


ENUMERATION OF WILD EDIBLE FRUITS FROM BODA HILLS AND KOLLI HILLS

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ABSTRACT: Ethno botanical survey of edible fruits plays a vital role in nutritional needs and curing various diseases. Tribal people residing in Boda and Kolli hills ever depend on medicinal plants for their healthcare and treating of various diseases. From the survey, a total of 31 plant species belonging to 18 families were found to be useful in the treatment of various diseases. The present study reveals the field survey of the edible fruits and its medicinal uses have been gathered from the traditional healers, patients and elderly persons in and around the study area. Field survey carried out in between December, 2014 to December, 2015. Much Information was collected from traditionally edible fruits and its healing ability through the personal interviews during field trips. About 30% of edible fruit help in curing diseases such as Anticancer, antioxidant, antimicrobial, and anti-inflammation. The botanical names, families, vernacular names, flowering season, fruiting season, mature fruits season and medicinal value also documented for further studies.

Key words: Ethno botanical, field survey, medicinal uses, traditional healer, wild edible fruits.

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INTRODUCTION

Tribals provide considerable information about the use of many plants as medicine. According to the world health organization (WHO) as many as 80% of the world's population depend on traditional medicine for their primary healthcare needs. The traditional practical knowledge about medicinal plants is the basis for ethno-botanical uses that have been passed on to another practice and oral communications from generation to generation over the last century. Ethno botany has been evolved as a promising discipline that highlight the people-plants relationship in a multidisciplinary way such as ecology, economic botany, pharmacology, public-health and other disciplines as needed (Setalaphruk and Lisa, 2001). Considerable economic benefits in the developments of indigenous medicine and use of medicinal plants for the treatment of various diseases were reported earlier (Ghosh, 2003 and Sheldon *et al.*, 1997, Karthik *et al.*, 2011). Traditional medicinal practice is an important role on primary healthcare system in the developing world. Both Boda hills and Kolli hills alone support more than 2500 species of green plants, which is 45% gain of medicinal importance.

Fruits play a vital role in nutritional need of the tribal people. The diversity of wild species proffer in food diet and house hold food security (Sasi *et al.*, 2011). Wild edible fruits are traditional foods supplement for the tribal people hence they connected with Daily activities, Socio culture, Spiritual life and Healthy life style (Singh *et al.*, 2006; Sasi *et al.*, 2011).

It plays a vital role in food supplement of the tribal people (Grivetti and Britta, 2000; Britta, 2001; Britta *et al.*, 2001; Britta *et al.*, 2003; Sasi *et al.*, 2011; and Hazarika *et al.*, 2012). The cultural groups of Kolli hills comprise of Malayalis, Kavundars, Vanniars, Naikans, Chettiyars and other minor groups settled as semi-nomads. Each and every community follows its own culture, tradition, language, costume etc. Traditional boda and kolli hills societies are ideal example of traditional knowledge system where small communities prevent incurable disease through traditional methods, which are derived from their ancestors (Hebbar *et al.*, 2004; Katewa *et al.*, 2004; Saikia *et al.*, 2006, Kirtikar and Basu, 1993), which have been found worth and more faithful in discovery of new medicines without side effects. Hence the present study was focused on the survey of medicinally important edible, flowering season, fruiting season and its medicinal uses have been discussed in detail.

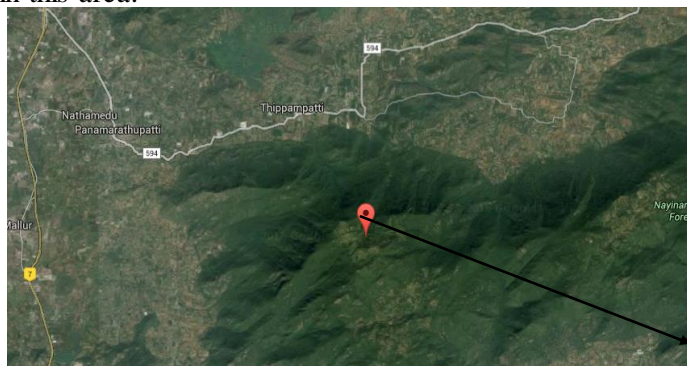
MATERIALS AND METHODS

Study areas

The Present survey was conducted in Boda and kolli Hills, Tamil Nadu. Different Places in Boda hills and kolli hills were visited.

