

Full Length Research Paper

Ethnopharmacological studies on the medicinal plants used by tribal inhabitants of meenagadi region in wayanadu district of kerala, South India

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An ethnobotanical survey was carried out to collect information on the use of medicinal plants in Meenagadi region of Wayanadu District, Kerala, India during December 2006 to February 2007. Information presented in this paper was gathered from the different tribal communities of the present study area. It is an integrated approach of questionnaires and interviews. A total of 55 ethnomedicinal plant species distributed in 34 families are documented in this study. The medicinal plants used by the tribal communities are listed with botanical name, family, local name, parts used and medicinal uses. The documented medicinal plants mostly used to cure skin diseases. The results of the present study showed that these tribal communities still depend on medicinal plants in Meenagadi region of Wayanadu District, Kerala.

Key words: Skin diseases, ethnomedicine, questionnaires, traditional knowledge, respiratory diseases

INTRODUCTION

Ethnobotany records the history and current state of human kind, even while foretelling the future. As a discipline ethnobotany gives us a profound understanding and appreciation of the richness and intimacy of relationships between humans and nature. Indigenous people throughout the world possess knowledge of their surrounding flora and fauna. Tribal people are the ecosystem people who live in harmony with the nature and maintain a close link between man and environment. Plants are the basis of life on earth and are central to people's livelihoods. The life, tradition, culture of tribals have remained almost static since last several hundreds of years. The knowledge accumulated by them through a long series of observations from one generation to another is transmitted oral communication for power possessed by medicinal plants in cure of various diseases and ailments. Plants have been an integral part of life in

many indigenous communities and India is no exception. Apart from providing building materials, fodder, weapons and other commodities, plants are especially important as traditional medicine (Bussmann et al., 2006). Plants have been used in traditional medicine for several thousands of years (Abu-Rabia, 2005). Tribal communities are mainly the forest dwellers who have accumulated a rich knowledge on the use of various medicinal plants over the centuries (Kala, 2005). India possess a total of 427 tribal communities and other ethnic group (Jain, 1991). The tribals constitute about 7.5% of India's population. During the last few decades there has been an increasing interest in the study of medicinal plants and their use in different parts of India. There are many reports on the use of plants in traditional healing by either tribal people or indigenous communities of India (Samvatsar and Diwanji, 2000; Harsha et al., 2002; Hebbar et al., 2004; Saikia et al., 2006). Apart from the tribal groups, many other forest dwellers and rural people also possess unique knowledge about plants (Jain, 1991). Although different workers have documented the use of various medicinal plants from different parts of India (Dutta

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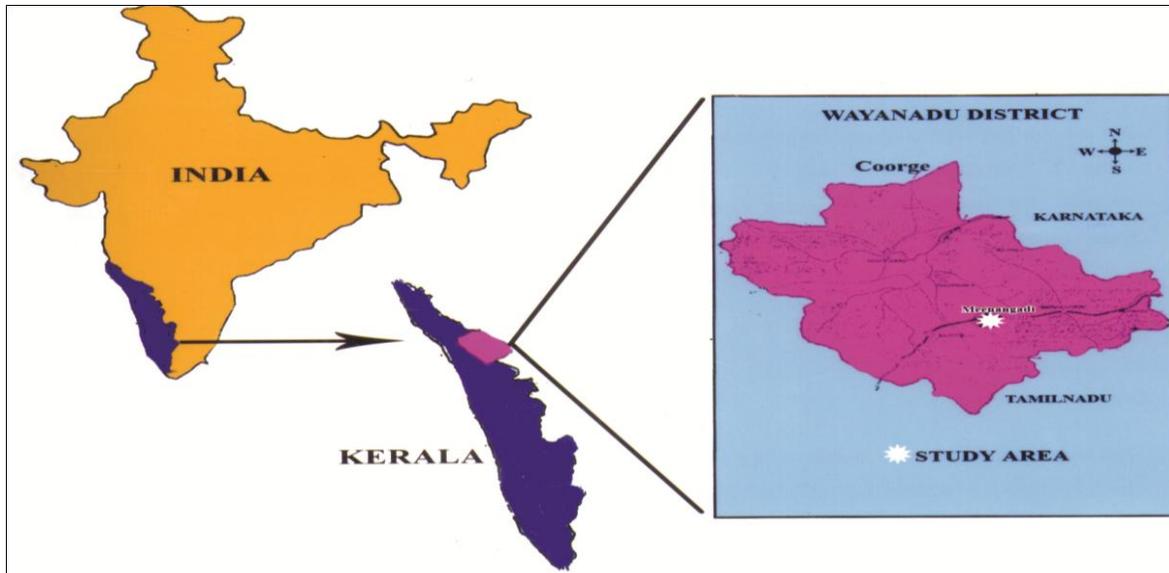


