DOCUMENTATION OF ABORIGINAL TRADITIONAL KNOWLEDGE AND INHERENT INDIGENOUS THERAPEUTIC PLANTS OF COIMBATORE DISTRICT, TAMIL NADU, INDIA

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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

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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, Anaiakatty, 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 expektorants. 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     | Acalypha indica L.     | Kuppaimeni | Herb    | Euphorbiacea    | Whole plant        | Itching, Skin diseases, Rheumatoid arthritis and scabies.                  |
| 2     | Alternenthera paronychoides A. St.-Hil. | Ponnanganni | Herb    | Amaranthaceae   | Leaves             | Leafy vegetable                                                            |
| 3     | Alternenthera sessilis L. DC | Sotru katrallai | Herb    | Liliaceae       | Whole plant        | Amenorrhrea, wounds, ulcers, burns, colic, hepatitis, skin diseases,        |
|       |                        |            |         |                 |                    | constipation, tumor, malignancy, low back pain, edema, arthritis and        |
|       |                        |            |         |                 |                    | general debility.                                                          |
| 4     | Andrographis paniculata Wall ex Nees | Nilavempu | Herb    | Acanthaceae     | Whole plant        | Gastrointestinal disorder, improve the male sexual potency. The weed is     |
|       |                        |            |         |                 |                    | sometimes used topically to treat acne and eaten as vegetables.            |
| 5     | Anisomeles indica L. Kunze | Peimeratti | Woody shrub | Lamiaceae      | Whole plant        | Bitter tonic and febrifuge, blood purifier, cure for torpid liver and        |
|       |                        |            |         |                 |                    | jaundice and diabetic.                                                     |
| 6     | Aristolochia indica L. | Aaduthinnalal | Climber  | Aristolochiaceae | Leaf               | Poison bite, skin diseases, intestinal worms, colic, arthritis and ulcers. |
| 7     | Azadirachta indica A. Juss. | Vembu | Tree  | Meliaceae       | Bark, leaves, flower | Skin diseases, eczema, fever, wound, ulcer, burning sensation, tumor,       |
|       |                        |            |         |                 |                    | worms, cough, diabetes,                                                    |
| No. | Species                           | Common Names         | Family               | Parts Used                  | Medicinal Uses                                                                                                           |
|-----|----------------------------------|----------------------|---------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 10  | Calotropis gigantea R.Br.         | Yeruku               | Perennial shrub     | Asclepiadaceae              | Root, Latex, Flower and Leaves. Inflammation and rheumatoid arthritis. Skin diseases, joint inflammations, snake poison, asthma, chest infections, rashes and its strong purgative drug. |
| 11  | Canavalia virosa (Roxb.) DC.     | Thamatta             | Climber             | Papilionaceae               | Fruit. Young fruits used as vegetables.                                                                                   |
| 12  | Centella asiatica (L.) Urban.    | Vallarai             | Herb                | Apiaceae                    | Whole plant                                                                                                             |
| 13  | Capparis zeylanica L.            | Adondai, atontai     | Climbing Thorny shrub | Capparidaceae              | Fruit. Sedative, stomach, anticholerin, diuretic, febrifuge, piles and swellings. Antidiabetic, chronic illnesses and diet control. |
| 14  | Caralluma adscendens (Roxb.)     | Kallimulliyan        | Succulent herb      | Asclepiadaceae              | Whole plant                                                                                                             |
| 15  | Caralluma fimbriata (Roxb.)      | Kallimulliyan        | Succulent herb      | Asclepiadaceae              | Antidiabetic, obesity, appetizer and heart disease.                                                                       |
| 16  | Cardioperumum halicacabum L.     | Mudakathan           | Climber             | Sapindaceae                 | Whole plant                                                                                                             |
| 17  | Cassia tora L.                   | Tagarai              | Herb                | Fabaceae                    | Seeds and leaves. Antidiabetic, constipation, fever, amenorrhea, low back pain and rheumatism. Cough, bronchitis, allergy, asthma, fever constipation, diabetes, skin diseases, wounds and ulcers. |
| 18  | Cassia occidentalis L.            | Ponna virai          | Herb                | Fabaceae                    | Root, seed and leaves. Young leaves. Leafy vegetable used as anti diarrhoeal, antibacterial and cooling. Tranquilizer, hypotensive, hepatoprotective, anti ulcer, and antipyretic. |
| 19  | Celosia argentea L.              | Pannai keerai        | Herb                | Amaranthaceae               | Leaves. Leafy vegetable used as anti diarrhoeal, antibacterial and cooling. Tranquilizer, hypotensive, hepatoprotective, anti ulcer, and antipyretic. |
| 20  | Ceropogia juncea Roxb.           | Pulichan             | Climber             | Asclepiadaceae              | Whole plant                                                                                                             |
| 21  | Cissus quadrangularis (L.) Wall ex Wight | Perandai           | Climber             | Vitaceae                    | Young leaf. Piles, osteoporosis, anorexia and fracture.                                                                   |
