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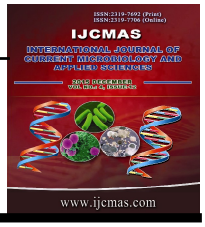


Original Research Article

Diversity of traditional medicinal plants used by rural community in Tiruchirappalli District, Tamilnadu, South India

V.Nandagoapalan[1*], C.Marimuthu[1] and A. Doss[2]

[1]PG & Research Department of Botany, National College, Tiruchirappalli, India
[2]Post Graduate Department of Microbiology, Kamaraj College, Thoothukudi
Tamilnadu, South India
**Corresponding author*

Keywords

Ethno-medicinal plants, Manaparai, Thuraiyur, Medicinal uses,

A B S T R A C T

The present investigation was to identify and document some of the plant species used for medicinal purposes by the rural communities of Tiruchirappalli District, Tamilnadu, South India. The study was conducted among the rural community of Tiruchirappalli district through survey, personal interviews and field visits along with the informants during 2012 - 2014. A total of 144 plant species distributed in 102 genera belonging to 45 families used to cure various ailments by this community. The present survey offers a model for studying the relationship between plants and human beings and also traditional remedies of vast therapeutic importance. The study also gathers a broad spectrum of information concerning medicinal plants used by rural community.

Introduction

Traditional medicine is a vital role of the primary health care system in the developing and developed countries (Sheldon *et al*., 1997). The supply base of 90% herbal raw drugs used in the manufacture of Ayurveda, Siddha, Unani & Homoeopathy systems of medicine is largely from the natural resources (Rama Krishna and Sujatha, 2012). Plant based drugs are comparatively safer than synthetic drugs and it is a recognized tool in search for new sources to drugs (Sharma and Munjundar, 2003). Scientific investigations of medicinal plants have been initiated in many parts of our country because of their contributions to health care. India has rich diversity of medicinal and aromatic plants. It has been estimated that out of 15,000 higher plants occurring in India, 9,000 are commonly useful, of which 7,500 are medicinal, 3,900 are edible, 700 are culturally important, 525 are used for fibre, 400 are fodder, 300 for pesticide and insecticide, 300 for gum, resin and dye and 100 for incense and perfume. India has a long history in traditional health practices in local health tradition and home

remedies and is especially aimed uplifting the health profile of women, children and society (Ranjith et al., 2010).

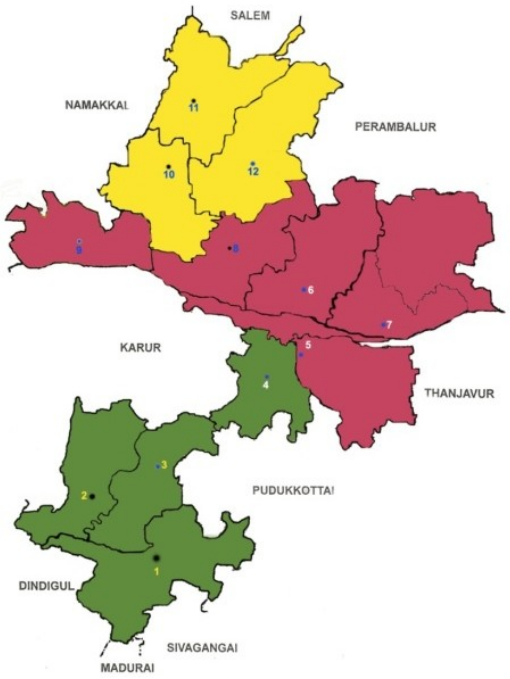
Stated that many rural people throughout the world rely on medicinal plants because of their effectiveness, lack of modern healthcare alternatives and cultural preferences (Caniago and Sierbert, 1998). Many traditional practitioners across the world particularly in countries like India and China with age old practices have valuable information of many lesser – known neither to unknown wild plants used by the traditional healers for treating various diseases. They are the repository of accumulated experience and of knowledge of the indigenous vegetation; this can be utilized in tribal development. These studies assume great importance in enhancing our traditional skills about the plant growth and used for native or tribal communities for their sustenance. Therefore, the present study aims to identify and document, some of the plant species used for medicinal purposes by the rural community of Tiruchirappalli district, Tamilnadu India based on the interview and frequent field visit.

