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Ethnomedicinal plant knowledge of Tribe *Muthuvas* of Mannavan Shola Forest of Southern Western Ghats, Kerala, India

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Abstract

Ethnomedicinal data of 38 plant species used to prepare medicinal formulations to cure various ailments were gathered from *Muthuva* tribes who reside in the shola regions of Mannavan Shola Forests of Kerala. The present study discussed the persistence of folk medicine practices in Mannavan shola forest are being influenced by culture and socio-economic aspects, providing a cheaper and accessible alternative to the high cost pharmaceutical remedies.

Key words: Ethnomedicine, *Muthuvas*, Mannavan shola forest, Kerala

Introduction

India is home to a great variety of ethno-medicinally important plant species, and is ranked sixth among 12 mega diversity countries of the world (Singh, 2002). There are over 2500-plant species having documented medicinal value, a majority of them growing in wild state, whereas only a few are cultivated (Jain, 1991). Ethnobotanical studies assume great importance in enhancing our existing knowledge about the plants grows and used by native/ tribal communities, the rich diversity assembled by them for their sustenance and the different means adopted by them for its preservation and conservation.

The tribals have developed their own traditional ways of diagnosis and treatment of diseases by trial and error and fulfill their basic requirements in this regard from the nearby forest (Rajith *et al*., 2010). As a consequence of this long experience and practice, it has become an effective way of accumulation of rich knowledge on medicinal plants and usage of other natural resources among them the ethnomedicine is the mother of all modern drugs and recently the importance of the traditional knowledge based medicines are being utilized throughout the world (Singh, 2002).

Study Area

The Mannavan shola forest (77° 12′ 8" E and 10° 12′ 8" N). Comes under Marayoor Forest Range of Wild life Division (Munnar, Idukki District, and Kerala). This shola forest is nearly 370 ha in size with an average elevation of 1950 m. The mean annual temperature is about 20° C and mean annual precipitation is 2000 mm-3000 mm. The soil is red, sandy loam, oxysol, acid (pH = 4.2) with 4.6 % to 14 % Organic carbon content. (Binu Thomas *et al.*, 2011).

Plate: 1A) Map of India showing Kerala state with Idukki district

Plate -1B: Study Area :- Mannavan shola forest of Southern Western Ghats of Kerala

Materials and Methods

Mannavan Shola Forest is situated in the Western Ghats region of Kerala with an altitude varying from 1,900 to 2,500 M from sea level (Plate 1A; Fig. B). The tribe *Muthuvas* are the only group who live in the high altitude regions of the Mannavan shola forest. They had come to the hills, hundreds of years ago from Madurai plains of Tamil Nadu (Nair, 994; Singh,1994).

The study was conducted during January 2008 – September 2008. During this study the tribe *Muthuvas* are unique in that they have been isolated geographically and culturally from the caste in the groups in the plains for a long time were introduced with a view to find out ethno medicinal plants used various diseases were collected from the field, pressed, dried and mounted on the herbarium sheets. The plants were identified with the help of Flora of Presidency of Madras (Gamble and Fischer, 1915-1931) and cross checked with the specimens deposited in the Herbarium of Bharathiar University, Coimbatore, Tamil Nadu. The questionnaires were desired to identify the indigenous knowledge of plant based remedies from local people by words of mouth and also by personal observation. Plants have been collected in their flowering and fruiting stages as far as possible from the natural habitat. Standard ethnobotanical methodology was followed during collection of data on medico-botanical aspects (Jain, 1991). The plant specimens were collected, dried, identified and preserved for herbarium purpose Jain and Rao, 1977).

Results and Discussion

The present ethnobotanical survey documented medicinal uses of 38 plant species representing 36 genera and 31 families (Table- 1). The data is presented in the form of table containing plant name, family, local name, parts used for herbal medicine, mode of preparation and administration by tribal communities. The representing plants are mostly used to cure skin diseases, poisonous bites, cough, wounds, stomach problems and an antidote for snake bite. Leaves are the most widely (47%) used plant part of the reported medicinal plants, followed by whole plant (18%), roots (13%), bark/stem and fruits (8 %), seed and resin (3%) each (Fig. 1). A majority of remedies are prepared in the form of extract or juice followed by paste, powder form of freshly collected plant parts. For few remedies, medicines are prepared after drying.