| 22  | Cleome viscosa L.                | Naiikkadugu, Kattu kadugu | Annual herb         | Capparidaceae               | Whole plant. Intestinal worms, colic, stomach upset, cardio myopathy, diarrhoea, fever and dyspepsia.                     |
| 23  | Coccinia grandis (L.) Voigt      | Kovai keerai         | Climber             | Cucurbitaceae               | Leaf and Fruit. Constipation, burning sensation, leucorrhoea, skin disease, fever, asthma, cough and jaundice.         |
| 24  | Decalepis hamiltonii Wight and Arn. | Mahali kizhangu    | Climber             | Asclepiadaceae              | Tuber. Appetizer, blood purifier, diabetics, indigestion and health tonic.                                               |
| 25  | Digera muricata (L.) Mart.       | Thoikeerai           | Herb                | Amaranthaceae               | Leaf. Astringent, laxative, diuretic and urinary discharges. Tuber used as stable food and nutritive.                     |
| 26  | Dioscorea alata L.               | Vetralankodi kizhangu | Climber             | Dioscoreaceae               | Tuber. Tuber used as stable food, diarrhoea, dysentery, indigestion and urinary discharges.                              |
| 27  | Dioscorea oppositifolia L.       | Kavala-kodi          | Climber             | Dioscoreaceae               | Tuber. Tuber used as stable food, diarrhoea, dysentery, indigestion and urinary discharges.                              |
| 28  | Eclipta prostrata L.             | Mangal karisilakanni | Herb                | Asteraceae                  | Whole plant. Reduce pain, promote hair growth, stimulate the functions of liver and ulcers.                               |
| 29  | Euphorbia hirta L.               | Ammani paccharich Nannari | Herb                | Euphorbiaceae               | Whole plant. Asthma, skin diseases, fever, cough and dysentery. Health tonic, diabetic, bronchitis, asthma, diarrhoea, dysentery, arthritis, fever and general debility. |
| 30  | Hemidesmus indicus (L.) R.Br.    | Thumbai              | Herb                | Asclepiadaceae              | Root. Health tonic, diabetic, bronchitis, asthma, diarrhoea, dysentery, arthritis, fever and general debility.            |
| 31  | Leucas aspera Spreng             | Thumbai              | Herb                | Lamiaceae                   | Leaves, Flowers. Inflammation, worm infestation, arthritis, cough, amenorrhea, intermittent fever and ulcer.              |
| 32  | Morinda citrifolia L.            | Nunamaram            | Tree                | Rubiaceae                   | Fruit Pulp and bark. Cough, fever, diabetes, swelling, analgesic, diarrhoea and diuretic.                               |
| 33  | Mucuna pruriens (L.) DC.         | Punaikkali           | Climber             | Fabaceae                    | Fruits, Leaves. Constipation, impotency, Parkinsonism, kidney diseases.                                                  |
| No | Common Name | Scientific Name | Family | Part Used | Uses |
|----|-------------|-----------------|--------|-----------|------|
| 34 | Ocimum sanctum L. | Thulasi | Shrub | Whole plant | Seeds, Hairs, Whole plant, neuropathy, worm infestations, fever and general debility. |
| 35 | Pongamia pinnata (L.) Panigrahi | Pongan | Tree | Whole plant | Leaves, bark and Seed, Ringworm and skin diseases. |
| 36 | Phyllanthus amarus L. | Keelaanelli | Herb | Whole plant | Antispasmodic, antipyretic, diuretic, anti-inflammatory, and bactericidal. |
| 37 | Phyllanthus reticulatus Poir. | Neerpula | Herb | Whole plant | Diabetes, hepatitis, burning sensation, burns, skin diseases, obesity and urinary retention. |
| 38 | Phyllanthus urinaria L. | Senkeezhnelli | Herb | Whole plant | Antispasmodic, diuretic, diabetes, hepatitis, astringent, anti-inflammatory, jaundice, indigestion, chronic dysentry and urinary tract diseases. |
| 39 | Premna corymbosa R.Z Wild | Minmai | Small tree | Tend plant and leaves | Snake bite, blood pressure, |
| 40 | Rawolphia serpentina (L.) Benth. ex Kurz | Sarpagandha | Shrub | Whole plant | Snake bite, blood pressure, |
| 41 | Solanum nigrum L. | Manathakkali | Herb | Whole plant | Swoings, cough, asthma, arthritis, inflammation, skin diseases and anti cancer drug. |
| 42 | Solanum surattensis Burm. F | Kantankattiri | Shrub | Fruit | Stimulant, expectorant, diuretic, laxative, febrifuge, cough, bronchitis, asthma, enlargement of liver and spleen, vomiting. |
| 43 | Solanum xanthocarpum Schrad. and H. Wendl. | Kantankattiri | Shrub | Whole plant | Worm infestations, dental caries, inflammations, arthritis, colic, flatulence, rheumatoid arthritis, cough, fever, asthma, bronchitis, amenorhea, low back pain, hemorrhoids, epilepsy and kidney stones. |
| 44 | Strachy nux-vomica L. | Yetikai | Tree | Seed | Cardiomyopathy, hypotension, arthritis and dementia. In large doses, all part of the tree is toxic. |
| 45 | Tinospora cordifolia (Willd.) Hook. f and Thoms | Seenthilkodi | Climber | Leaf and fruit | Burning sensation, rheumatoid arthritis, goit, cardiac debility, skin disease, anemia, cough, jaundice, oligospermia and urinary diseases. |
| 46 | Utleria salicifolia Bedd. ex Hook fil | Chedi magali | Shrub | Tuberous root | Indigestion, asthma, leprosy and diabetics |
| 47 | Vitex negundo L. | Nochi | Large shrub | Leaves | Arthritis, inflammations, lumbago, dyspepsia, colic, flatulence, wounds, ulcers, bronchitis, cough, malarial fever, leprosy and general debility. |

Aristolochia indica, Andrographis paniculata, Azadirachta indica, Rawolphia 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. paenechoides, Cardiopernum halicacabum, Coccinia 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, Utleria 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.

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, diarrhea, 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; Samydurai 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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