Materials and Methods

Study area

The study area of Tiruchriappalli district was divided into three segments based on its vegetation. The study area was classified into three segments viz., Manapparai, Tiruchirappalli and Thuraiyur (Figure 1).

Figure.1 Study area: Tiruchirappalli district (Tamil Nadu)



MANNAPARAI SEGMENT (MS)
Marungapuri (1) Vaiyampatti (2) Manapparai (3) Manikandam (4)

TIRUCHIRAPPALLI SEGMENT (TS)
Tiruchirappalli & Srirangam (5) Mannachanallaur (6)
Lalgudi & Pullambadi (7) Musiri (8) Thottiyam (9)

THURAIYUR SEGMENT (THS)
Thathiyengarpettai (10) Uppliyapuram (11) Thuraiyur (12)

Ethnobotanical survey

The medicinal and other uses of the identified plants were collected from the local and professional healers within the study area. In addition to ethnobotanical uses of the collected plants, information was obtained from interviews and probing of local people who have knowledge about traditional medicine. The specimens collected in locality were shown and its use was documented in field. It was identified that several medicinally useful plants were collected for treatment of a wide range of ailments. The plant part used for selected species was of relevance with respect to histochemical study. The secondary source of information such books and monographs were also consulted for validating the ethnobotanical information of the collected plants (Chatterjee & Chandra Pakrashi 1991, Ambasta 1986; Chopra *et al* 1956).

Quantification of plant resources through quadrat method

Based on the quadrat data collected in a total of three samples per segment, the distribution of habit of plants was influenzed by the anthropogenic pressure as well as the type of vegetation present in the segment. The established forest of Thuraiyur segment is having a restricted list of species which is not found in other segements. This segment is dominated by trees. The shrubs and herbs were also specific to the hilly terrain which were not found plains. The presence of woody climbers indicates the dense nature of forest in Thuraiyur segment. Persistance of trees and woody climbers restict the distribution of herbaceous species. The Tiruchirappalli and Manapparai segments equally contribute more number of medicinaly useful plants which were dominated by medicnal herbs and shrubs. How ever in Tiruchirappalli district, due to anthropogenic pressure most of the valuable medicinal plants often were disturbed and restricted to very few places. Due to the availability of arid and uncultivable lands, the Manapparai segment support many of the medicinal plant which can survive stressful conditions.

Results and Discussion

Ethnobotanical investigation has led to the documentation of a large number of wild plants used by tribes for meeting their demands. In India, many organized ethonobotanical studies were initiated by intensive field studies in the areas. The results of the ethnobotanical survey are presented in Table 1. The study revealed 144 plant species distributed in 102 genera belonging to 45 different families that are frequently used for the treatment of various ailments in Tiruchirappalli district.

The reported plants were arranged according to their scientific name, family, parts used, therapeutic uses and method of usage of herbal preparations. It is more evident from this study that the plant species belonging to the family Rubiaceae, Malvaceae, Mimo-soideae, Papilionoideae, Convolulaceae, Euphorbiaceae, Caeslpinioideae, Asclepiad-aceae, Caeslpinioideae, Cappar-aceae, Acanthaceae, Cucurbitaceae, Solanaceae, Verbenaceae than any other plant species (Fig - 3). Different parts of medicinal plants were used as medicine by the local traditional healers The most frequently utilized plant parts percentage were leaves (52 %), followed by the roots (33 %), whole plant (16 %), seeds (11 %), Fruit (8 %) Stem (5 %) fruits (8.5%), flowers (3 %), rhizome (1 %) and others (8 %) in the form of decoctions, extracts, paste, juices and powders (Fig-2). These medicinal plants are known to cure various types of ailments.

Figure.2 Plant parts used for medicinal purposes and percentage of total medicinal species

