

**DOCUMENTATION OF ABORIGINAL TRADITIONAL KNOWLEDGE AND INHERENT INDIGENOUS THERAPEUTIC PLANTS OF COIMBATORE DISTRICT, TAMIL NADU, INDIA****Saradha, M<sup>1\*</sup>, P. Samydurai<sup>2</sup>, and G. Divya Bharathi<sup>1</sup>**<sup>1</sup>Department of Botany, Nirmala College for Women (Autonomous), Coimbatore-641 018.<sup>2</sup>Department of Botany, Bharathiar University, Coimbatore – 641 045.

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**ABSTRACT**

The aim of the study was to investigate the medicinal plants used as therapeutic, nutritive and food additives which are consumed by the tribes of Coimbatore district, Tamil Nadu, India. The information was gathered from the local tribal community people, an aboriginal community who reside in the foothills, around the Coimbatore district. Several field visited to the tribal inhabitant areas to collect data on medicinal and aromatic plants commonly used by them. The observations collected during field visits were put to group discussion. The medicinal plants were identified, photographed and sample specimens were collected for preparation of herbarium. The results of the study have been documented that 47 plants belonging to 24 families and 38 genera used to treat wound healing, diabetics, jaundice, skin diseases, gastro intestinal disorders, ulcer, fever, cold, cough, bronchitis, ring worm, snake bites, burns healing, eye diseases, swelling, rheumatism, cosmetics and also used for malnutrition.

**Keywords:** Ethnobotanical knowledge, indigenous, therapeutic plants.

**1. INTRODUCTION**

Since time immemorial man has used various parts of the plants in the treatment and prevention from many diseases (Chah *et al.*, 2006). The ethnomedicinal systems and herbal medicines are therapeutic agents in addressing health problems of traditional communities. Historically all the medicinal preparations were derived from plant parts having more complex of crude mixtures, which are active against a variety of diseases (Ayyanar and Ignacimuthu, 2009). This knowledge and wisdom includes healing traditions which have helped long for indigenous communities to maintain their personal health and wellness (Buenz, 2005). The medicinally important plants were identified to be used by ethnic people to cure various ailments such as diabetes, dysentery, fever, headache, rheumatism, snake bite, cough and some as food and food additives (Samydurai *et al.*, 2012).

Plants used by the tribal people for treating rheumatism (Ayyanar and Ignacimuthu, 2005). Most of the tribes having traditional knowledge on medicinal plants that are used for primary health problems such as cough, cold, fever, headache, poisonous bites and some other simple diseases (Sutha *et al.*, 2010). Certain wild tubers, root types, green leaves, flowers, unripe as well as ripe fruits, grains and legumes including tribal pulses are consumed by different tribal sects (Jain, 1981;

Maikhuri *et al.*, 2000). The tribal societies are closely associated with the forest ecosystem where they live in tradition and harmony (Kadavul and Dixit, 2009). Huge amount of medicinal plant species are used by ethnic people for the various skin diseases like eruptions, eczema, leucoderma, sores, cracks, cuts, boils, wounds, external tumors and body pain, swellings (Reddy *et al.*, 2010) and these diseases curative plants derive their daily needs from various plants growing around them. The indigenous groups possess their own distinct culture, religious rites, food habit and a rich knowledge of traditional medicine (Anuradha *et al.*, 1986; Harsha *et al.*, 2002).

Even today globally, about 85% of the traditional medicines used for primary health care are derived from plants (Farnsworth, 1998). Humans have developed knowledge of using available plants to treat a number of ailments based on different medicinal systems such as Ayurveda, Unani and Siddha (Meena, 2009). In India it is reported that traditional healers used 2500 plant species among that 100 species of plants serve as regular source of medicine (Pei, 2001). 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 the World (Lev, 2006). Nowadays the urbanization leads the fast vanishing of traditional knowledge on the use of plants by tribals, so urgent need to document the

medicinal plant knowledge otherwise it will be lost (Arinathan *et al.*, 2007). Recently, considerable attention has been paid to utilize eco and bio-friendly plant based drugs for the prevention and cure of different human disease (Ganesan, 2008). In our present investigation enlightened many of the important medicinal plants, which are needed to be document for therapeutic utilization in future.

