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Plant masticatories and their medicinal importance from Assam & Meghalaya

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Abstract

Since the dawn of the civilisation plants have been associated with life and culture of human being. Apart from sources of food, certain plants have been used as masticatory by different ethnic groups throughout the world. In north eastern India, in the states of Assam and Meghalaya, certain plants have been used as masticatory by different ethnic groups and some of these plants have been claimed to have curative properties against one or the other diseases. The plant parts used as sources of masticatory includes bark, fruit, leaf and root. Interestingly, some of these masticatories are seasonal, some are used only in particular occasions and some others are used regularly and become part of the culture of the people as these masticatories are indispensable in their social and religious life also. In the present paper a total of 37 species belonging to 31 genera under 24 families has been recorded to be used as masticatory by the ethnic groups of Assam and Meghalaya. In addition to these, the curative properties of some of the plants/plant parts used as masticatory have been recorded and provided in the present communication.

Keywords: Masticatory plants, Medicinal importance, Assam & Meghalaya.

1. Introduction

Plants have not only been used by men for meeting the basic needs *viz.*, food, shelter and medicine but also for numerous other uses. The practice of chewing and sucking plants and / or plant products for pleasure or for psychological benefits is prevalent in many parts of the globe. The practice of use of fruits, leaves, barks or roots of the plants as masticatory is common among many of the ethnic groups in India. Masticatory plant parts are used either fresh or dried or even processed. Some of these masticatories are also claimed to possess curative properties for certain diseases. The two northeastern states of Assam and Meghalaya are endowed with rich biodiversity as well as ethnic diversity with varied customs and traditions. Most of the ethnic groups inhabit in and around the forests and depend on the ambient vegetation for meeting their material needs of day to day life. The use of plant masticatories is very common among the ethnic groups of both the states. The plants used as masticatories are usually locally available and either cultivated or wild or even semi domesticated. Some of the plant masticatories are claimed to have medicinal properties and are often sold in the local markets^[1-4]. The present communication deals with plant masticatories used by one or the other ethnic groups of Assam and Meghalaya.

The two states of Assam and Meghalaya are rich in floristic biodiversity and vegetation types due to their unique geographical location and suitable climatic condition with high rainfall. The state of Assam is located in between 24°2'-27°6'N latitude and 89°8'-96°E longitude and covering an area of 78,438sqm. The major ethnic groups in the plains of Assam are Kacharis, Deoris, Mishings, Rabha hasongs and Bodos and in the hills Kukis, Karbis, Dimasas, Hmars etc. The state of Meghalaya covers a total area of 22,429 sq km area and is located in between 25°47'-26°10' N latitude and 89°45'-92°47' E longitude. The major ethnic groups of the state are Khasis, Jaintias and Garos.

2. Methodology

The present communication is the outcome of extensive review of literature supplemented by field studies conducted among different ethnic groups in certain areas of both the states of Assam and Meghalaya. The field studies were conducted through unstructured interviews of the local people following the methodologies suggested by Jain 1981, 1987; Ahmed and Borthakur 2005. Also first-hand informations were recorded through personal observations of the authors during field work. The information on plants were recorded along with relevant plant specimens which were processed into herbarium specimens following the standard herbarium techniques^[6].

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The specimens on which this study is based have been deposited in the Herbarium of Botany Department, Gauhati University (GUBH).

3. Results & Discussion

A total of 44 species belonging to 40 genera under 27 families are recorded to be used as masticatories among the local people of Assam and Meghalaya. Parts of the plants that are used are either consumed in fresh or they are processed

naturally. Some of the plant parts like stem bark, nuts, roots, spines are eaten fresh while some nuts and fruits are sun dried or preserved through boiling with salt thus making them suitable for mastication purpose. They are also eaten singly or in combination of one or two. The information gathered on the plant masticatories viz. mode of use, part used, scientific names of the plants with their families and local names are listed in table 1.

