



Ethnobotanical study of *Irular* tribe from Siruvani foot hills of Coimbatore District in Tamil Nadu.

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Abstract

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The tribes are the rich knowledge treasure of medicinal plants and its uses. Ethnobotanical survey was carried out among the ethnic groups (*Irular*) in Coimbatore District of Tamil Nadu to document the traditional knowledge. In the present survey, it is observed that 30 plant species belonging to 22 families were identified with relevant information on its botanical name, family, local name, parts used and utilization by the local *Irular* tribal people for different ailments. The common diseases treated by the herbal practitioner were aphrodisiacs, arthritic, asthma, cold, cough, diabetes, fever, paralyzes, skin diseases, diabetes, diuretic, arthritic, cold, cough, fever etc. The medicinal plants present locally in the *Irular* tribal villages supports for the health benefits of tribal peoples.

Introduction

The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Siddha and Unani. In India, it is reported that traditional healers use 2500 plant species and 100 species of plants serve as regular sources of medicine (Pei, 2001). The Indian subcontinent is being inhabited by over 53.8m tribal people in 5,000 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 (Chowdhuri, 2000). They have a deep belief in their native folklore medicine for remedies and they rely exclusively on their own herbal cure (Sajem and Gosai 2006).

Irulars are the lowest of the low and the poorest of the poor in Indian society, with little means at their disposal of enforcing their rights, despite the fact that they live in the world's largest functioning democracy. The *Irular* inhabit the northern, eastern, western zones of hills, plains, coastal parts of Tamil

Nadu, a state in south-eastern India. Located not far from the city of Madras, they live in a tropical area subject to monsoon rains. Their language, *Irular*, is related to Kanada, Tamil and Telugu and, in the Tamil language, the name *Irula* means "people of darkness." This could refer to their dark-coloured skin or to the fact that all important events traditionally took place in the darkness of night. *Irula* houses are built together in small settlements or villages called *mottas*. The *mottas* are usually situated on the edges of steep hills and are surrounded by a few dry fields, gardens, and forests or plantations. The typical house consists of only one room with an earthen floor, thatched roof, and a front porch. Less traditional houses have tile roofs and stone walls. The people sleep on mats, which they roll up and store in a corner during the day. They always wash their feet before going inside the house, where usually only family members and relatives are allowed.

According to 2011 census In Coimbatore district, out of total 25,737 tribal populations, 9719 are *Irular* tribe. The *Irular* tribe has the rich traditional knowledge on medicinal plants. Traditionally, this treasure of knowledge has been passed on orally from generation to generation without any written document (Perumal Samy and Ignacimuthu, 2000). Knowledge of the people associated with the traditional folk practices using allopathy. Wild plants are now fast

disappearing due to modernization and gradual migration to mainstream medicines. Hence, there is an urgent need to study and document this precious traditional knowledge for our posterity (Panimalar, 2005). Based on that the present study were carried out in five different *Irular* tribal villages at Siruvani foot hills at Boluvampatti Forest Range in Coimbatore district.

Materials and Methods

This study was designed to analyse and document the traditional knowledge of the *Irular* tribal community in Siruvani foot hills of Coimbatore district in Tamil Nadu. The survey was conducted in five different places of Boluvampatti Forest Range in Coimbatore Forest Division viz, Sarkarpathi, Vellapathi, Pottapathi, Sadvayal and Seengapathi. About thirty respondents were interviewed for their knowledge and mode of use of medicinal plants. The information was recorded by using a questionnaire (Table-1).

The method of exploration was conducted with representatives drawn from various age groups and discussed about opinion to document their traditional and indigenous knowledge for conservation, proper documentation and utilization of their own valuable information of the known valuable medicinal plant species to protect those medicinal plants for the future generation.

Table. 1: Datasheet of Interviewed Irulars from the study area

S. No.	Village Name	More than 50 years		30-50 years		Less than 30 years	
		Person surveyed	Answered relatively	Person surveyed	Answered relatively	Person surveyed	Answered relatively
1.	Sarkarporathi	10	8	10	6	10	4
2.	Vellapathi	10	3	10	2	10	2
3.	Pottapathi	10	4	10	2	10	1
4.	Sadivayal	10	6	10	4	10	4
5.	Seengapathi	10	5	10	3	10	3

The information was collected by following the questionnaire in an informal way during interactions to avoid nervousness among the respondent. After collection of data it was analyzed with the help of relevant existing literature.

Result and Discussion

Among the 5 different places and 3 different age group at

Sarkarporathi people answered relatively higher compared to other places. Among the different age group more than 50 year old persons gave more information compared to middle and young age (Table. 1). The following are some of the uses of medicinal plants revealed by the respondents.

Table 2: Documented traditional knowledge on medicinal plants from the Irular tribes in Nilgiri district.