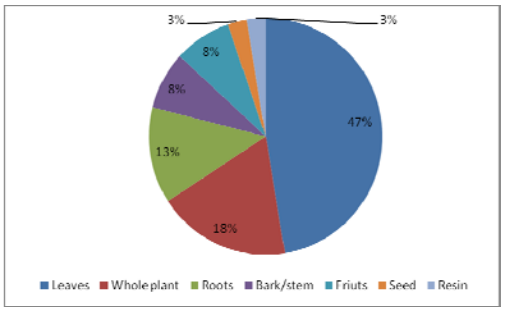

Fig. 1: Percentage of utilization of plant parts as medicines from the study area

Plate -1C) *Gaultheria fragrantissima* Wall

Plate -1D) *Cyanotis pilosa* Schult

Plate - 1E) *Persicaria chinensis* (L.) Gross.

Plate -1F) *Toddalia asiatica* (L.) Lam.

Ethno botanical investigations into the tribal communities of Kerala have been made by earlier workers with different perspectives (Ramachandran and Nair, 1981; Pushpangadan and Atal, 1984; Udayan *et al*., 2005; Silja *et al*., 2007 and Binu Thomas *et al*., 2010, 2011, 2012).

The recording of information from traditional healers will go a long way in finding out locally available solution for health care. It is especially relevant in view of the high cost of synthetic medicines, which are beyond the reach of the poor people, these indigenous healthcare recipes with scientific refinement can be made accessible even to the deprived persons.

The information provided in the paper is limited and there is a scope to initiate further ethnobotanical study among the communities to gather information as far as possible. The medicated claims incorporated in the study need to be evaluated through phyto and pharmacochemical investigations to discover their potentiality as drugs. There is an urgent need to explore and document the ethnomedicinal plants used by the tribal and other communities of Mannavan Shola forest and adjacent areas before such valuable knowledge vanishes.

Most of the ailments such as stomachache, urinary problems, jaundice and diarrhoea can be cured by oral administration. Some of the ailments may be cured by both external as well as internal application such as animal bites and muscular problems. Using single plant part or a combination of two or more different plant species is also used. It is observed from the study that, most of the rural people in this area cultivate some of the common medicinal plants in their home gardens for first aid.

Table-1: List of Ethnomedicinal plants used by tribe *Muthuvas* from Mannavan shola forest of Southern Western Ghats of Kerala

Sl. No.	Botanical Name	Local name	Parts Used	Medicinal uses
1	*Ageratum houstonianum* Mill (Asteraceae) BUH 1102	Michangala	Leaves	Leaf juice along with lime applied on cuts
2	*Ammannia baccifera* L. (Lythraceae) BUH 1107	Nerupu	Leaves	Leaf juice taken internally for poison bites.
3	*Asparagus racemosus* Willd. (Liliaceae) BUH 1112	Periyan	Tuberous roots	Crushed roots applied over swellings
4	*Balanophora fungosa* J.R. & G. Forst. (Balanophoraceae) BUH 1124		Whole plant	Plant paste used against piles
5	*Boswellia serrata* Roxb. (Burseraceae) BUH 1123	Kanaka	Bark	Bark powder is applied on joint pains
6	*Centella asiatica* (L.) Urb. (Apiaceae) BUH 1122	Nilacheera	Whole Plant	Entire plant paste is applied against skin diseases
7	*Curculigo orchioides* Gaertn. (Hypoxidaceae) BUH 1111	Nilappana	Roots	Used as purgative
8	*Cyanotis pilosa* Schult. & Schult. f. (Commelinaceae) BUH 1108	Kannali	Whole plant	Used as laxative to cattle
9	*Cymbopogon travancorensis* Bor. (Poaceae) BUH 1103	Inchi Pullu	Leaves	Distilled oil used against pains, colds