Table 1: List of plant masticatories from Assam and Meghalaya

Scientific name	Family	Local name(s)	Part(s) used	Mode of use	References
<i>Aeschynanthus superba</i> Clarke.	Gesneriaceae	Tiew tari, Tiew ri seinrit (Kh)	Leaf	Leaves are chewed	[1]
<i>Areca catechu</i> L.	Arecaceae	Tamul (Ass), Gowai (Di), Kuvava (Hm)	Nut	Nuts are chewed with betel leaf and lime. Sold in market INR 10/five fruit.	[3], [7]
<i>Areca triandra</i> Roxb. ex Buch-Ham.	Arecaceae	Soh kwai, Koi (Kh), Mamoi tamul (Ass)	Nut	Nut chewed with or without betel leaf. Sold in markets INR 20/spadix.	[1]
<i>Artocarpus lacucha</i> Buch.-Ham.	Moraceae	Bohot (Ass), Dieng soh ram (Kh), Ingat-araung (K)	Bark	Bark chewed with betel leaf.	[1], [8], [9]
<i>Balakata baccata</i> (Roxb.) Esser	Euphorbiaceae	Dieng ja long her (Kh)	Bark	Chewed.	[1]
<i>Bombax ceiba</i> L.	Bombaceae	Singgung (Mis), Simolu (Ass), Dieng-kymphad (Kh)	Spine	Spine is used with <i>Piper sylvaticum</i> Roxb.	[10]
<i>Buddleja macrostachya</i> Benth.	Loganiaceae	Dieng ja long krem, Ka latohtieh kynthai (Kh)	Bark	Chewed.	[1]
<i>Calamus erectus</i> Roxb.	Arecaceae	Jeng bet (Ass)	Fruit	Used as a substitute of betel nut.	[11]
<i>Callicarpa arborea</i> Roxb.	Verbenaceae	Dieng lakhiot (Kh); Khimbar (Garo); Jharua (Ass); Arhi-araung (K)	Bark	Chewed with betel leaf.	[1], [8], [9]
<i>Callicarpa rubella</i> Lindl.	Verbenaceae	Ja lang kwai, Khongwet, Soh eit ksar (Kh);	Bark, Leaf	Chewed.	[1], [8]
<i>Caryota urens</i> L.	Arecaceae	Sman phang (Di) Chewa gosh (Ass), Chang-kraum (K)	Nuts	Fresh or dried nuts are chewed with betel leaf & lime.	[3], [9]
<i>Chamaerops humilis</i> L.	Arecaceae	Satlal (Kh)	Fruit	Eaten fresh.	[2]
<i>Choerospondias axillaris</i> (Roxb.) B.L.Burt & A.W.Hill	Anacardiaceae	Theseli-araung (K)	Bark	Dry bark used.	[9]
<i>Clausena heptaphylla</i> (Roxb.) Wight & Arn.	Rutaceae	Dieng siang mat, Ja lamari (Kh)	Leaf	Aromatic leaves are chewed with betel nuts and betel leaf.	[7], [8]
<i>Colquhounia coccinea</i> Var. <i>vestita</i> (Wall.) Prain	Lamiaceae	Soh shun (Kh)	Leaf	Chewed with betel nuts, dry bark chewed.	[1], [9]
<i>Combretum roxburghii</i> Spreng.	Combretaceae	Mei long kha saw (Kh), Arkeng-rikang (Karbi)	Bark	Chewed with betel nuts.	[1], [9]
<i>Dalbergia pinnata</i> (Lour.) Prain	Fabaceae	Jyrmithyat syiar (Kh), Subin-rikang (K)	Bark	Chewed with betel leaves.	[1], [9]
<i>Dalhousea bracteata</i> Grah.	Papilionaceae	Puharichali (Ass)	Stem bark	Chewed fresh stem.	[7]
<i>Derris elliptica</i> (Wall.) Benth.	Leguminosae	Hiru-rikang (K)	Bark	Fresh bark used.	[9]
<i>Elaeocarpus floribundus</i> Blume.	Elaeocarpaceae	Soh-banghe (Kh)	Fruit	Eaten fresh.	[2]
<i>Erythrina arborescens</i> Roxb.	Fabaceae	Dieng song (Kh)	Bark	Chewed in fresh.	[1]
<i>Euphorbia pulcherrima</i> Wild. ex Klotzsch	Euphorbiaceae	Tlasik pur (Hm), Hekarape (Ze), Per sen (Hr), Christmas gaschi (Kh)	Latex	Dried latex are chewed by children.	[3]
<i>Exbucklandia populnea</i> (R.Br. ex Griff.) R.W.Br.	Hamamelidaceae	Dieng doh (Kh)	Bark	Chewed with betel leaf.	[1]