S. No	Botanical name	Family	Local name	Parts used	Method of preparation and Uses
1.	<i>Abrus precatorius</i>	Fabaceae	Gundu mani	Leaf	Leaves have to be chewed and its juice has to be gargled out. This acts as a mouth freshener and cures bad breath.
2.	<i>Abutilon indicum</i>	Malvaceae	Thuthi	Leaf	Leaf paste is given orally for piles and prepare pillow by using leaves and using as a sitting seat like jeep, car etc.
3.	<i>Achyranthes aspera</i>	Amaranthaceae	Nayuru vi	Leaf	Leaf Paste with onion is applied externally on the bitten site of dog and to cure skin diseases, the stem good for tooth which used as a tooth brush.
4.	<i>Acalypha indica</i>	Euphorbiaceae	Kuppai meni	leaf	Fresh leaves paste is applied externally for skin problem and fresh leaf juice mixed with 5% salt given orally for

					children cold.
5.	<i>Adhatoda vasica</i>	Acanthaceae	Adathodai	Leaf	The leaf decoction or leaf powder or one leaf with one block pepper is taken internally to cure cold and cough and also taken in the form of rasam.
6.	<i>Aegle marmelos</i>	Rutaceae	villvam	Leaf, fruit pulp	Leaf powder or decoction taken orally for nausea and fruit pulp act as a stomach cleans, body coolant and extra body weight reduction.
7.	<i>Aloe vera</i>	Liliaceae	Sotrukartrazhai	Pulp	Consumption of pulp, external applications, body coolant, ever sixteen, skin ringles, fertility, stomach worm, weight gain, obesity.
8.	<i>Andrographis paniculata</i>	Acanthaceae	Nilavembu	Leaf & Stem	Leaf paste, powder and decoction is taken orally for snake, rat, cat, dog bite etc and diabetic, cold, skin diseases, fever.
9.	<i>Coccinia cordifolia</i>	Cucurbitaceae	Kovai	Leaf	It added to the food in the form of koottu for ulcer and wound healing, body coolant and diuretic.
10.	<i>Calotropis gigantia</i>	Asclepiadaceae	Vellaerukku	Latex	The 3- 5 drops of latex applied for sting of wasp, honeybees, dog bite, snake bite etc.
11.	<i>Cardiospermum halicacabum</i>	Sapindaceae	Mudakkathan	Leaf	Leaf paste is taken as soup and roast form for body pain, joint pain and gastric problem. Leaves powder taken with honey/ water/ raw leaves also for same one.
12.	<i>Cassia auriculata</i>	Caesalpiniaceae	Aavarai	Leaf & flower	Young leaves are made into a paste and used as shampoo to make cleaning and cooling effect. Powdered flower is taken orally for Diabetes, skin brightness (colour) and flower decoction taken orally for jaundice. This flower is



					used to reduce body odour. When it is consumed for once in 15days.
13.	<i>Cissus quadrangularis</i>	Vitaceae	Pirandai	Tender stem	Fried along with tamarind, salt, onion, garlic etc grind in to chutney, sambar, gravy, pickles. It act as an appetizer, cleans the stomach and is a good source of calcium and iron for strengthen the born.
14.	<i>Coleus aromaticus</i>	Lamiaceae	Karpoo avalli	Leaf	Fresh leaves taken orally for cold. Fresh leaf juice is given orally for children, cold and cough.
15.	<i>Cynodon dactylon</i>	Poaceae	Arugum pull	Leaf	Leaf juice is taken orally for digestion, body weight reduction, blood purification and body coolant.
16.	<i>Euphorbia hirta</i>	Euphorbiaceae	Amman pachrasi	Leaf, fruit & latex	Leaf and fruit powder is mixed with cow's milk / curry and taken orally to treat ulcer, body coolant and latex used for corn keep around 18-48 days.
17.	<i>Ficus religiosa</i>	Moraceae	Arasam aram	Leaf & fruit	Green leaf and fruit is taken orally for uterus problem and to increase sperm count, dry leaves burnt ash have wound healing activity.
18.	<i>Hemidesmus indicus</i>	Apocynaceae	Nannari	Root	Roots are used in the preparation of Sambar which reduces the body pain. Its root powder will cure ulcer when it is consumed with sugar besides acting as a coolant to the body.
19.	<i>Lawsonia inermis</i>	Lythraceae	Maruthani	Young leaf & flower	Leaves acts as a cooling agent and inhaling the fragrance of flowers will induce deep sleep. Application of its leaf paste in hand and foot palms acts as a coolant to the body.
20.	<i>Lippia nudiflora</i>	Verbenaceae	Poduthalai	Whole plant	Leaf and stem Paste applied on hair for dandruff.

