

ETHNOMEDICINAL STUDIES IN SELECTED MEDICINAL PLANTS OF DHONI FOREST, WESTERN GHATS, KERALA

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Received: 9 April 2014, Revised and Accepted: 4 May 2014

ABSTRACT

Objective: The objective of the study was to identify and utilize medicinal plants used by Irula tribal's of Dhoni Forest, Kerala.

Methods: Frequent field visits were made throughout the study period from October 2011 to June 2012 in the study area.

Results: A total of 32 medicinal plant species used by the Irula tribes were documented. These medicinal plant species were distributed in 23 families and 32 genera. In terms of number of medicinal plant species, Apocynaceae, Malvaceae and Menispermaceae were the most dominant families of medicinal plants. The results of the present study provide evidences that medicinal plants continue to play an important role in the health care system of the tribal community.

Conclusion: The treasure of knowledge on traditional medicine is gradually vanishing due to modernization and civilization of tribal community and also the younger generation not showing any interest in learning those practices. The collected detailed information on the list of plants and their therapeutic practices among Irula tribes may be helpful to improve the future pharmaceutical applications.

Key words: Dhoni Forest, Irula tribe, medicinal plants, Ethnomedicinal uses.

INTRODUCTION

The history of herbal medicine of India is very old, perhaps the oldest use of plants have been documented in ancient Hindu Scriptures like Rigveda (4500-1600BC), Charak Samhita (1000-800BC), Sushrut Samhita (800-700 BC) and others. Though, about 2000 plant species are reported to be used for medicinal purposes in Indian subcontinent, but 500 species are commonly employed in different indigenous systems of medicine prevailing in the country [1]. Indian subcontinent is being inhabited by over 53.8 million tribal people in 5000 forest dominated villages of tribal community and comprising 15% of the total geographical area of Indian landmasses, representing one of the greatest emporia of ethno-botanical wealth [2].

The world health organization estimates that about 80% of the world's population relies mainly on herbal medicine for primary health care [3, 4]. Local plant uses have been studied extensively in India by various researchers [5 -7]. Approximately 1500 species of vascular plants are used for medicinal purposes by tribal and ethnic groups in India [8]. Ethnobotanical studies have brought to light numerous plants having significant medicinal properties which were earlier unknown to scientific world [9 -14]. Today many drugs that are in markets have come to us from folk use and use of indigenous communities. The Western Ghats of India including Sri Lanka comprise a biodiversity hotspot and have more than 2000 endemic vascular plant species. The villagers of Irula inhabitants of surrounding forested land rely largely on local plant resources for household purposes, medicinal properties, and food. This study is a documentation of various plant uses by local village dwellers and plant healers of Dhoni forests of Palakkad district, Kerala.

MATERIALS AND METHODS

Study Area

The gross area of the Division is 240.33 Sq. km, including 72.83 Sq.km of Reserved Forests and 167.50 Sq. km of Vested Forests. The whole of Palakkad Forest Division is situated in Ottappalam and

Palakkad Taluks of Palakkad Revenue District. The area lies between 10° 45' and 10° 55' North latitude and 76° 50' and 76° 10' East longitude.

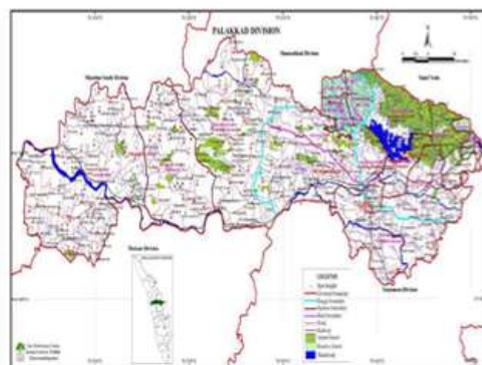


Fig.1: The map of Dhoni and Walayar Forest, Palakkad Forest Division, Kerala.