## 2. METHODOLOGY

Frequent field surveys were carried out in and around Coimbatore hilly regions during June 2015 - June 2016 in various seasons. The ethnobotanical data (local name, medicinal uses and mode of consumption) were collected through interviews and discussions among the tribal practitioners around the study area. The curative plants were identified based on local names, photographs and sample specimens were collected for the preparation of herbarium. The collected specimens were identified taxonomically using The Flora of Presidency of Madras (Gamble, 1935); The Flora of Tamil Nadu and Carnatic (Mathew, 1983) and the following references Nair and Henry 1983; Henry *et al.*, 1987; Chandrabose and Nair, 1988; Gamble, 1996. Voucher specimens have been deposited in the form of herbarium, Department of Botany, Nirmala College for Women (Autonomous), Coimbatore, Tamil Nadu, India.

### 2.1. Study area

The tribal inhabitants are in the Coimbatore district which is part of Southern Western Ghats of Coimbatore district. The following areas of northwest fields of Boluvampatty Range, Palamalai, Anaikatty, Maruthamalai and southwest regions of Siruvani and Anaimalai hills. Irula tribes are still using plants for their livelihood by consuming whole plants, leaves, roots, rhizomes, and tubers. They are also occupied in seasonal collection of honey, bee wax, fire woods and some minor forest products.

## 3. RESULTS

Coimbatore mountainous region have a variety of medicinal plants which are used by the Irula tribals for their primary healthcare and food security. The survey of 47 ethnic community curative plants species belongs to 38 genera and 24 families reported to be employed in the treatment of various skin diseases, wound healing, injuries like cuts, burns, bruises, sores, leprosy, itching, stimulants, carminatives and expectorants. The plants like *Acalypha indica*, *Aloe vera*, *Calotropis gigantea*, *Cleome viscosa*, *Euphorbia hirta*, *Morinda citrifolia*, *Pongamia pinnata* and *Vitex negundo* are commonly used by them.

**Table 1. The enumeration of curative plant species used by the tribal community of Coimbatore district, with their family, local name, part used and medicinal uses.**

S. No.	Botanical name	Local name	Habit	Family	Part Used	Ethnomedicinal uses/mode of consumption
1	<i>Acalypha indica</i> L.	Kuppaimeni	Herb	Euphorbiaceae	Whole plant	Itching, Skin diseases, Rheumatoid arthritis and scabies.
2	<i>Allmania nodiflora</i> (L.) wt	Thoikeerai	Herb	Amaranthaceae	leaves	Leafy vegetable
3	<i>Aloe vera</i> (L.) Burm.f	Sotru katrallai	Herb	Liliaceae	Whole plant	Amenorrhea, wounds, ulcers, burns, colic, hepatitis, skin diseases, constipation, tumor, malignancy, low back pain, edema, arthritis and general debility.
4	<i>Alternanthera paronychioides</i> A. St.-Hil.	Ponnanganni	Herb	Amaranthaceae	Leaf	Leafy vegetable
5	<i>Alternanthera sessilis</i> L. DC	Ponnanganni	Herb	Amaranthaceae	Leaf	Gastrointestinal disorder, improve the male sexual potency. The weed is sometimes used topically to treat acne and eaten as vegetables.
6	<i>Andrographis paniculata</i> Wall ex Nees	Nilavempu	Herb	Acanthaceae	Whole plant	Bitter tonic and febrifuge, blood purifier, cure for torpid liver and jaundice and diabetic.
7	<i>Anisomeles indica</i> L. Kuntze	Peimeratti	Woody shrub	Lamiaceae	Whole plant	Analgesic, anti-inflammatory, skin problems and snake bite.
8	<i>Aristolochia indica</i> L.	Aaduthinnapalai	Climber	Aristolochiaceae	Leaf	Poison bite, skin diseases, intestinal worms, colic, arthritis and ulcers.
9	<i>Azadirachta indica</i> A. Juss.	Vembu	Tree	Meliaceae	Bark, leaves, flower and	Skin diseases, eczema, fever, wound, ulcer, burning sensation, tumor, worms, cough, diabetes,