21.	<i>Mimosa pudica</i>	Mimosaceae	Thottasinungi	Whole plant	Root and leaf infusion is applied for wound healing and boiled leaves used for skin diseases.
22.	<i>Mukia maderaspatana</i>	Cucurbitaceae	Musum osukai	Leaf	Leaf juice taken orally for the treatment of cold and cough for 48 days for young children.
23.	<i>Ocimum tenuiflorum</i>	Lamiaceae	Thulasi	Leaf	Leaf juice powder used for the cold and cough.
24.	<i>Phyllanthus amarus</i>	Euphorbiaceae	Keelaneli	Whole plant	Leaves and fruits are crushed and mixed with goat's milk. The mixture is taken orally to cure jaundice and liver problems.
25.	<i>Solanum nigrum</i>	Solanaceae	Manathakkali	Leaf & fruit	Leaves and fruits are crushed and mixed with goat's milk. The mixture is taken orally to cure jaundice and liver problems.
26.	<i>Solanum torvum</i>	Solanaceae	Kattusundakkai	Fruit	Dried fruit taken as food in the form of sambar, soup, fried for cold cough, stomach warms and diabetic.
27.	<i>Solanum trilobatum</i>	Solanaceae	Thoothuvelai	Leaf & fruit	Leaves and fruits are used for Cold, cough & to increase the memory power. The consumption of leaves for 48 days (Nov - Dec) to cure winter /chronic cold.
28.	<i>Solanum xanthocarpum</i>	Solanaceae	Kandankathiri	Root	Root powder mixed with honey or decoction taken internally to treat the throat, cold and cough.
29.	<i>Tridax procumbens</i>	Asteraceae	Vettukaya poondu	Leaf	It is called as biological tincture iodine and is used for healing bleeding wounds when taken in either paste or juice form.
30.	<i>Withania obtusifolia</i>	Solanaceae	Nattuumukkara	Root	Root can be taken in the form of soup, powder or paste. This herbal soup is used to cure back pain in day to day life. The herbal paste cures



					<p>arthritis, boils and reduces swellings. Regular consumption of 5g of root powder cures nervous disorder, energetic, infertility & diabetes besides reducing obesity. It is an aphrodisiac and useful in improving the general immunity</p>
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The *Irular* tribes are the ancient and native/indigenous people, with a distinct identity and culture that has territorial identification, a harmonious and symbiotic relationship with the nature and particularly Siruvani forest. But, nowadays due to over exploitation, populations of several medicinal plant species have reduced and valuable herbs are slowly disappearing from their nearby natural habitats. The medicinal plants at Siruvani foot hills tribal village are playing a major role in primary health care. During survey, 150 tribal people of different age groups including women and children were interviewed and recorded 38 ailments such as fever, boils, ulcer, cut wounds, diabetes, skin disease, cancer, uterus problem, mouth odour etc. Similarly Radhika Iyer (1992) recorded ethnobotany of certain medicinal plants used by tribals of India against skin infections and documented that in Nilgiri district, *Euphorbia hirta* and *Tectona grandis* are used for skin diseases, Similarly Savithramma *et al.*, (2017) documented herbal formulations against diseases used by Yanadi tribe to investigate efficient alternative antibiotics with high therapeutic potentials to combat the present pathogens. Similar findings were reported by Sasi *et al.*, (2011) and he has documented indigenous

knowledge on wild edible plant resources from the tribe *Irular* of Kotagiri in Nilgiri Hills and reported that they are partially or fully dependent on the wild resources for their nutritional requirements. A total of 30 species were identified belonging to 22 families. The study observed that the tribal communities of the study area fulfill their food deficiency by supplementing wild food plants in their daily diet. These plants are used for the treatment of fever, cold, anemia, boosting immune system, arthritics, skin diseases etc. Similar findings were reported by Sasi *et al.*, (2011) and he has documented indigenous knowledge on wild edible plant resources from the *Irular* tribe of Kotagiri in Nilgiri Hills and reported that they are partially or fully dependent on the wild resources for their nutritional requirements.

Similar ethnobotanical studies have been reported in several parts of India to document the traditional knowledge that has been vanishing (Rajan *et al.*, 2002; Ganesan *et al.*, 2004; Sandhya *et al.*, 2006; Ignacimuthu *et al.*, 2006). Therefore, documenting traditional knowledge through ethnobotanical studies is important for the conservation of biological resources and their sustainable utilization. Similarly studies reported by Dhivya and Kalaichelvi (2016) that

the tribal people possessing good knowledge on herbal medicine has to be exposed to modernization of their knowledge on traditional uses of plants. The medicinal plants such as *Adhatoda vasica*, *Aerva lanata*, *Aloe vera*, *Ipomoea reniformis*, *Asparagus racemosus*, *Catharanthus roseus*, *Decalepis hamiltonii* etc. were high demand and essential for primary healthcare of tribes in Nilgiris (Panneer Selvam 2017). The traditional knowledge provides a background of medicinal importance. This rich knowledge should be highly regarded as a cultural and ethnobotanical heritage from the indigenous people (Maleki and Akhani 2018).