Source: Kerala Forest Department

Irula tribes

The Irulas are the tribal community and they are traditional snake and rat catchers. The Irulas are the Dravidian inhabitants and one among the 36 sub-tribal communities in Kerala and Tamil Nadu that holds the population about 26,000 Irulas living in Tamil Nadu, out of the total population of 558 lakh in the state [15]. They were 1.5 % of the population of Tamil Nadu whereas in 2001, they constituted only 1 % of the population of the state¹³. This is no longer their means of living, and over these years of existence they have been unable to find a sustainable occupation for themselves. They earn their living by doing 'coolie' work. This could be either by working as labours in the fields of the landlords during the sowing and harvesting seasons

or by working in the rice mills. Fishing is also an occupation in some of the Irulas villages.

Data Collection

Extensive field trips were conducted during the period from October 2011 – June 2012. The information was collected through questionnaires and discussions among the informants in their local language. The questionnaire allowed responses on the plant prescribed, part of the plant used, medicinal uses for each part, mode of preparation (*i.e.*, decoction, paste, powder and juice), form of usage (either fresh or dried) and additional plants used as ingredients. The collected and preserved plants were identified and cross-checked with the available literature about medicinal plants, ethnobotany and the flora books like The Flora of Presidency of Madras by Gamble and The Flora of Palakkad and Flora of Cannanore districts of Kerala published by the Botanical Survey of India.

RESULTS

Irula Tribes of Dhoni forest are using 32 Ethnomedicinal plants species belonging to 23 families for medicinal uses. The present study focused mainly on the plant species used by Irula tribes for their primary healthcare needs as reported by the informants. The plants were arranged according to their scientific name, family, vernacular names, parts used, therapeutic uses and method of usage of herbal preparations. They were using these plants to cure Snake bites (*Andrographis paniculata*, *Aristolochia bracteolata* and *Pachygone ovata*), diarrhea (*Andrographis paniculata*, *Bauhinia purpurea*, *Ficus glomerata*, *Justicia adhatoda*, *Solanum rupeanum*, and *Rivea hypocrateriformis*), and dysentery (*Aegle marmelos*, *Asparagus racemosus*, *Cissus quadrangularis*, *Desmodium gangeticum*, *Desmodium triflorum*, *Fimbristylis cymosa* and *Papaver somniferum*). Medicines were prepared in the form of powder, decoction, paste and juice. It was also observed that some plants were used in more than one form of preparation [16].

Table: Ethnomedicinal Plants used by Irula tribes, Dhoni Forest

Sl. No	Botanical Name	Local name	Family	Parts used	Medicinal properties
1	<i>Wrightia tinctoria</i> R.Br.	Danthappala	Apocynaceae	Leaves	Leaf juice mixed with coconut milk is used to cure soriasis.
2	<i>Saraca asoca</i> (Roxb.) Willd.	Ashokam	Caesalpinaceae	Flowers	Boiling flowers with coconut oil is used for skin diseases.
3	<i>Cheilocostus speciosus</i> (J.Koenig) C.D.Specht.	Aanakkoova	Zingiberaceae	Rhizome	Decoction of rhizome is used for Kidney stone. Root juice mixed with neem given orally for jaundice.
4	<i>Alstonia scholaris</i> (L.) R. Br.	Ezhilampala	Apocynaceae	Whole plant	Milky juice is used for ulcers.
5	<i>Madhuca longifolia</i> (J.Koenig ex L.) J.F.Macbr.	Illappa	Sapotaceae	Seed	Oils from seeds are used for skin diseases.
6	<i>Cassia fistula</i> L.	Kanikkonna	Caesalpinaceae	Leaves	Applying the juice of tender leaves are good for eczema.
7	<i>Sida rhombifolia</i> L.	Vankuruntotti	Malvaceae	Root	Decoction of root with milk is beneficial for arthritis and allied complaints.
8	<i>Hydnocarpus wightianus</i> Blume	Marotti, Maravetti	Flacourtiaceae	Fruit, seed	Seed oil for leprosy, rheumatic arthritis, diabetes, swelling and skin diseases
9	<i>Cyclea peltata</i> (Lam.) Hook.f. & Thomson	Patavalli, Patakkizhangu	Menispermaceae	Leaves	Crushed leaves are applied to wounds to stop bleeding.
10	<i>Tinospora cordifolia</i> (Lour.) Merr.	Chittamrit	Menispermaceae	Whole plant	The plant juice twice a day reduces urinary diseases.
11	<i>Garcinia gummi-gutta</i> (L.) Roxb.	Kudampuli	Clusiaceae	Stem	Juice obtained from the stem is used to remove pimples and boils.
12	<i>Crinum latifolium</i> L.	Kattulli	Amaryllidaceae	Bulb	Bulb extract is used to cure swellings around finger nails.
13	<i>Vateria indica</i> L.	Vella kuntirikkam, Payinu,	Dipterocarpaceae	Bark	Bark is used in the treatment of cough and skin eruption.
14	<i>Sida cordata</i> Borss (Burm.f.) Borss.Waalk.	Vallikurunthotti	Malvaceae	Leaves	Leaves are used as a local applicant to cuts and wounds and against diarrhea
15	<i>Bombax ceiba</i> L.	Mullilavu	Bombaceae	Flowers	Dry flowers used externally in the