10	<i>Calotropis gigantea</i> R.Br.	Yeruku	Perennial shrub	Asclepiadaceae	Root, Latex, Flower and Leaves	seeds. inflammation and rheumatoid arthritis. Skin diseases, joint inflammations, snake poison, asthma, chest infections, rabies and its strong purgative drug.
11	<i>Canavalia virosa</i> (Roxb.)	Thamatta	Climber	Papilionaceae	Fruit	Young fruits used as vegetables.
12	<i>Centella asiatica</i> (L.) Urban.	Vallarai	Herb	Apiaceae	Whole plant	Health tonic and memory enhance
13	<i>Capparis zeylanica</i> L.	Adondai, atontai	Climbing Thorny shrub	Capparidaceae	Fruit	Sedative, stomach, anticholerin, diuretic febrifuge, piles and swellings.
14	<i>Caralluma adscendens</i> (Roxb.) R.Br.	Kallimulliyai	Succulent herb	Asclepiadaceae	Whole plant	Antidiabetic, chronic illnesses and diet control.
15	<i>Caralluma fimbriata</i> (Roxb.) R.Br.	Kallimulliyai	Succulent herb	Asclepiadaceae	Whole plant	Antidiabetic, obesity, appetizer and heart disease.
16	<i>Cardiospermum halicacabum</i> L.	Mudakathan	Climber	Sapindaceae	Whole plant	Constipation, fever, amenorrhea, low back pain and rheumatism.
17	<i>Cassia tora</i> L.	Tagarai	Herb	Fabaceae	Seeds and leaves	Leprosy, ringworm, itching, snake bite and arthritis
18	<i>Cassia occidentalis</i> L.	Ponna virai	Herb	Fabaceae	Root, seed and leaves.	Cough, bronchitis, allergy, asthma, fever constipation, diabetes, skin diseases, wounds and ulcers.
19	<i>Celosia argentea</i> L.	Pannai keerai,	Herb	Amaranthaceae	Leaves	Leafy vegetable used as antidiarrhoeal, antibacterial and cooling.
20	<i>Ceropegia juncea</i> Roxb	Pulichan	Climber	Asclepiadaceae	Whole plant	Tranquilizer, hypotensive, hepatoprotective, antiulcer, and antipyretic.
21	<i>Cissus quadrangularis</i> (L.) Wall. ex Wight	Perandai	Climber	Vitaceae	Young leaf	Piles, osteoporosis, anorexia and fracture.
22	<i>Cleome viscosa</i> L.	Naaikkadugu, Kattu kadugu	Annual herb	Capparidaceae	Whole plant	Intestinal worms, colic, stomach upset, cardio myopathy, diarrhea, fever and dyspepsia.
23	<i>Coccinia grandis</i> (L.) Voigt	Kovai keerai	Climber	Cucurbitaceae	Leaf and Fruit	Constipation, burning sensation, leucorrhoea, skin disease, fever, asthma, cough and jaundice.
24	<i>Decalepis hamiltonii</i> Wight and Arn.	Mahali kizhangu	Climber	Asclepiadaceae	Tuber	Appetizer, blood purifier, diabetics, indigestion and health tonic.
25	<i>Digera muricata</i> (L.) Mart	Thoikeerai	Herb	Amaranthaceae	Leaf	Astringent, laxative, diuretic and urinary discharges.
26	<i>Dioscorea alata</i> L.	Vetrilaikodi kizhangu	Climber	Dioscoreaceae	Tuber	Tuber used as stable food and nutritive.
27	<i>Dioscorea oppositifolia</i> L.	Kavala-kodi	Climber	Dioscoreaceae	Tuber	Tuber used as stable food, diarrhea, dysentery, indigestion and urinary discharges.
28	<i>Eclipta prostrata</i> L.	Mangal karisilakanni	Herb	Asteraceae	Whole plant	Reduce pain, promote hair growth, stimulate the functions of liver and ulcers.
29	<i>Euphorbia hirta</i> L.	Ammani paccharichi	Herb	Euphorbiaceae	Whole plant	Asthma, skin diseases, fever, cough and dysentery.
30	<i>Hemidesmus indicus</i> (L.) R.Br	Nannari	Climber	Asclepiadaceae	Root	Health tonic, diabetic, bronchitis, asthma, diarrhea, dysentery, arthritis, fever and general debility.
31	<i>Leucas aspera</i> Spreng	Thumbai	Herb	Lamiaceae	Leaves, Flowers	Inflammation, worm infestation, arthritis, cough, amenorrhea, intermittent fever and ulcer.
32	<i>Morinda citrifolia</i> L.	Nunamaram	Tree	Rubiaceae	Fruit Pulp and bark	Cough, fever, diabetes, swelling, analgesic, diarrhea and diuretic.
33	<i>Mucuna pruriens</i> (L.) DC.	Punaikkali	Climber	Fabaceae	Fruits, Leaves,	Constipation, impotency, Parkinsonism, kidney diseases,