Conclusion

India is the home for 40% of the estimated source of 3.6 lakhs of plant species spread all over the earth. Out of 50,000 plant species, 8000 are medicinal plants, of which 400 to 600 medicinal plants are being used in the Indian system of medicine. The

medicinal plants are the important source of primary health care medicine especially for the tribal population of the rural areas and tribes because of the high cost and difficult accessibility to modern medicine. The Siruvani foot hills Irular tribal people used these medicinal plants for the treatment of various diseases like cold, cough, arthritis, genital disorders etc. It can be concluded from the study, that these result forms a good basis for selection of potential plant species for future phytochemical and pharmacological investigation. The in-situ and ex-situ conservation of medicinal plants supports largely to protect the medicinal plants proper document of records the traditional knowledge for Irular tribe and also for betterment of Irular tribal people health. There by it can be used for several public (poor, middle and rich people) to spread the importance of medicinal plants usage based on traditional knowledge documented and to reduce the intake of allopathy medicine.

References:

- Chowdhuri, S.K, (2000).** *Ethnobotany*, In: *Studies in Botany*, Vol 2, 7th Edn., Manai Press, Kolkata.
- Dhivya, S.M. and Kalaichelvi, K. (2016).** Ethno medicinal knowledge of plants used by irula tribes, nellithurai beat, the Nilgiris, Tamil Nadu, India, *Asian J. Med. Sci.*, **7(5)**: 124- 128.
- Ganesan, S., Suresh. N. and Kesavan, L. (2004).** Ethnomedicinal survey of local Palani Hills of Tamil Nadu, *Ind. J. Trad. Knowl.*, **3(3)**: 299-304.
- Ignacimuthu, S., Ayyanar, M. and Sankarasivaraman, K. (2006).** Ethnobotanical investigations among tribes in Madurai district of Tamil Nadu, *Int. J. Ethnobiol. Ethnomed.*, **2**: 25 -28.
- Maleki, T. and Akhani, H., (2018).** Ethnobotanical and ethnomedicinal studies in Baluchi tribes: a case study in Mt. Taftan, southeastern Iran, *J. Ethnopharmacol.*, **217**: 163 -177.
- Panimalar, V. (2005).** Molecular marker studies in *Andrographis paniculata* (Burm.f.) Wall. ex



- Nees. J. *Ethnopharmacol.*, 217: 163 -177.
- Panneer Selvam, K., Ezhumalai, R., Vijayaragavan, A., Senthilkumar, M., Samydurai, P., Saradha, M. and Kumar, K.P. (2017).** Survey and documentation of indigenous and traditional knowledge of medicinal plants used by the *Irular* tribe of Nilgiri District, Tamilnadu. *Int. J. Ethnobiol. Ethnomed.*, 4(1): 12-18.
- Pei, S.J. (2001).** Ethnobotanical approaches of traditional medicine studies: some experiences from Asia. *Pharmaceut. Biol.*, 39: 74-79.
- Perumal Samy, R. and Ignacimuthu, S. (2000).** Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats of India. *J. Ethnopharmacol.*, 69: 63-71.
- Radhika Iyer, S., (1992).** Ethnobotany of certain medicinal plants used by tribals of India against skin infections. *Anci. Sci. Life*, 11(3): 143 - 152.
- Rajan, S., Sethuraman, P.M. and Mukherjee, K. (2002).** Ethnobiology of the Nilgiri Hills, India *Phytother. Res.*, 16(4): 98-116.
- Sajem, A.L. and Gosai, K. (2006).** Traditional use of medicinal plants by Jaintia tribes in North Cachar Hills District of Assam, Northeast India, *J. Ethnobiol. Ethnomed.*, 2: 33-40.
- Sandhya, B., Thomas, S., Isabel, W. and Shenbagarathai, R. (2006).** Ethnomedicinal Plants used by the Valaiyan Community of Pairanmalai Hills (Reserved Forest), Tamil Nadu, India- A Pilot Study. *Afr. J. Trad. Compl. Alt. Med.*, 3(1):101-114.
- Sasi, R., Rajendran, A. and Maharajan, M. (2011).** Wild edible plant diversity of Kotagiri Hills - a Part of Nilgiri Biosphere Reserve, Southern India. *J. Res. Biol.*, 2: 80-87.
- Savithramma, N., Yugandhar, P., Suvarnalatha, D., Ankanna, S., Suhrulatha, D., Siva Prasad, K., Ranjani, R. and Kummara, C. (2017).** Documentation of ethnomedicinal information and antimicrobial validation of *Thespesia populnea* used by Yanadi tribe of Ganugapenta village, Chittoor district, Andhra Pradesh, India. *J. Intercult. Ethnopharmacol.*, 6(2): 158-169.