Figure 1. Location map of Meenangadi region of Wayanadu district (Kerala).

and Dutta, 2005; Yobin, 1999; Rawat and Choudhury, 1998; Dam and Hajra, 1997; Tiwari and Tiwari, 1996), information on the traditional and cultural practices of the various tribes residing in the Meenangadi region of Wayanadu district of Kerala (India) is unavailable. Therefore there is a need to study the plant species used by the tribal communities and their traditional knowledge and cultural practices which may under threat due to the in of modernization. Hence, the present investigation was undertaken and it aims to highlight and record in detail about traditional knowledge of the tribal communities in Meenangadi region. On the uses of medicinal plant species growing in and around their settlement.

Study area

Meenangadi region of Wayanadu district, the study area (Figure 1) lies between 75° 45' to 76° 25' latitude and 11° 30' to 12° 00' longitude. It is situated in Wayanadu district of Kerala state above the river of Panamaram Puzha covering an area of about 747.4 Km² physiographically. It is a hilly region with an altitude ranging from 760 m from sea level. The annual rainfall is 2047 mm in 2006, which is largely between June to July and September to October. Annual mean maximum and mean minimum temperature are 32°C and 11.5°C in 2006 respectively. Paddy cultivation is the common double crop of this area. Coffee and Tapioca are placed in non-forested area. Meenangadi region is mainly occupied by tribal communities (12468 in number). The total tribal population of Meenangadi

region is of 33% of total population of the whole state. The main source of income of the people is from agriculture and livestock.

MATERIALS AND METHODS

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 December 2006 to February 2007 in the study area to get the maximum information. During the survey period information was gathered using the method of Jain (1964). Questionnaires on types of ailments cured by the traditional use of the medicinal plants and plant parts used in curing different ailments. 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 lands of the villages were also surveyed with local knowledgeable elders for the identification of various medicinal plants and their uses.

RESULTS AND DISCUSSION

In Table 1, data obtained from field survey are presented. In this study, 55 plant species belonging to 34 families distributed in 51 genera have been recorded (Figure 2). For each species botanical name, family, local name, parts used and medicinal uses are provided. As seen in Table 1 common health ailments treated in the present investigation were skin problems

Table 1. Ethnomedicinal information on medicinal plant species collected from tribes in Meenagadi region of Wayanadu District, Kerala, India.