16	<i>Helicteres isora</i> L.	Idampiri Valampiri	Sterculiaceae	Root	treatment of boils, sores and itches. Root juice is used in the treatment of diabetes.
17	<i>Sterculia foetida</i> L.	Pottakavalam	Sterculiaceae	Fruit	Leaves are used as a fumigant.
18	<i>Grewia tiliaefolia</i> Vahl	Chatachi	Tiliaceae	Bark	Bark is used externally to remove the irritation from cow-itch.
19	<i>Ailanthus excelsa</i> Roxb.	Matti, Pongiliyam	Simaroubaceae	Bark	Bark is used in the treatment of chronic bronchitis, asthma and dyspeptic complaints
20	<i>Aegle marmelos</i> (L.) Correa	Koovalam	Rutaceae	Leaves	Decoction of fresh leaves taken orally for cough, body cooling and eye problems.
21	<i>Dioscorea pentaphylla</i> L.	Kaattukachil	Dioscoreaceae	Root	Boiled root is used for piles.
22	<i>Holarrhena pubescens</i> Wall. ex G.Don	Kudakappala	Apocyanaceae	Bark	Powdered dried bark mixed with honey cures loose motion, boiled bark juice helps in drying injuries.
23	<i>Abutilon indicum</i> (L.) Sweet	Venkurunthotti	Malvaceae	Leaves	Leaves used in mouth wash in cases of tooth ache and tender gums.
24	<i>Sapindus laurifolius</i> Balb. ex DC.	Uruvanchi	Sapindaceae	Fruit	Pericarp extract is used in the preparation of insecticides.
25	<i>Butea monosperma</i> (Lam.) Taub.	Plasu	Papilionaceae	Leaf	Leaf juice is used for boils and piles.
26	<i>Tridax procumbens</i> (L.) L.	Muriampachila	Asteraceae	Leaf	Leaf paste is applied in wounds.
27	<i>Leucas aspera</i> (Willd.) Link	Thumba	Lamiaceae	Leaf	Leaf juice mixed with honey is used for skin allergy.
28	<i>Aerva lanata</i> (L.) Juss.	Cheroola	Amaranthaceae	Leaf	Decoction of leaf juice taken for kidney stone inflammation.
29	<i>Lantana camera</i> L.	Arippu	Verbenaceae	Leaf	Leaf juice is used for cough.
30	<i>Macaranga peltata</i> (Roxb.) Mull. Arg.	Vatta	Euphorbiaceae	Stem	Gums applied in sores.
31	<i>Chrysopogon zizanioides</i> (L.) Roberty	Ramacham	Poaceae	Roots	Root paste is applied externally for cooling in fevers.
32	<i>Emilia sonchifolia</i> (L.) DC. ex DC.	Muyalcheviyan	Asteraceae	Leaf	Leaf juice mixed with coconut oil is used for tonsillitis.