34	<i>Ocimum sanctum</i> L.	Thulasi	Under shrub	Lamiaceae	Seeds, Hairs Whole plant	neuropathy, worm infestations, fever and general debility. Cough, asthma, bronchitis, fever, toxins, vomiting, lumbago, gastric distension, genito-urinary diseases, ringworm and skin diseases.
35	<i>Pongamia pinnata</i> (L.) Panigrahi	Pongan	Tree	Fabaceae	Leaves, bark and Seed	Ringworm and skin diseases.
36	<i>Phyllanthus amarus</i> L.	Keelaanelli	Herb	Euphorbiaceae	Whole plant	Antispasmodic, antipyretic, diuretic, antiviral, and bactericidal.
37	<i>Phyllanthus reticulatus</i> Pori.	Neerpula	Herb	Euphorbiaceae	Whole plant	Diabetes, hepatitis, burning sensation, burns, skin diseases, obesity and urinary retention.
38	<i>Phyllanthus urinaria</i> L.	Senkeezhnelli	Herb	Euphorbiaceae	Whole Plant	Diuretic, diabetes, hepatitis, astringent, anti-inflammatory, jaundice, indigestion, chronic dysentery and urinary tract diseases.
39	<i>Premna corymbosa</i> R.Z Willd	Minnai	Small tree	Verbenaceae	Tender plant and leaves	Carminative, galactagogue, neuralgia, rheumatism, flatulence and colic.
40	<i>Rawvolfia serpentina</i> (L.) Benth. ex Kurz	Sarpagandha	Shrub	Apocynaceae	Whole plant	Snake bite, blood pressure,
41	<i>Solanum nigrum</i> L.	Manathakkali	Herb	Solanaceae	Whole plant	Swellings, cough, asthma, arthritis, inflammation, skin diseases and anti cancer drug.
42	<i>Solanum surratensis</i> Burm. F	Kantankattiri	Shrub	Solanaceae	Fruit	Stimulant, expectorant, diuretic, laxative, febrifuge. cough, bronchitis, asthma, enlargement of liver and spleen, vomiting.
43	<i>Solanum xanthocarpum</i> Schrad. and H. Wendl.	Kantankattiri	Shrub	Solanaceae	Whole plant	Worm infestations, dental caries, inflammations, arthritis, colic, flatulence, rheumatoid arthritis, cough, fever, asthma, bronchitis, amenorrhea, low back pain, hemorrhoids, epilepsy and kidney stones.
44	<i>Strachy nux-vomica</i> L.	Yetikai	Tree	Loganiaceae	Seed	Cardiomyopathy, hypotension, arthritis and dementia. In large doses, all part of the tree is toxic.
45	<i>Tinospora cordifolia</i> (Willd.) Hook. f and Thoms	Seenthilkodi	Climber	Menispermaceae	Leaf and fruit	Burning sensation, rheumatoid arthritis, gout, cardiac debility, skin disease, anemia, cough, jaundice, oligospermia and urinary diseases.
46	<i>Uteria salicifolia</i> Bedd. ex Hook fil	Chedi magali	Shrub	Peripolocaceae	Tuberous root	Indigestion, asthma, leprosy and diabetics
47	<i>Vitex negunda</i> L.	Nochi	Large shrub	Verbenaceae	Leaves	Arthritis, inflammations, lumbago, dyspepsia, colic, flatulence, wounds, ulcers, bronchitis, cough, malarial fever, leprosy and general debility.

*Aristolochia indica*, *Andrographis paniculata*, *Azadirachta indica*, *Rawvolfia serpentina*, *Strychnos nux-vomica*, *Anisomeles indica*, *Ocimum sanctum*, *Leucus aspara* applied for snakebite and *Phyllanthus niruri*, *P. reticulatus*, *P. urinaria* are orally administered to cure jaundice, liver pain. Many of the ethnic communities daily sources of leafy vegetables include *Cassia tora*, *C. occidentalis*, *Premna corymbosa*, *Allmania nodiflora*, *Celosia argentina*, *Tinospora cordifolia*, *Cissus quadrangularis*, *Eclipta prostrata*, *Alternanthera sessilis*, *A. paonechoides*, *Cardiospermum halicacabum*, *Cocacinia grandis*, *Digera muricata*, *Centella asiatica*, *Ceropegia juncea*,

*Caralluma adscendens*, *C. fimbriata* and *Canavalia virosa*, *Capparis zeylanica*, *Mucuna pruriens*, *Solanum xanthocarpum*, *S. nigrum*, *S. surattensis* plant fruits used as vegetables. Most of the root, rhizome and tuberous plant of *Dioscorea oppositifolia*, *D. alata*, *D. hamiltonii*, *Uteria salicifolia* and *Hemidesmus indicus* are grown in wild and hence complimentary the ethnic people collect them for food and health tonic. Some of the ethnic men are gathering wild honey as a source of income for their daily life span.

