

Ethnomedicinal survey of *malayali* tribes in kolli hills of eastern ghats of Tamil Nadu, India

¹Francis Xavier*T, ²Freeda Rose A & ³Dhivya M

¹Department of Plant Biology & Plant Biotechnology, St. Joseph's College,
Tiruchirappalli -620 002, TN, India

²Department of Botany, Holy Cross (Autonomous), Tiruchirappalli -620 002, TN, India

³Department of Microbiology, PGP College of Arts and Science, Namakkal 637 207, TN, India

*E-mail : mycofrancis@yahoo.com

Received 30.03.09; revised 09.12.09

An Ethnobotanical survey was undertaken to collect information from tribal people of Kolli hills of Eastern Ghats, South India. The traditional knowledge of local tribal people on medicinal plants was collected through questionnaires and personal interview during field trips. The present study reveals that the *Malayali* people in Kolli hills used 50 plants species distributed in 45 genera belonging to 33 families to treat various diseases. The documented medicinal plants mostly used to cure skin diseases. In the present study, Solanaceae and Lamiaceae are most dominant families were used for the various ailments. Documentation of traditional knowledge on the Ethnomedicinal uses of these plants is essential for conservation efforts for the plants resources and new drug development.

Keywords: Ethnobotany, Skin diseases, *Malayali* tribes, Conservation

IPC Int.Cl.⁸: A01D 6/00

Ethnobotany is not new to India because of its rich ethnic diversity. There are 400 different tribal and other ethnic groups in India constituting about 7.5 % of India's population ^{1,2}. During the last few 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 India ^{3,4,5,6,7}. According to the World Health Organisation (WHO), as many as 80% of the world's people depends on traditional medicine and in India, 65% of the population in the rural areas use Ayurveda and medicinal plants to help meet their primary healthcare needs ^{8,9}. A review of the literature also reveals that many tribal areas and tribal communities in India are either under explored or unexplored with regard to their floral wealth used in curing diseases¹⁰. The *Malayali* is one such little studied tribe of Kolli Hills in Eastern Ghats of Tamil Nadu, India ¹¹. Therefore, a need was felt together in-depth information on the plant species used by this tribal group and document the knowledge which may

be lost under the influence of modernization. The present paper aims to record traditional knowledge of the *Malayali* tribe on the use of medicinal plant species growing in and around their region.

Methodology

A literature survey was carried out for compilation of existing information on the medicinal plants used by tribal people of the study area. In addition several field trips were carried out from November 2006 to January 2007 in the study area. The surveys were spread across in different seasons so as to get maximum information. During the survey period information was gathered using the method ¹². Questionnaires on types of ailments cured by the traditional use of the medicinal plants and plant parts used in curing different ailments by cross checking of data was made with the help of group discussions among different age classes of tribal villagers that include both the genders of the society. The surrounding forested area and agricultural land of the villages were also surveyed with local knowledgeable elders for the identification of different medicinal plant species and their medicinal uses.

*Corresponding author

Kolli hills, the study area lies between 11° 10' 54" - 11° 30' 00" N latitude and 78° 15' 00" - 78° 30' 00" E longitude. It is situated in Namakkal district of Tamil Nadu, South India, above 503 km²¹³. Physiologically it is a hilly region with altitude ranging from 180 m at the foot hills to 1415 m at the plateau. The slope of this region varies from gentle to very steep. Geologically, the study area is occupied by acid charnockite with minor bands of pyroxene granulate and magnetite Quartzite¹⁴. The mean annual rainfall is 1318 mm, which is received largely between May and December¹⁵. Annual mean maximum and mean minimum temperatures are 35 and 18° C, respectively¹⁶. Paddy is the common double crop of this hill. Pine apple is planted in non-forest areas,

where water scarcity is severe. This plantation could be seen in most of the built-up area. The Kolli hill is mainly occupied by *Malayali* tribals (98.8%)¹¹. The total population of this hill during 2001 was 63888. The main source of income of the people is from agriculture and livestock.

Results and discussion

The results of the survey are presented in Table 1. In this study 50 plants species belonging to 33 families distributed in 44 genera have been recorded. For each species Botanical name, family, local name, parts used and medicinal uses are provided. Solanaceae and Lamiaceae are the most dominant families which were used for the different ailments.