No.	Botanical name	Family	Local name	Parts used	Ethnomedicinal uses
1.	<i>Achynanthus aspera</i> (Linn.)	Amaranthaceae	Kadaladi	Root, fruit, whole plant	Used as anti-venomous insect bites etc.
2.	<i>Alangium salviifolium</i> (Linn.f.) Wang	Alangiaceae	Angolam	Root, leaf, fruit	Help to decrease blood pressure, used to cure rabies, dysentery. Roots used to control the worms.
3.	<i>Albizia lebbek</i> (Linn.) Benth	Mimosaceae	Nenmeni Vaka	Stem bark, leaf, fruit, root	Used against diabetics, good for eye diseases, hair lose
4.	<i>Aloe vera</i> (Linn.) Burm	Liliaceae	Kattar Vazha	Leaf	Good for skin and hair, eye, skin diseases, burned wounds.
5.	<i>Alpinia galanga</i> (Linn.) Willd	Zingiberaceae	Aratha	Whole plant	Used against cough, and help to increase digestion property.
6.	<i>Alstonia scholaris</i> (Linn.) R. Br.	Apocynaceae	Azhilampala	Stem bark, latex	Used against leprosy, skin diseases, malaria, diabetics, fever
7.	<i>Anacardium occidentale</i> (Linn.)	Anacardiaceae	Paranki mavu	Fruit, latex tree bark	Oil used against worms, latex is used against the microorganisms and vomiting.
8.	<i>Aquilaria agalbcha</i> Roxb.	Thymeleaceae	Akathi	Stem bark, leaf (tender leaves), flower	Used against headache, fever, lesions, flower used against night blindness.
9.	<i>Argemone mexicana</i> Linn.	Papaveraceae	Arumakkalli	Root, stem, leaf, flower, seed	Used as disinfectant and rheumatic problems.
10.	<i>Azadirachta indica</i> A. Juss	Meliaceae	Arya Veppu	Leaf, seed, flower, fruit	Good against leprosy, fever, Arthritis, good for eye.
11.	<i>Bacopa monnieri</i> (Linn.) Pannell	Scrophulariaceae	Brahmi	Whole plant	Leaf parts are applied for skin diseases.
12.	<i>Benincasa hispida</i> (Thunb.) Cogn	Cucurbitaceae	Kumbalam	Seed, fruit	Good against lung diseases induce the lungs, seed is used against the worms.
13.	<i>Biophytum sensitivum</i> (Linn.) DC	Oxalidaceae	Mukkutti	Whole plant	Good against cough and cure the wounds immediately. After delivery it will used to clean the uterus.
14.	<i>Boerhaavia diffusa</i> (Linn.)	Nyctaginaceae	Thazhuthama	Leaf, root, whole plant	Used against ureter diseases, kidney diseases.
15.	<i>Bombax malabarica</i> (DC) Schott and Endlicher	Bombacaceae	Elave	Root, flower, latex, tender, fruits	Leaf and seeds good against skin diseases and wounds. Root and latex used against dysentery, tuberculosis, influenza.
16.	<i>Butea frondosa</i> Koenig ex Roxb	Fabaceae	Plash	Flower, leaf, stem bark, seed, latex	Good against bleeding and used against enteric worms.
17.	<i>Caesalpinia sappan</i> Linn.	Caesalpiniaceae	Pathimugam	Stem bark	Used against skin diseases.
18.	<i>Calotropis gigantea</i> (Linn.) RBr	Asclepiadaceae	Arukke	Root	Root parts is used to cure skin diseases.
19.	<i>Cardiospermum helicacabum</i> (Linn.)	Sapindaceae	Uzhinja	Leaf, seed, root, whole plant	Good to hair and gives good growth to hair.
20.	<i>Cassia absus</i> Linn.	Caesalpiniaceae	Karinkonda	Leaves, seeds	Seeds used against eye diseases, catarait, dysentery, diarrhoea, poisonous bites, wounds and ulcers, leaf used against diarrhoea cough, tumour.
21.	<i>Cassia fistula</i> Linn.	Caesalpiniaceae	Kani Konna	Whole plant, roots	Root is mainly used against various skin diseases and syphilis.
22.	<i>Cassia tora</i> Linn.	Caesalpiniaceae	Chakrathakara	Plant, seed, leaf	Seed mainly used against skin diseases and leprosy.
23.	<i>Centella asiatica</i> (Linn.) Urban	Apiaceae	Kudangal	Whole plant	Used against skin diseases, epilepsy, mental disorders help to increase memory capacity.
24.	<i>Citrus aurantifolia</i> (Christm.) Swingle	Rutaceae	Cheru narakam	Fruit	Against cough, scorpion bite, stomach pain, pimples and skin diseases and dandruff.
25.	<i>Datura metal</i> (Linn.)	Solanaceae	Ummam	Fruit, leaf, root, flower	Good against rabies used as pain killer, used as sedative.
26.	<i>Desmodium gangeticum</i> (Linn.) DC	Fabaceae	Orila	Root	Good for heart and skin diseases.
27.	<i>Drynaria quercifolia</i> (Linn.) J. Smith	Polypodiaceae	Mathil panna, Panna kizbang	Rhizome	Used against skin diseases, wounds, inflammations, Typhoid fever, cough and migraine.
28.	<i>Eclipta prostrata</i> (Linn.) Linn	Asteraceae	Kayyonni	Whole plant	Used against skin diseases, infections, good for eye.
29.	<i>Elephantopus scaber</i> (Linn.)	Asteraceae	Anachuvadi	Leaf	Leaf paste is applied topically for skin diseases.
30.	<i>Embelica ribes</i> Burm.f.	Myrsinaceae	Vizhal	Seed	Used against enteric worms, leprosy. Used for anti-pregnancy.
31.	<i>Gossypium arboreum</i> Linn.	Malvaceae	Kattu Paruthi	Root, leaf, seed, flower	Its good against fever, skin diseases, stomach pain and skin lesions.
32.	<i>Gymnema sylvestre</i> (Retz.) R. Br.	Asclepiadaceae	Chakkara kolli	Root, leaf	Used against diabetics and snake venom
33.	<i>Holarrhena antidysentrica</i> (Roxb. ex. Fleming) Wall. ex. DC	Apocynaceae	Kadukappala	Bark, seed	Used against worms, and amoebic dysentery.
34.	<i>Holostema adakodein scbutttes</i>	Asclepiadaceae	Adapathiyam	Tuber and Latex	Used against eye diseases. Very rich in vitamins and minerals and used as an herbal tonic.