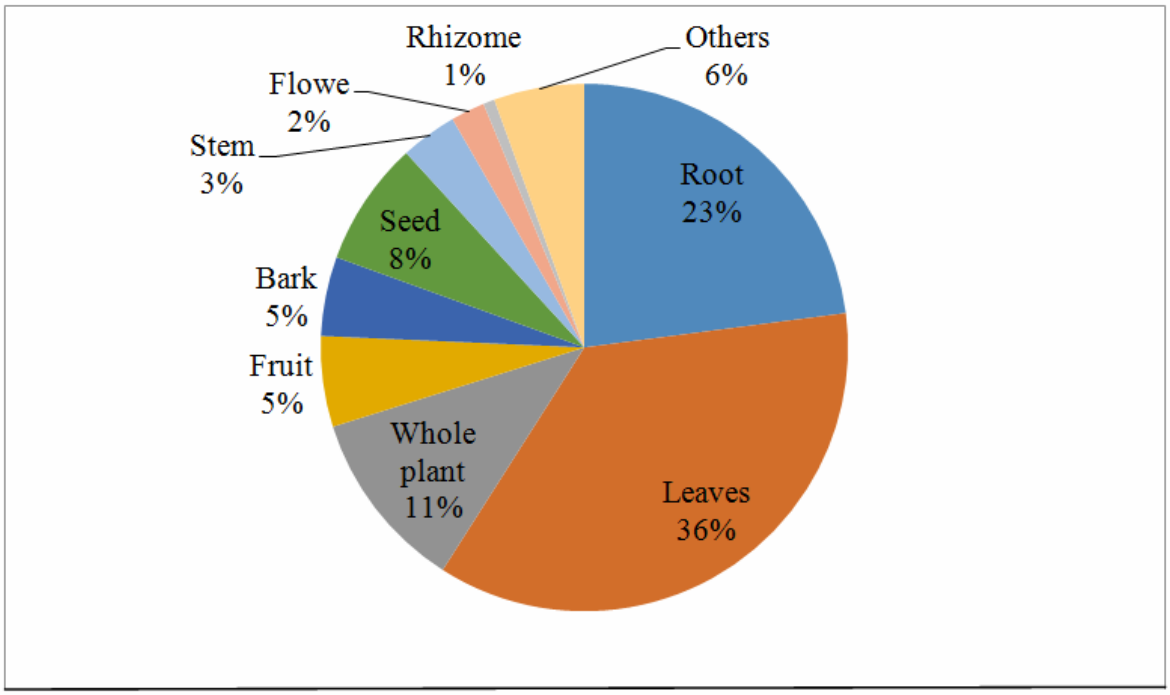


Figure.3 Dominant family with respect to the number of species

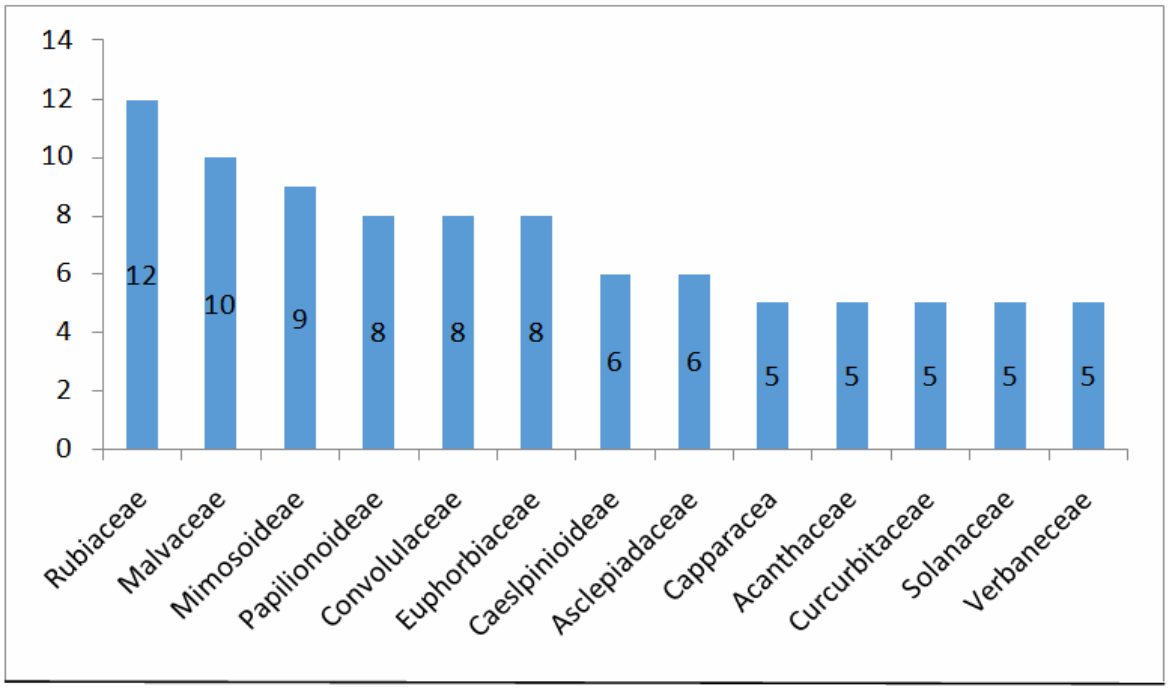


Table.1 List of medicinal plants used by rural community in Tiruchirappalli district, Tamilnadu, South India