a) Boda hills

The Boda-hills is a lofty ridge running east and west, at a distance of about 9 miles south of Salem, and separating the Panamarattu-patti valley from Rasipuram. Its length is 12 miles. It is situated in Southern Eastern Ghats comes under Rasipuram Taluk, Namakkal district. Bodamalai is at 1200 meters (3,937.0 ft) mountain in the Eastern Ghats of South India. It lies between 11 14'46" – 12 53'30" North latitude and between 77 32'52" – 78 53'05" East longitude and it has an elevation of 881 meters above sea level. Bodamalai is in an area with a humid subtropical climate, only Hindu Malayali tribes residing in this area.



Boda Hills

b) Kolli hills

Eastern Ghats of Kolli hills is situated in the Namakkal District of Tamilnadu. They form a fine hill mass, measuring some 18 miles from north to south by 12 miles from east to west, and situated half in Namakkal and half in Attur. The edge of the plateau to the west towers above the plains to a height of over 4,000' above sea level. The north-west heights are about 400' lower. The ridges which separate the northern valleys are at their top 3,000'. The highest peak on the Attur Kollimalais is Vetakkara-malai (4,663'). Kolli hills falls within the following coordinates, Longitude: 78° 17'05"E to 78° 27'45"E and Latitude: 11° 55'05"N to 11° 21'10"N in S.O.I topo sheets 581/8. The total block area is 441.41 sq. kms. It stretches 29 km from north to south and 19 km from east to west. Physiographically it is a hilly region with altitude ranging from 180 m at the foot hill to 1415 m at the plateau.



Kolli Hill

METHODOLOGY

A literature survey was carried out for compilation of existing information on the medicinal plants used by tribal people of the study area. Several field trips were carried out in Boda hills and Kolli hills from December 2014 to December 2015 covering different seasons, in order to know the flowering and fruiting season of the plants. The data were collected through repeated field visits and the careful interaction with the village peoples and by participating rural appraisal. The collected specimens were identified taxonomically with the help of The Flora of Tamil Nadu Carnatic (Matthew, 1983 and Gamble, 1935) and the illustration of were used to ascertain the nomenclature (Gamble and Fischer, 1957; Henry *et al.*, 1989).

Documentation

The medicinally importance edible fruit were collected through questionnaire, interviews and discussions among tribal practitioners in their local language. Our questionnaire allowed descriptive response on the plant fruits prescribed such as flowering season, young fruit, mature fruit, colour of the ripening fruits and its medicinal uses. The above information's were recorded for further studies and cross checked by the traditional practitioner and other professional beneficiaries.

RESULTS

Data collection of important edible fruits:

The present study is aspiring to document the indigenous knowledge of the biodiversity of Boda hills and Kolli hills of Eastern Ghats, Tamil Nadu. About 31 plant species of edible fruits are surveyed in both hills belonging to 18 families such as Anacardiaceae, Annonaceae, Apocynaceae, Arecaceae, Cactaceae, Cornaceae, Cucurbitaceae, Ebenaceae, Euphorbiaceae, Linaceae, Moraceae, Mimosaceae, Myrtaceae, Rhamnaceae, Rubiaceae, Rutaceae, Solanaceae and Verbenaceae were collected through questionnaire, interviews and discussions among tribal practitioners in their local language. Our questionnaire allowed descriptive response on the plant fruits prescribed such as local name, flowering month, Young fruiting month, mature fruiting month, Colour of ripened fruit and its medicinal uses (Table-1 & 2). The above information's were recorded for further studies and cross checked by the traditional practitioner and other professional beneficiaries.

Authentication of Medicinal plants

The collected plants were identified by their vernacular names through consultations with the local people. The collected plants specimen were authenticated by **Rapinet Herbarium**, St. Joseph College, Tiruchirappalli, Tamil nadu, India and **Botanical survey of India (BSI)**, Coimbatore, Tamil nadu, India.

Medicinal importance of edible fruits

The villagers used various medicinal plants to remediate a variety of diseases and ailments like diarrhea, diabetes, analgesic activity, anti-inflammatory activity, anti-microbial activity, cytotoxic activity, anti-oxidant activity, anti-lipidimic activity, anti-ulcer activity, molluscicidal properties, genotoxic effect, vasorelaxant activity, anti-tumour, hepatoprotective activity, larvicidal activity, insecticidal activity, anthelmintic activity and may also for the treatment of undefined unknown diseases (Table-2 & Fig1).