Table 1 Contd.

35.	<i>Ixora coccinea</i> (Linn.)	Rubiaceae	Thetti	Root, flower, whole plant	Used against stomach pain, enteric pathogens, skin diseases, prevent the infection to the wounds.
36.	<i>Jasminum grandiflorum</i> (Linn.)	Oleaceae	Pichi, Pichakam	Whole plant	Used to cure skin diseases, used as herbal veagra, menstrual problems, dysentery, enteric worms.
37.	<i>Kaempferia galanga</i> (Linn.)	Zingiberaceae	Kacbolam	Tuber	Used against worms, fever, stomach pain and lung diseases.
38.	<i>Lantana camara</i> (Linn.)	Verbenaceae	Arippu	Whole plant	Used against dysentery, malaria, epilepsy, leaf, powder used for cut and wounds and ulcers.
39.	<i>Lawsonia inermis</i> Linn.	Lythraceae	Mailangi	Leaf, flower, seed	Used against skin diseases, lesions, give colour to hair and growth. Used as pain killer
40.	<i>Leguidamber orientalis</i> Mill	Hamamelidaceae	Arabi kunthurukkam	Balsam	Used against foul ulcers wounds, leprosy, diarrhoea, fever and skin diseases.
41.	<i>Leucas aspera</i> (Willd) Link	Lamiaceae	Thumba	Stem, leaf, flower, whole plant	It has an antimicrobial activity against some pathogens good for taste buds.
42.	<i>Luffa acutangula</i> (Linn.) Roxb.	Cucurbitaceae	Pecchinga	Leaf, fruit, seed	Seeds used against eye diseases, and skin diseases.
43.	<i>Madhuka longifolia</i> (Koenig) Macbride	Sapotaceae	Elippa	Flower, fruit, bark, seed, leaf	Used against fever thirst, used as herbal Viagra
44.	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Avanakk	Root, leaf oil	Decrease body pain rheumatic problems oil is used against worm.
45.	<i>Ruta graveolens</i> Linn.	Rutaceae	Arutha	Leaf juice tender stem bark of the root	Used for menstrual disease, epilepsy and it gives sleep
46.	<i>Saraca indica</i> (or) <i>Saraka asoca</i> (Roxb.) de Wilde	Caesalpiniaceae	Ashokam	Bark, flower	Good against skin diseases, menstrual problems and also used as disinfectant
47.	<i>Semicarpus anacardium</i> Linn.f	Anacardiaceae	Alankucheru or Thenkotta	Fruit	Used as pain killer, good against leprosy, cancer
48.	<i>Sesbania grandiflora</i> (Linn.) Poir	Fabaceae	Akathi	Stem bark, tender leaves, flower	Good against skin lesions headache, fever flower used against night blindness.
49.	<i>Sida rhombifolia</i> Linn.	Malvaceae	Kurunthotti	Root, whole plant	Seeds used as herbal veagra, pain killer and fever, gives to sleep, good for heart problems.
50.	<i>Sphaeranthus indicus</i> Kinu	Asteraceae	Adakka maniyam	Whole plant	Used to increase the digestion capacity and good against gastric problems.
51.	<i>Syzygium aromaticum</i> (Linn.) Merrill andt Perry	Myrtaceae	Grambu	Flower bud, leaf, seed bark, root	Used to increase digestion power, good against cholera, used as a mosquito repalent..
52.	<i>Syzygium cumini</i> (Linn.) Skeels	Myrtaceae	Njaval	Bark, leaf, seed, fruit	Used against diabetic problems.
53.	<i>Vitex negundo</i> Linn.	Verbenaceae	Karinochi	Whole plant	Used to cure skin diseases, inflammation, dysentery and mouth ulcers
54.	<i>Woodfordia fruticosa</i> (Linn.) Kurz	Lythraceae	Thathiri	Flower, leaf	Controls the body temperature, leaf used as disinfectants. Flower used to ferment the medicines.

