dental caries, Gingivitis, Periodontitis, Teeth Grinding (Bruxism), Tooth Erosion, Tooth Sensitivity, Stained Teeth, Toothaches And Dental Emergencies. These are common problems including a broken/cracked tooth, an abscessed tooth, or tooth knocked out in accident. Those problems can causes dental pains and dental emergencies. Some other problems like bad breath, dry mouth, no smile, miss alignment of tooth, and tempero mandibular diseases come under dental problems.

In olden days and some tribal/states people commonly uses common salt, char coal, brick powder, tobacco leaves powder, manzan type powders used for cleaning of tooth. Some of the plant parts are used as cleansing agents,[12,13] mouth healthy, for sparkling of teeth, cavity free and build up free.[14] That plants and parts which is used as herbal tooth care are shown in table No 1.

Table 1: Common herbals used as tooth care products.

S.No	Plant Name	Scientific Name	Part Used
1	Neem	*Azadirachta indica*	Twig, Leaves
2	Hibiscus	*Hibiscus rosa sinensis*	Twig
3	Dog wood	*Cornus*	Twig
4	Licorice	*Glycyrrhiza glabra*	Root
5	Kicker	*Prosopis juliflora*	Twig
6	Bakula	*Mimusops elengi*	Twig
7	Peepal tree	*Ficus religosa*	Twig
8	Mango	*Mangifera indica*	Twig
9	Arjun	*Terminalia arjun*	Twig
10	Apamagra	*Achyranthes aspera*	Twig/root
11	Bael	*Aegle marmelos*	Twig
12	Karanj	*Millettia pinnata*	Twig
13	Gular	*Ficus racemosa*	Twig
14	Indian plum	*Oemleria cerasiformis*	Twig
15	Java plum	*Syzygium cumini*	Twig

Effects of Herbal Formulations For Dental Care Over Synthetic Components

Commercial dental formulation may consist of many synthetic adjuvants like Fluorides, surfactants, hydrated silica and sweeteners. They may react with other tooth paste components. High levels of surfactants cause mucosal irritations. Fluorides cause toxic to brain. Fluorides seem to fit with lead, mercury, and other poisons that cause chemical brain

drain. Children get effect easily and they swallowed. Children and youth minimal ingestion of sodium fluoride causes salivation, nausea, vomiting and epigastric pain. Large dose of fluorides cause paralysis, muscular weakness, convulsions and cardiac failure. Fluorides have been used throughout history to alter the behavior and mood of human beings. Some toothpastes having sodium lauryl sulphate (SLS) if it is high range causes corrosive, harmful to skin tissue, can penetrate and be retained in the eye, brain, heart and liver with harmful long term effects. Hydrated silica causes irritation, breakdown of tooth enamel. Some fluoride ions not soluble which is harmful to our digestive systems. Natural or herbal tooth care formulations made free from synthetic organic agents which causes no harmful effects. These formulations give dental care without any side effects.

Effect of M.elengi on dental care

- Herbal mouth rinse derived from M.elengi bark aqueous extract was found to be potent plaque inhibitor and anti inflammatory actions against gingivitis.[15]
- Chewing of a twig of M.elengi is as danta pavana.[16]
- Powder of dried flower is usefull for cleaning teeth.[17]
- Unripe fruit and seed are used for to fix loose teeth.[18]
- In ayurveda, M.elengi has been reported to be used for arresting bleeding gums.[19]
- The bark of M.elengi is an important ingredient for the ayurvedic formulations used as tooth powder.[20]
- Hot aqueous extract of dry bark and fruit used as an astringent and applied externally too.this extract is also given orally to cure diseases of gums and teeth.[21,22,23]
- The bark and seed coat are used for strengthening of the gums and enter into the composition of various herbal tooth powders under the name of “Vajradanti”.
- M.elengi bark chloroform extract showed prominent anti bacterial activity in dental patients by ditch plate technique.[24]

CONCLUSION

The present review, taxonomy looking forward to develop new drugs from *Mimusops elengi* extracts are very effective against dental caries, astringent, and odontopathy problems can treat. *Mimusops elengi* useful for teeth and gums attaining very strong, stopping of bleeding from gums, treat the dental caries problems, used as mouth freshner, strengthening of mucosal defensive mechanisms, immunostimulatory activities of *Mimusops elengi* are well accepted because of the scientific literature review supports these effects. It elicits the aspects

of plant origin and attention of pharmacological researchers to developing the new formulations which use full for the human being.

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