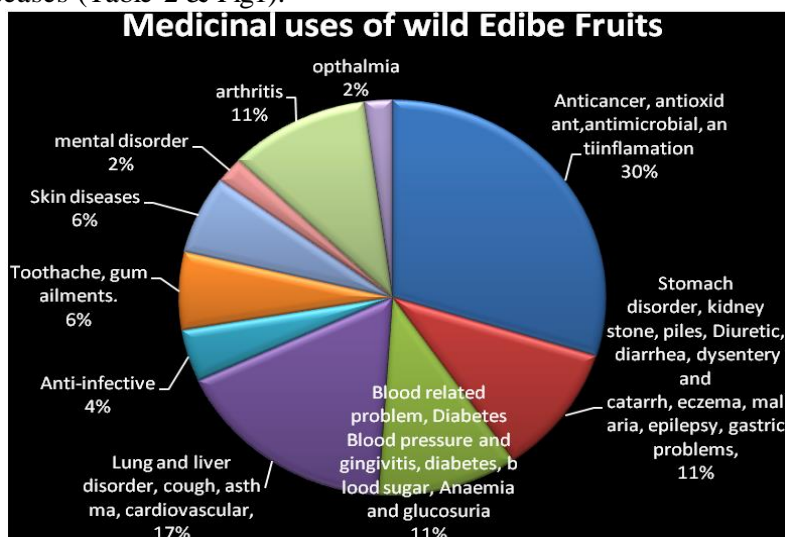


Fig 1: Percentage of medicinal uses of wild edible fruits

Table-1: List of Edible Fruits Collected From BODA and KOLLI Hills

S.No.	Botanical Name	Family	Vernacular name in Tamil	Flowering Month	Young fruiting month	Mature fruiting month	Colour of ripened fruit
1	<i>Aegle marmelos</i> (L.) Corr. Serr	Rutaceae	Vilvampalam	March	May	June	yellow
2	<i>Alangium salvifolium</i> (L.F) Wangerin	Cornaceae	Alingi	February	May	June	Red
3	<i>Annona squamosa</i> L. (Red)	Annonaceae	Seethamaram	December/June	January/July	March/Aug	Red
4	<i>Annona squamosa</i> L.(Green)	Annonaceae	Seethamaram	December/June	January/July	March/Aug	Green
5	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Palamarum	December	February	May	Green
6	<i>Canthium coromandelicum</i> (Burm.f.) Alston.	Rubiaceae	Siru karai	November	December	Jan-March	Black
7	<i>Catunaregam spinosa</i> (Thumb.) Tirveng	Rubiaceae	Perukarai	October	November	Dec-Jan	Green
8	<i>Carissa carandas</i> L.	Apocynaceae	Perukala	August	September	October	Black
9	<i>Carissa spinarum</i> L.	Apocynaceae	Siru kila	August	September	October	Black
10	<i>Coccinia indica</i> Wight & Arn.	Cucurbitaceae	Kovai	October	November	December	Red
11	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Karai	July	August	October	Brown
12	<i>Ficus benghalensis</i> L.	Moraceae	Aalamaram	May	June	August	Brown
13	<i>Ficus religiosa</i> L.	Moraceae	Arasa maram	May	June	August	Brown
14	<i>Hugonia mystax</i> L.	Linaceae	Mothirakanni	March	April	June	Red
15	<i>Lantana camara</i> L.	Verbenaceae	Unni chedi	December/June	January/July	March/Aug	Black
16	<i>Limonia acidissima</i> L.	Rutaceae	Vilapalam	October	December	March	Grey
17	<i>Maba buxifolia</i> . Rottb. A.L. Juss	Ebenaceae	Irupilli	March	April	August	Yellow
18	<i>Mangifera indica</i> L.	Anacardiaceae	Mango	March	April	June	Yellow
19	<i>Morinda pubescens</i> J.E. Smith	Rubiaceae	Nuna maram	March	April	June	Black
20	<i>Murraya koenigii</i> (L.)	Rutaceae	Curry leaf	March	April	June	Black
21	<i>Opuntia dillenii</i> (Ker Gawler) Haw.	Cactaceae	Chappati kalli	August	September	October	Red
22	<i>Phoenix loureirii</i> kunth	Arecaceae	Malai eecham	January	March	April	Black
23	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Malaineli	April	May	June	Yellow
24	<i>Pithecellobium dulce</i> (Roxb.) Benth	Mimosaceae	Kodukkaapuli	February	April	May	Red
25	<i>Solanum trilobatum</i> L.	Solanaceae	Thoothuvalai	January	February	March	Red
26	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Naval	May	June	August	Black
27	<i>Tamarindus indica</i> L.	Fabaceae	Pulli	June	August	November	Brown
28	<i>Tarenna asiatica</i> (L.)Kuntze ex Schumann	Rubiaceae	Therani	January	February	March	Black
29	<i>Toddalia asiatica</i> .Lam.	Rutaceae	Milai karanai	July	October	December	Black
30	<i>Zizyphus mauritiana</i> Lam.	Rhamnaceae	Ilanthai	January	February	March	Brown
31	<i>Zizyphus oenoplia</i> (L) Mill.	Rhamnaceae	Soorai Mullu	January	February	March	Black