<i>Ficus pubigera</i> Var. <i>maliformis</i> (King) Corner	Moraceae	Soh mih (Kh)	Small fruit	Chewed with betel leaves.	[1]
<i>Goniothalamus sesquipedalis</i> Hook.f. & Thomson.	Annonaceae	Skum synsar, Soh um synrang, Soh skot (Kh)	Leaf petiole	Chewed in fresh.	[1]
<i>Horsfieldia kingii</i> (Hook.f.) Warb.	Myristicaceae	Mijingi-kum-asing-araung (K)	Kernel	Fresh kernel used.	[9]
<i>Livistona jenkinsiana</i> Griff.	Arecaceae	Takau-araung (K)	Fruit	Fresh nut used.	[9]
<i>Nicotiana rustica</i> L.	Solanaceae	Ma- mutia (Kh)	Leaf	Sun dried Leaves Sold in markets INR 1/leaf.	[3]
<i>Nicotiana tabacum</i> L.	Solanaceae	Duma swla , Ma khasi (Kh)	Leaf	Sun dried Leaves Sold in markets INR 1/leaf.	[3]
<i>Persicaria bistorta</i> (L.) Samp.	Polygonaceae	Kwailum (Kh)	Root	Used as substitute of Areca nut.	[2]
<i>Phoenix acaulis</i> Roxb.	Arecaceae	Satlai, Soh Kwai, Soh sangloo, Wai blei (Kh)	Fruit	Ripe drupes are chewed. Sold in markets INR 5/spadix.	[1]
<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Amlokhi (Ass)	Fruit	Dried salted fruit chewed.	[11]
<i>Pinanga gracilis</i> Blume	Arecaceae	Lypiar, Soh lapiar, Simparat (Kh), Turaung-araung (K)	Fruit	Nut is chewed n fresh or dried. Sold in markets INR 20/spadix.	[2], [9]
<i>Pinus kesiya</i> Royle ex Gordon	Pinaceae	Dein kseh, Dieng kseh, Dieng kusi (Kh)	Inner bark	chewed.	[1]
<i>Piper betle</i> L.	Piperaceae	Lakor, Pathei, Pathi, Pati, Tympaw, Tympew (Kh)	Leaf	Chewed with betel nuts. Sold in market INR 10/24 lvs.	[3], [1], [8], [12]
<i>Piper wallichii</i> (Miq.) Hand.-Mazz	Piperaceae	Mithibon (Di), Kobi rang (Hr), Guchi (Ze)	Leaf	Fresh leaves chewed with betel nuts.	[3]
<i>Potentilla fulgens</i> Wall. ex Sims.	Rosaceae	Wathang (Kh)	Root	Chewed with betel nut. Sold in market.	[2]
<i>Potentilla polyphylla</i> Wall. ex Lehm.	Rosaceae	Langning, Langsniang, Langsning, Lyngniang (Kh)	Root	Chewed in fresh. Sold in markets INR 10/bunch.	[1]
<i>Rubus rugosus</i> Sm.	Rosaceae	Chie tah, Soh siah (Kh), Jetuli poka (Ass)	Leaf	chewed.	[1]
<i>Saraca asoca</i> (Roxb.) Willd.	Leguminosae	Mirkrem-araung (K)	Seed	Cotyledon is used fresh or dried.	[9]
<i>Spondias axillaris</i> Roxb.	Anacardiaceae	Salait (Kh)	Bark	Bark edible and used in place of Areca nut.	[2]
<i>Terminalia chebula</i> Retz.	Combretaceae	Hilikha (Ass)	Fruit	Dried salted fruit chewed.	[11]
<i>Uncaria sessilifructus</i> Roxb.	Rubiaceae	Lata chali (Ass)	Stem bark	chewed.	[7]
<i>Walsura robusta</i> Roxb.	Meliaceae	Arkeng-alau, Arpi-have-wai, Theng-rali (K)	Bark	Bark used fresh or dried.	[9]

[Abbreviation used: K-Karbi, Kh-Khasis, Mis-Mishing, Hm-Hmar, Ze-Zeme naga, Hr-Hrongkhral, Ass-Assamese, Di-Dimasa]

Among the masticatory plants some are found to possess medicinal importance against certain diseases. The local people of remote villages have been using these plants as medicine against one or the other ailments. These have been practised among them from generation to generation traditionally as

they are easily accessible and locally available. Out of 44 species, 11 species belonging to 11 different families are recorded to have medicinal values. The plants with the parts used, mode of preparation, specific use and mode of administration are listed in table 2.