Table 1—Ethnomedicinal plant species collected from Kolli Hills of Eastern Ghats

Botanical name	Family	Local name	Ethno Imedicinal uses
<i>Abutilon indicum</i> L.	Malvaceae	<i>Thuthi</i>	Juice of leaf is applied twice a day for dental problems.
<i>Acacia caesia</i> (L.) Willd	Mimosaceae	<i>Nanjupatti</i>	Paste of fresh bark is applied externally for skin diseases.
<i>Acacia nilotica</i> L.	Mimosaceae	<i>Shikakaai</i>	Paste of stem bark is applied topically on skin diseases and scabies.
<i>Acalypha indica</i> L.	Euphorbiaceae	<i>Kuppaimeni</i>	Freshly prepared leaf paste is applied externally to treat skin diseases.
<i>Achyranthus aspera</i> L.	Amaranthaceae	<i>Naiuruvi</i>	Leaf paste is applied externally for eye pain.
<i>Adhatoda zeylanica</i> Medi.	Acanthaceae	<i>Adathodai</i>	Powdered leaf mixed with water is given orally for cough.
<i>Agave sisalana</i> Perr.	Agavaceae	<i>Narkatralai</i>	Fresh leaf juice is dropped in to ear for ear diseases.
<i>Alangium salviifolium</i> (L.F.) Wangerin	Alangiaceae	<i>Alangi</i>	Leaf powder (2gm) with water is given for diarrhoea, dog bite, fever. Fresh leaf paste is applied topically for skin diseases.
<i>Allium sativum</i> L.	Alliaceae	<i>Poonda</i>	Bulb paste (10 gm) taken twice a day for gastric stimulant.
<i>Aloe vera</i> L.	Liliaceae	<i>Sothukathalai</i>	Sucker juice of is taken orally for sexual debility and fever.
<i>Alpinia galanga</i> Willd.	Zingiberaceae	<i>Perarathai</i>	Paste of rhizome is given twice a day for impaction.
<i>Andrographis lincate</i> Wallich ex. Nees	Acanthaceae	<i>Siriyangai</i>	Paste of leaves is applied topically for snake bite.
<i>Andrographis paniculata</i> (Burm. F.) Wallich. Ex. Nees	Acanthaceae	<i>Nilavembu</i>	Leaf powder mixed with goat (or) cow's milk and is taken orally for diabetics.
<i>Anisochilus carnosus</i> Wallich & ex Benth.	Lamiaceae	<i>Saethupun thazhai</i>	Paste of leaves is applied topically for skin diseases.
<i>Anisomeles malabarica</i> (L.) R.Br. Ex. Sims	Lamiaceae	<i>Paeimiratti</i>	Stem paste mixed with coconut oil is applied topically over the wounds.
<i>Argemone maxicana</i> Linn.	Papaveraceae	<i>Brumma thundu</i>	Fresh leaf paste is used externally for skin diseases.
<i>Aristolochia bracteata</i> L.	Aristolochiaceae	<i>Aduthinna Pazhi</i>	The fresh leaf paste is applied to children and also given internally in combination with castor oil as remedy for colic.
<i>Azadirachta indica</i> A. Juss	Meliaceae	<i>Vembu</i>	Fresh leaves paste is applied externally for smallpox and skin diseases. The young stem cuttings are used as tooth brush to develop strong teeth.

(Contd.)

Table 1—Ethnomedicinal plant species collected from Kolli Hills of Eastern Ghats—*Contd.*