Table-2: List of Medicinal Properties of Edible Fruits Collected from BODA and KOLLI Hills

S.No	Botanical Name	MEDICINAL PROPERTIES OF EDIBLE FRUITS
1.	<i>Aegle marmelos</i> (L.) Corr.Serr	Refrigerant, stomachic, stimulant, astringent, aphrodisiac, diuretic, cardiogenic, tonic to liver and lungs, cures cough, hiccup and good for asthma, consumption, tumours, ophthalmia and leucorrhoea.
2.	<i>Alangium salvifolium</i> (L.F) Wangerin	Skin disease and rheumatic pains, astringent, anthelmintic, purgative, emetic and diaphoretic, hypoglycemic, haemorrhages.
3.	<i>Annona squamosa</i> L.(Red)	Anti-oxidant activity, anti-lipidemic activity, anti-ulcer activity, genotoxic effect, anti- tumour, hepatoprotective activity.
4.	<i>Annona squamosa</i> L.(Green)	Anti-oxidant activity, anti-lipidemic activity, anti-ulcer activity, genotoxic effect, anti- tumour, hepatoprotective activity.
5.	<i>Artocarpus heterophyllus</i> Lam.	Antioxidant, anti-inflammatory, anti-bacterial, anti-cariogenic, anti-fungal, anti- neoplastic.
6.	<i>Canthium coromandelicum</i> (Burm.f.) Alston.	Refrigerant, stomachic, stimulant, astringent, aphrodisiac, diuretic, cardiogenic, tonic to liver and lungs, cures cough, hiccup and good for asthma, consumption, tumours, ophthalmia and leucorrhoea.
7.	<i>Catunaregam spinosa</i> (Thumb.) Tirveng	Anthelmintic activity.
8.	<i>Carissa carandas</i> L.	Rheumatoid arthritis, ulcer, atherosclerosis, and asthma.
9.	<i>Carissa spinarum</i> L.	Anthelmintic action, antiscorbutic and remedy for biliousness.
10.	<i>Coccinia indica</i> Wight & Arn.	Wound healing, ulcers, jaundice, diabetes and anti-pyretic.
11.	<i>Diospyros melanoxylon</i> Roxb.	Cure diarrhoea, mental disorders, nervous breakdowns and palpitations of the heart.
12.	<i>Ficus benghalensis</i> L.	Asthma, diabetes, diarrhea, epilepsy, gastric problems, inflammatory disorders, infectious and sexual disorders.
13.	<i>Ficus religiosa</i> L.	Chronic diarrhea and dysentery.
14.	<i>Hugonia mystax</i> L.	Diarrhea, epilepsy, gastric problems, inflammatory disorders, infectious and sexual Disorders.
15.	<i>Lantana camara</i> L.	Headaches, fever, flu, coughs, colds toothaches, indigestion, rheumatism malaria, influenza (leaves, roots).
16.	<i>Limonia acidissima</i> L.	Dermatitis, anti-diuretic, anti-diarrhea, anti-emetic and cardiac herb.
17.	<i>Maba buxifolia</i> . Rottb. A.L. Juss	Cancer, infection, arthritis, asthma and Rheumatoid.
18.	<i>Mangifera indica</i> L.	infection, hypertension, and pain (whistler, 1992).
19.	<i>Morinda pubescens</i> J.E. Smith	Anaemia, diabetes and cure digestion.
20.	<i>Murraya koenigii</i> (L.)	Anti-diabetic and anti-inflammatory.
21.	<i>Opuntia dillenii</i> (Ker Gawler) Haw.	Toothache.
22.	<i>Phoenix loureirii</i> kunth	Fever, cough, asthma, Enhance digestion, treat constipation, reduce fever, purify the blood, reduce cough, alleviate asthma, strengthen the heart, benefit the eyes, stimulate hair growth, enliven the body, and enhance intellect.
23.	<i>Phyllanthus emblica</i> L.	Ulcer, gum ailments, toothache and hemorrhages, dysentery, chronic diarrhea and Tuberculosis.
24.	<i>Pithecellobium dulce</i> (Roxb.) Benth	Cough and solasodine.
25.	<i>Solanum trilobatum</i> L.	Anaemia, Diabetes and cure digestion.
26.	<i>Syzygium cumini</i> (L.) Skeels	Anti-diabetic and anti-inflammatory.
27.	<i>Tamarindus indica</i> L.	Foreheads of fever sufferers, skeletal fluorosis.
28.	<i>Tarenna asiatica</i> (L.)Kuntze ex Schumann	Cancer, cardiovascular, neurodegenerative, inflammatory and alzheimer's diseases.
29.	<i>Toddalia asiatica</i> .Lam.	Malaria, sprains, cough, fever, neuralgia, epilepsy, dyspepsia and other disease conditions.
30.	<i>Zizyphus mauritiana</i> Lam.	Wound and piles used for stomach ache.
31.	<i>Zizyphus oenoplia</i> (L) Mill	Astringent, diaphoretic and fever, piles and wound.