viz., skin lesions, skin scabies, wounds and other skin diseases. Among the eight communities in the study area most of them using the plant species for the skin problems, in that 24 plant species were noted against skin diseases. This result is in accordance with the studies made by Harsha et al. (2003) who have reported 31 plant species for skin diseases used by tribals of Uttar Karnataka district. Similarly Ayyanar and Ignacimuthu (2005) stated 14 plant species used by Kani tribals in Tirunalveli hills of Tamil Nadu for their skin problems and on the other hand 16 plant species were used against gastro intestinal problems such as indigestion (2 plants),

stomach ache and abdominal pain (4 plants), ulcers (3 plants) and dysentery (7 plants). A previous study (Muthukumarasamy et al., 2003) has reported in the use of 21 medicinal plants from 20 families to treat gastrointestinal complaints. In addition, in the present investigation 8 plants were used to alleviate problems of the respiratory system such as cold, cough (3 plants) and fever (5 plants). Respiratory problems are the most accounted illness and there may be hardly any person who has not suffered from respiratory problem in his life-time (Damle, 2006). The data from the investigation made by Ignacimuthu et al. (2006) supports the present study results, where 14

plant species were used to treat respiratory problems. Generally fresh part of the plant is used for the preparation of medicines when fresh plants are not available dried plant parts are also used. Different parts of the medicinal plants were used as medicine by the tribal people, among them leaves were most frequently used for the treatment of various diseases followed by roots, fruits and stem barks.

This study concluded that, even though the people having western medicine for simple and complicated diseases, many people in the study area is still continue to depend on medicinal plants at least for the treatment of some simple



Figure 2. Plant species belonging to 34 families distributed in 51 genera have been recorded.

diseases such as cold, cough, fever, headache, poisonous bites and skin diseases. The information gathered from the present study with regard to the medicinal plants used by the tribal communities need a thorough scientific evaluation including phytochemical investigation along with few clinical trails. It thus becomes necessary to acquire and preserve this traditional system of medicines to treat awareness regarding the importance and conservation of such wonders.

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