Botanical name	Botanical name	Botanical name	Botanical name
<i>Boerhavia diffusa</i> L.	Nyctaginaceae	<i>Mukkuratai</i>	Fresh leaf paste is used externally for skin diseases.
<i>Calotropis gigantea</i> (Linn.) R.Br	Asclepiadeaceae	<i>Erukku</i>	Boiled leaf paste is applied topically for tumours.
<i>Cardiospermum halicacabum</i> Linn. WC	Sapindaceae	<i>Mudakkathan</i>	Paste of whole plant is taken twice a day for fits.
<i>Cassia auriculata</i> L.	Caesalpiniaceae	<i>Avvarai</i>	Flowers decoction prepared with goat's milk taken orally for the prevention of white discharge in women. Leaf paste is applied topically on skin rashes.
<i>Cassia occidentalis</i> L.	Caesalpiniaceae	<i>Ponnavarai</i>	Leaf paste is applied externally for healing borne fracture.
<i>Centella asiatica</i> (Linn) Urban	Apiaceae	<i>Vallari</i>	Leaves decoction is taken orally for gastritis and blood purification. Fresh leaf taken orally to increase the memory.
<i>Cissus quadrangularis</i> L.	Vitaceae	<i>Pirandai</i>	Stem paste is applied topically to treat dog bites.
<i>Citrus aurantifolia</i> (Christm.) Swingle	Rutaceae	<i>Ezhumitchai</i>	Root decoction is taken for asthma. Fruit juice is given as an emollient.
<i>Cleome viscosa</i> L.	Capparaceae	<i>Naikadugau</i>	Leaf paste is used externally to treat wounds.
<i>Clerodendron phlomides</i> Lina.	Verbenaceae	<i>Thaluthalai</i>	Leaves decoction is taken twice a day for urinary tract disorders.
<i>Coleus aromaticus</i> Benth.	Lamiaceae	<i>Omavalli</i>	Leaf juice is taken orally for cough.
<i>Cymbidium aloifolium</i> (L.) SW	Orchidaceae	<i>Uttuchedi</i>	Tuber paste is applied topically for wounds.
<i>Cynodon dactylon</i> L.	Poaceae	<i>Arugampul</i>	Leaf juice is given for digestion.
<i>Cynodon dactylon</i> L.	Poaceae	<i>Arugampul</i>	Leaf juice is given for digestion.
<i>Datura metel</i> Linn.	Solanaceae	<i>Karuomathi</i>	Leaf paste is applied to treat eye diseases.
<i>Eclipta prostrata</i> L.	Asteraceae	<i>Karisalanganni</i>	Dried leaves powder mixed with coconut oil is applied topically on skin diseases.
<i>Euphorbia cyathophora</i> Linn.	Euphorbiaceae	<i>Palperuki</i>	Leaf Juice is taken twice a day to induce lactation in women.
<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	<i>Ammanpatcharisi</i>	Juice of whole plant is given twice a day in haemorrhagic enteritis.
<i>Ficus racemosa</i> L.	Moraceae	<i>Athi</i>	The stem latex is applied on cracked hills.
<i>Gloriosa superba</i> L.	Liliaceae	<i>Senganthal</i>	Rhizome paste is applied to treat wounds.
<i>Hemidesmus indicus</i> Linn. R. Br. Muell	Asclepiadaceae	<i>Nannani chedii</i>	Whole plant juice is used to reduce body heat.
<i>Lantana camera</i> L.	Verbenaceae	<i>Unnichedi</i>	Leaf decoction is used to treat stomach-ache.
<i>Leucas aspera</i> Spreng (Satodron)	Lamiaceae	<i>Thumbai chedi</i>	Leaf paste is applied to treat skin diseases.
<i>Moringa oleifera</i> Lam.	Moringaceae	<i>Murangai</i>	Fresh flower is taken as food to increase sperm count in men.
<i>Physalis minima</i> Linn.	Solanaceae	<i>Sodukku Thakkali</i>	Boiled fruits are taken for kidney problems.
<i>Solanum nigrum</i> L.	Solanaceae	<i>Manathakkali</i>	Leaf juice with groundnut oil is taken as food to treat mouth ulcers (stomatitis).
<i>Solanum torvum</i> Sw.	Solanaceae	<i>Sundaikkai</i>	Boiled fruits are taken as food for killing worms in stomach.
<i>Solanum trilobatum</i> L.	Solanaceae	<i>Thuthuvalai</i>	Leaf juice is taken to treat cold and cough.
<i>Terminalia arjuna</i> Roxb. Ex. Dc Wight & Arn	Combretaceae	<i>Marutha Maram</i>	Bark juice is taken for indigestion.
<i>Tribulus terrestris</i> L.	Zygophyllaceae	<i>Nerunchimul</i>	The root decoction is given to treat urinary troubles.
<i>Tridax procumbens</i> L.	Asteraceae	<i>Vettukaya Poondu</i>	Young leaf paste is used to treat wounds.
<i>Vitex negundo</i> L.	Verbenaceae	<i>Notchi</i>	Leaves are crushed and boiled in water and the vapour from boiled water is inhaled to treat headache and fever.

Common health ailments in the present study were skin problems such as scabies, wounds and other skin diseases (Table 1). These people were using 13 plants for the treatment of skin problems. Similar results were drawn¹⁷, where 14 plant species were used by Kani tribals in Tirunelveli hills of Tamil Nadu for their skin problems; similarly 52 herbal preparations from 31 plants were used for skin problems by tribes or Uttar Karnataka district, a nearest state of Tamil Nadu¹⁸ and people of Eastern cape province, South Africa used 38 plant species for the treatment of skin diseases¹⁹. Authors, in addition, were also noted that 8 plants species were used against gastrointestinal problems such as indigestion, stomachache, abdominal pain and gastritis. These observations are in accordance with the findings observed²⁰. Common ailments such as headaches, cold or cough were also considered diseases^{21,2}. In the present study, only one plant species (*Vitex negundo*) was noted as to relief from headache. Where as^{2,21}, reported eight and thirty seven plant species for headache respectively. Different parts of medicinal plants were used as medicine by the tribal people. Among the different plant parts, the leaves were most frequently used for the treatment of diseases followed by whole plant parts, stem bark, fruit and latex. The information generated from the present study regarding the medicinal plants used by the Malayali tribes need a thorough scientific screening including phytochemical investigation along with few clinical trials. This could help in creating mass awareness regarding the need for conservation of such plants and also posing ethnic clues for the development of dispensable medicine.