Table 2: List of masticatory plants of medicinal importance

Scientific name	Part used	Specific use	Mode of preparation & administration	
<i>Areca catechu</i> L.	Root Leaf sheath Fruit	Marasmus Whooping cough & Asthma Chronic dysentery Epistaxis Impotency Constipation, Intestinal worms	Paste with petals of <i>Nymphaea nouchali</i> Burm.f. mixed with cow's milk is given in marmus. Decoction with roots of <i>Citrus medica</i> L., <i>Piper longum</i> L., bark of <i>Albizia lebeck</i> (L) Benth. and rhizomes of <i>Zingiber officinale</i> Roscoe is prescribed. Decoction is taken. fruits are dried, burnt and the ash is used as snuff. 1/4 th of a nut (seasoned by putting in water in earthen pitcher for about o month) mixed with the leaf of <i>Piper betle</i> L. with apiece of root of about 4cm long of <i>Eclipta prostrata</i> (L.) L. are given to chew.	[11] [13] [11] [13] [14]

			One young seed is boiled in about 50ml of water and the extraction is given.	
<i>Rubus rugosus</i> Sm.	Root Tender shoot Leaf, unripe Fruit	Dysmenorrhoea Toothache Ulceration of fruit Fistula Blood clotting & Swelling disease	Root extract is given. Chewed in toothache. Chewed twice or thrice daily to cure ulceration of mouth. Root juice is taken. Root is ground into paste and applied on the affected portion.	[11] [1]
<i>Euphorbia pulcherrima</i> Wild. ex Klotzsch.	Latex	Toothache	Dried latex used as chewing gum in toothache.	[3]
<i>Buddleja macrostachya</i> Benth.	Leaf	Bed sores & inflammation	Leaf paste is applied on the affected portion.	[2]
<i>Terminalia chebula</i> Retz.	Fruit	Dysentery, Gastric problem	Fresh and dried fruits are ground taken orally early in the morning.	[11]
<i>Phyllanthus emblica</i> L.	Bark Fruit Root leaf	Cuts & wounds Stomach-ache Gastric problem & High blood pressure Eye trouble Bronchial asthma. Blood dysentery	Bark is ground and the paste is applied as styptic. Fruits are eaten raw Fruits are boiled in water and the water is drunk. Fruit is mashed, strained and the juice is used as eye drop. Juice is given. Juice with leaf of <i>Mangifera indica</i> and <i>Syzygium cumini</i> in equal parts mixed with one teaspoonful each of honey and goat's milk is given.	[11] [1] [13]
<i>Artocarpus lacucha</i> Buch.-Ham	Seed	Constipation	Seeds are ground, mixed with water and taken. Half a cup to be taken at a time.	[1]
<i>Nicotiana tabacum</i> L.	Leaf	Caterpillar sting, Toothache Leech bite Scabies Pyorrhoea, Headache, Eczema, Ringworm	(a).Dried leaves are crushed with lime and applied to parts affected. Leaf after soaking in water is put over leech bite to get relief. Infusion of fermented and dried leaves is applied. Paste is applied.	[1] [13]
<i>Pinus kesiya</i> Royle ex Gordon	Tender shoot	Cough, Whooping cough & Asthma	The tender shoots are chewed raw or mixed with honey and taken to get relief.	[1]
<i>Piper betle</i> L.	Leaf	Burns & scalds Constipation Menorrhagia	Chewed betel leaf with mustard oil is applied on the affected parts. Petiole smeared in castor oil is put into rectum as enema. Decoction is prescribed.	[1], [13]
<i>Potentilla polyphylla</i> Wall. ex Lehm.	Root Whole plant	Gastric problem, Pyorrhoea. Colic & spasmodic pain	Roots to be chewed daily. Plant is ground and juice extracted from it is taken half a cup once daily till cure.	[1]



Fig: A-C: Dried and fresh fruits of *Areca catechu*; E: Fresh fruits of *Calamus erectus*; E: Dried fruits of *Terminalia chebula*; F-H: Fresh and dried fruits of *Phyllanthus emblica*; I: Leaf of *Piper betle*; J-K: Processed leaves of *Nicotiana rustica*; L: Spines of *Bombax ceiba*.

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