Majority of the herbal remedies are taken orally, the dosage given to the patient depends on

age, physical status and health conditions of tribal children. Before starting the treatment, the condition of the patient is observed deeply and then the prepared medicines are given to treat diseases. For topical, the most important methods used are direct application of the plant paste and mostly deals with ailments like skin diseases, wounds, poison bites, rheumatism, body pain and headache. Some of the ailments are treated by internal consumption as well as therapeutic application such as poison bite, rheumatic and body pain. In some of the sickness such as cold, cough, fever and headache inhalation is also involved. Tribal practitioners are using specific plant parts and definite dosages for the treatment of diseases.



**Figs. 1-9. Inherent indigenous therapeutic plants of Western Ghats part of Coimbatore region.**

1. *Acalypha indica* 2. *Allmania nodiflora* 3. *Aloe vera*  
4. *Andrographis paniculata* 5. *Aristolochia indica* 6. *Cardiospermum halicacabum* 7. *Cassia occidentalis* 8. *Cissus quadrangularis*  
9. *Coccinia grandis*.

#### 4. DISCUSSION

In the present investigation 47 plant species were found to be used by the tribes of traditional medicinal system for the treatment of various diseases like skin diseases, wound healing, stimulant and expectorant. The different parts of the plant such as leaves, fruits, roots and bark are used as food and medicine. Paliyar tribes inhabiting the Anaimalai hills are used 55 species of plants for the treatment of various ailments, food, cultural, traditional and religious ceremonies (Sivakumar *et al.*, 2003). Muthukumarasamy *et al.* (2003) reported that Paliyar tribes using 21 medicinal plants to get relief from gastro-intestinal disorders and the information was collected from the elderly and experienced persons practicing indigenous medicines. Rajendran

*et al.* (2003) surveyed the tribes inhabiting area, to collect the information on ethnomedicinal plants used by them for their primary healthcare and the survey enumerated 43 species of plants with multiple ethnomedicinal properties.

Local traditional healthcare practitioners used it to treat various ailments such as vomiting and dysentery (Ravishankar and Henry, 1992). Aboriginal community tribes mainly used 13 *Phyllanthus* species in different diseases like anemia, diabetes, malaria, tuberculosis, whooping cough, diuretic, jaundice, HIV, asthma, purgative, fever and headache (Lakshmi Narasimhudu and Venkata Raju, 2013). Rural people also used medicinal plants as traditional medicine for scabies, diarrhoea, urinary trouble, kidney stone, constipation and arthritis (Desale *et al.*, 2013). Recent reports of ethnomedicinal knowledge of traditionally used edible leaves, seeds, roots and bark are used for primary healthcare problem such as fever, cough, headache, body pain and also as an energy tonic (Solomon Raju and Venkata Ramana, 2011; Samyudurai *et al.*, 2012; Alagesaboopathi, 2014). Most of the medicinal plants are used by the herbal practitioner to treat common ailments for diuretic, snake bites, jaundice, piles, ulcer, swellings, weight loss, diabetics, cough and cold, body pain, diarrhea as anti-inflammatory and anti-cancerous. The traditional knowledge of ethnomedicinal plants and their therapeutic practices among Irula tribals may be helpful to improve the future pharmaceutical applications (Kalaiselvan and Gopalan, 2014). The study reveals that the herbs collected from forests and farmlands are used to cure the common ailments used medicinal plants by aboriginal people have been the custodians of forests and have sustained healthy life-styles in an eco-friendly manner (Pradheeps *et al.*, 2015).

#### 5. CONCLUSION

During the interviews, discussions among the ethnic communities, traditional healers and local people around the Coimbatore district of Tamilnadu, revealed that the area is rich in medicinal plant diversity and the most popular mode of preparation of drugs including decoction, infusion, paste, juice, powder and also in the form of vegetables. This study reveals that ethnic community people and traditional healers generally depend on the forest resources for medicinal plants to treat various ailments.

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