Acknowledgement

The author would like to thank Mr Arapuli and the population of the Kolli hills for sharing their tremendous ethnobotanical knowledge and also thank The Director, CNRS Department of plant biology and Plant Biotechnology, St. Joseph's College, Trichy for providing the location map.

References

- Jain SK, Dictionary of Indian Folk Medicine and Ethnobotany, (Deep Publications, Paschim Vihar, New Delhi), 1991.
- Muthu C, Ayyanar M, Raja N & Ignacimuthu S, Medicinal plants used by traditional healers in Kancheepuram District of Tamil Nadu, India, *J Ethnobiol Ethnomed*, 43(2006) 1-10.
- Samvatsar S & Diwanji VB, Plant sources for the treatment of jaundice in the tribals of western Madhya Pradesh of India, *J Ethnopharmacol*, 73(2000) 313-316.
- Harsha VH, Hebbar SS, Hegde GR & Shripathi V, Ethnomedical knowledge of plants used by kunabi tribe of Karnataka in India, *Fitoterapia*, 73 (2002) 281-287.
- Hebbar SS, Harsha VH, Shripathi V & Hedge GR, Ethnomedicine of Dharwad district in Karnataka, India: Plants used in oral health care, *J Ethnopharmacol*, 94 (2004) 261-266.
- Chhetri D, Parajuli RP & Subba GC, Anti-diabetic plants used by Sikkim and Darjeeling Himalayan tribes, India, *J Ethnopharmacol*, 99 (2005) 199-202.
- Saikia AP, Ryakala VK, Sharma P, Gosuami P & Bora U, Ethnobotany of medicinal plants used by Assamese people for various skin ailments and cosmetics, *J Ethnopharmacol*, 102(2006) 97-102.
- World Health Organisation, WHO Traditional Medicine Strategy Report, Document Who / EDM / TRM / 2002.1.
- Pattaa Naik C, Reddy CS & Murthy MSR, Ethnomedical observations among the tribal people of Koraput District, Orissa, India, *Res J Bot*, 1(2006) 125-128.
- Kala CP, Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India, *J Ethnobiol Ethnomed*, 1(2005) 11-16.
- Toll DL, Photogram, *Eng. Remote Sensing*, 50(1984) 1713-1724.
- Jain SK, The Role of Botanist in Folklore Research, *Folklore*, 5 (1964) 145-150.
- Mani G, Report of the investigation for bauxite in kolli malai, salem district TamilNadu, Progress report for the field season 1975-76, Geological survey of India, TamilNadu circle, Madras, 1976, 58 -90.
- Geological Survey of India, Tamil Nadu Circle, Chennai, 1976.
- Meteorological Report, Horticulture Department, Padasolai, Kolli Hills, Tamil Nadu, 1970-99
- Harikrishnan M, Working plan for the Salem Forest Division, Government of Tamil Nadu, India, 1977.
- Ayyanar M & Ignacimuthu S, Traditional knowledge of kani tribals in kouthalai of Tirunelveli hills, Tamil Nadu, India, *J Ethnopharmacol*, 102 (2005) 246-255.
- Harsha VH, Hebbar SS, Shripathi V & Hegde GR, Ethnomedico botany of Uttara Kannada District in Karnataka, India - Plants in treatment of skin diseases, *J Ethnopharmacol*, 84 (2003) 37-40.
- Grierson DS & Afolayan AJ, An ethnobotanical study of plants for the treatment of wounds in the Eastern Cape, South Africa, *J Ethnopharmacol*, 67 (1999) 327-332.
- Ignacimuthu S, Ayyanar M & Sivaraman S, Ethnobotanical investigations among tribes in Madurai District of Tamil Nadu (India), *J Ethnobiol Ethnomed*, 25(2006) 1-7.
- Busia K, Medical Provision in Africa - Past and Present, *Phytother Res*, 19(2005) 919-923.