DISCUSSION

The herbal preparations made from the traditional medicinal plants were mostly used for the treatment of stomach ache, boils, piles, cough, skin allergy; tooth ache etc. The study shows that a good number of plants collected were used for the treatment of many diseases. *Aegle marmelos* (used for cough, body cooling and eye problems); *Bombax ceiba* (used for boils, sores and itches); *Acacia caesia*, *Sida rhombifolia*, *Garcinia gummi-gutta*, *Vateria indica*, *Sida cordata*, *Holarrhena pubescens*, *Abutilon indicum* are used to treat two diseases and rest of them for one disease.

Ethnobotanical studies on medicinal plants used by Irula tribes

Among 32 wild edible medicinal plants are used for curing various diseases as ailments by Irula tribes (Figure: 2)



Fig.2: Medicinal plants (1) *Alstonia scholaris* (L.) R. Br. (2) *Cheilocostus speciosus* (J.Koenig) C.D.Specht (3) *Dioscorea pentaphylla* L. (4) *Ailanthus excelsa* Roxb. (5) *Crinum latifolium* L. (6) *Cyclea peltata* (Lam.) Hook.f. & Thomson (7) *Bombax ceiba* L. (8) *Ipomea pes-tigridis* L. (9) *Aegle marmelos* (L.) Correa

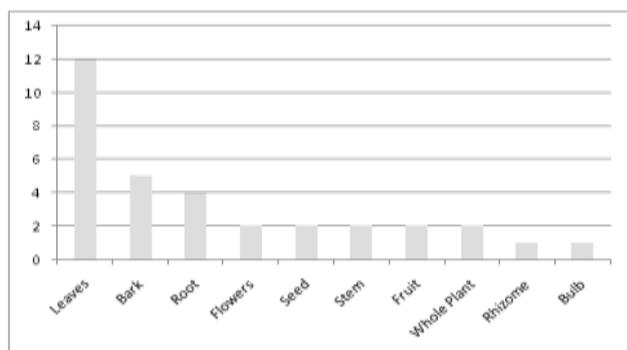


Fig. 3: Parts of medicinal plants used.

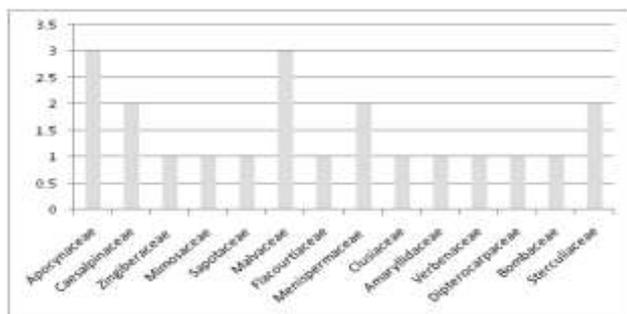


Fig. 4: Family wise distribution of medicinal plants.

CONCLUSION

Herbal remedies uphold by the tribal peoples will help to innovate new research areas in pharmaceuticals and thereby producing new drugs to fight against diseases. Modernization results in the shrinking habitat of the medicinal plants and the ever increasing demand for the raw drugs pose great threats to some species that are in the verge of extinction. Intensive studies on indigenous medicinal plants and germplasm collection of the various species are therefore very effective.

With all these background information, and having realized that the habitat of medicinal plants is and will continue to be the forests. A holistic approach envisaging the interaction between social, economic and ecological systems will be a significant one towards achieving the most tangible results of conservation and judicious harvesting of medicinal plants. Unfortunately, knowledge of tribal's has only oral traditions without any written documents. Due to the changing life style of tribal's and fast urbanization, the ethno botanical knowledge on useful plants acquired and accumulated through generations is gradually getting lost. Ethnobotanical study of tribal people can bring out many more herbal drugs. Hence, documentation of the indigenous knowledge of wild plants has become important for the modern man which would otherwise be lost forever.

CONFLICT OF INTEREST STATEMENT

We declare that we have no conflict of interest.

ACKNOWLEDGEMENT

We express our sincere thanks to The Management, Administrative authorities of Karpagam University for providing necessary facilities to carry out this study. Authors are also thanks to Kerala Forest Department and Palakkad Forest Division and the tribal people, those who are shared the valuable traditional knowledge and to the Additional Director, Botanical Survey of India, Southern Regional

Centre, Coimbatore for permission to consult the Madras Herbarium and Library.

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