DISCUSSION

The result of the present study provides evidence that traditionally edible fruit continue to play an important role in the healthcare system of this tribal community. Hence for the past decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of India and there are many reports on the use of plants in traditional healing by either tribal people or indigenous communities of Boda hills (Raju Sathiyaraj *et al.*, 2015) and Kolli hills of Eastern Ghats Francis Xavier *et al.*, 2011). About 30% of the edible fruits were used for Anticancer, antioxidant, antimicrobial, and anti-inflammation (Kumari Subitha, 2011). Above 17 % edible fruit helps in curing diseases such as Lung and liver disorder, cough, asthma and cardiovascular. 11% of fruits helps in Stomach disorder, kidney stone, piles, Diuretic, diarrhea, dysentery and catarrh, eczema, malaria, epilepsy, gastric problems, Blood related problem, Diabetes Blood pressure and gingivitis, diabetes, blood sugar, arthritis, Anaemia and glucosuria. 2% to 6% of other diseases cured by edible fruits (Ranjitha kani *et al.*, 1992; Francis Xavier *et al.*, 2011). These edible fruits represent a vital source of the traditional system of medicine and pharmaceutical industries in view of their raw material. Present facilities are now making a rapid penetration into tribal villages, which may result in the disappearance of the herbal wealth and other uses. It is expect that this 31 edible fruits will draw the attention of new drugs discovery and used to treat above stated disease such as analgesic activity, anti-inflammatory activity, anti-microbial activity, cytotoxic activity, anti-oxidant activity, anti-lipidimic activity, anti-ulcer activity, molluscicidal properties, genotoxic effect, vasorelaxant activity, anti-tumour, hepatoprotective activity, larvicidal activity, insecticidal activity, anthelmintic activity, anti-cancer, cold, diabetes, digestive disorder, dog bite, dysentery, fever, fungal diseases, head ache, jaundice, joint Pain, piles, skin diseases, snake bite, stomach ache, ulcer, urinary diseases, urinary stones and wound.

CONCLUSION

Tribals Residents in the study area which find for the wild edible fruits has a traditional medicine at very cheaper cost when compared to synthetic medicines. It is therefore implicated that efforts should be made on how to improve on documentation, conservation and standardization of the medicinal edible fruit from plants in Boda and Kolli hills. Also, help for the scientists and health officials should drawn attention on various pharmacological importance and they should exaggerate on the research to reveal other concealed values.

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