10	*Dodonaea viscosa* L. (Sapindaceae) BUH1126	Vrali	Leaves	Water boiled with leaves used for swellings and backaches
11	*Drosera peltata* Sm. (Droseraceae) BUH1105	Koshuvotti Pullu	Whole plant	Crushed plant is applied on swellings
12	*Emilia scabra* DC. (Asteraceae) BUH 1127	Poosha thala	Leaves	Leaf paste is applied against muscle pains
13	*Eucalyptus globulus* Labill. (Myrtaceae) BUH 1110	Eucali	Bark/leaves	Distilled oil used against painful joints, headache, backaches, coughs and colds
14	*Euphorbia thymifolia* L. (Euphorbiaceae) BUH 1128	Palsarsu	Root	Root paste applied locally on abdomen of children relieve from abdominal pain
15	*Gaultheria fragrantissima* Wall. (Ericaceae) BUH 1109	Kolgatte	Leaves	Crushed leaf applied against muscle spasms
16	*Hemidesmus indicus* R. Br. (Asclepiadaceae) BUH 1106	Nannari	Root	Root powder is added with water, filtered and taken orally twice a day to relief from rheumatic complaints
17	*Hypericum mysorense* Heyne ex Wight & Arn. (Hypericaceae) BUH 1115	Avaram	Leaves	Leaf paste used to remove body hairs
18	*Kalanchoe pinnata* (Lam.) Pers. (Crassulaceae) BUH 1128	Elamulachi	Leaves	Fresh leaves are grounded and applied on sprains for quick relief
19	*Lobelia nicotianifolia* Roth ex Schult. (Lobeliaceae) BUH 1114	Thonnali	Leaves	Leaf paste used as a tick repellent in cattle and also for wounds in cattles
20	*Mastixia arborea* (Wight) Bedd. (Cornaceae) BUH 1113	Eramba maram	Resin	Burn to repel flies and mosquitoes
21	*Oxalis corniculata* L. (Oxalidaceae) BUH 1117	Puliyaral	Leaves	Chewed as a mouth freshner
22	*Oxalis latifolia* Kunth (Oxalidaceae) BUH 1125	Pulis	Tubers	Poured tubers are used for stomach problems
23	*Physalis peruviana* L. (Solanaceae) BUH 1129	Malathakkali	Leaves	Leaf decoction is used against jaundice
24	*Piper wightii* Miq. (Piperaceae) BUH 1106	Thippali	Fruits	Decoction made out of fruits is used against headaches and stomach aches
25	*Plantago erosa* Wall. (Plantaginaceae) BUH 1130	Njaramboori	Leaves	Leaf paste used as an antiseptic in wounds
26	*Persicaria chinensis* (L.) Gross.(Polygonaceae)BUH 1132	Mukkala	Leaves	Crushed leaves used as shampoo
27	*Pouzolzia bennettiana* Wight (Urticaceae) BUH 1116	Sera Thandan	Whole Plant	Crushed plant is used for cuts and wounds
28	*Rhodomyrtus tomentosa* Wight. (Myrtaceae) BUH 1118	Thaita	Leaves	Young leaves are used as a medicine for diarrhoea
29	*Saprosma foetens* (Wight) K. Schum. (Rubiaceae) BUH 1119	Peenari	Bark	Bark is burned to repel flies and mosquitoes
30	*Sida acuta* Burm.f. (Malavaceae)BUH 1121	Kurunthotti	Leaves	Leaf extracts applied on bruises and cuts
31	*Solanum mauritianum* Scop. (Solanaceae) BUH 1120	Thaaf	Leaves and Friuts	Juice obtained from both leaves and fruits is used to repel leeches
32	*Solanum viarum* Dunal (Solanaceae) BUH 1123	Kanthamullu	Fruit	Fruit pulp rubbed on feet to repel leeches
33	*Syzygium cumini* (L.) Skeels (Myrtaceae) BUH 1131	Potti Njaval	Bark	Bark is crushed along with the stem of *Gnidia glauca* is used as fish poison
34	*Tetrastigma leucostaphylum* (Dennst.) Alston (Vitaceae) BUH 1133	Pashala kodi	Whole Plant	Crushed plant part with castor oil and applied over boils
35	*Toddalia asiatica* (L.) Lam. (Rutaceae) BUH 1135	Kantham	Leaves	Leaf juice with honey for cold and cough in children
36	*Vernonia conyzoides* DC. (Asteraceae) BUH 1134	Pathiri chedi	Whole Plant	Plant is crushed with lime is applied on wounds
37	*Vigna radiata* (L.) Wilczek (Fabaceae) BUH 1137	Kattuzhunnu	Seed	Cooked seeds helps in reducing eye irritation
38	*Vitis vinifera* L. (Vitaceae) BUH 1139	Munnaka	Fruits	Dried fruits roasted and salted and taken with milk cures stomach ailments

Conclusion

The outcome of the present study reveals that traditional medicinal plants still play a vital role in primary healthcare of tribal communities in Mannavan Shola forest of Kerala and the knowledge documented from them will be very useful for researchers in the field of medicine. The findings of the study need to be sustained with pharmacological studies in order to evaluate their efficacy. Appropriate measures should be taken to preserve the indigenous knowledge as

well as conserve and propagate useful rare and endemic medicinal plants.

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