S. No	Botanical name	Family	Parts used	Medicinal uses
1	*Cissampelos pareira* Linn.	Menispermaceae	Root	Snake bite & Kidney disorder
2	*Cocculus hirsutus* (L.) Diels	Menispermaceae	Root	Snake bite
3	*Cyclea peltata* (Lam.) Hk.f. & Thoms.	Menispermaceae	Root	Ulcer and Dropsy
4	*Argemon emexicana* L	Papaveraceae	Stem	Jaundice & Snake bite
5	*Fumaria indica* (Hausskn.) Pugsley	Fumariaceae	Whole plant	Diabetes cure
6	*Cappairs divaricata* Lam	Capparaceae	Seed	Diabetic cure
7	*Capparis zeylanica* Linn.	Capparaceae	Root	Stomache problems and Cholera.
8	*Cleome aspera* J. Koenig	Capparaceae	Leaves	Eczema and other Skin Disorders.
9	*Cleome chelidonii* L.f.	Capparaceae	Leaves	Headaches and Earache
10	*Cleome feline* L.f.	Capparaceae	Leaves	Cancer
11	*Hybanthus enneaspermus* (L.) F. Muell	Violaceae	Whole plant	Scorpion sting
12	*Polygala arvensis* Willd.	Polygalaceae	Leaves	Asthma, chronic
13	*Polygala erioptera* DC.	Polygalaceae	Leaves	Wounds
14	*Polygala javana* DC.	Polygalaceae	Whole plant	Liver disease
15	*Hibiscus tiliaceus* L.	Malvaceae	Bark	Dysentery
16	*Hibiscus vitifolius* L.	Malvaceae	Root	Viral fever
17	*Malvastrum coromandelianum* (L.) Garcke.	Malvaceae	Leaves	Diabetic cure
18	*Pavonia procumbens* (wight & Am) Boiss	Malvaceae	Leaves	Ulcer
19	*Pavonia zeylanica* (L.) Cav	Malvaceae	Leaves	Cancer, Diabetes, Cardiovascular disease
20	*Sida acuta* (Burn.f)	Malvaceae	Root	Snake bite
21	*Sida cordata* (Burm.f.) Borss.	Malvaceae	Root bark	Leucorrhoea and Gonorrhea.
22	*Sida cordifolia* L	Malvaceae	Root	Urinary troubles
23	***Sida rhombifolia* L.**	Malvaceae	Stem	Fever, Heart disease, Piles
24	*Thespesia populnea* (L) Sol. Ex Corr, Serr.	Malvaceae	Bark, roots and fruits	Dysentery and Haemorrhoids
25	*Guazuma ulmifolia* Lam.	Sterculiaceae	Seed	Dysentery, Cold, Cough and Venereal disease
26	*Helicteres isora* Linn.	Sterculiaceae	Leaves	Diabetes cure, Empyema

27	*Pterospermum suberifolium* (L.) willd.	Sterculiaceae	Flower	Ulcer
28	*Corchorus aestuans* Linn.	Tiliaceae	Seed	Stomach disorders, Itching
29	*Corchorus fascicularis* Lam.	Tiliaceae	Whole plant	Ulcers, cures dysentery, piles
30	*Corchorus olitorius* Linn.	Tiliaceae	Leaves	Anemia
31	*Erythroxylum monogynum* Roxb.	Erythroxylaceae	Leaves	Jaundices
32	*Hiptage benghalensis* (L.) Kurz.	Malpighiaceae	Leaves	Asthma
33	*Tribulus terrestris* L.	Zygophyllaceae	Leaves	Urinary Infections, Heart diseases
34	*Aegle marmelos* (L.) Corr.	Rutaceae	Fruits	Snake bite
35	*Chloroxylon swietenia* DC.	Rutaceae	Root	Scorpion sting
36	*Limonia acidissima* Linn.	Rutaceae	Fruits	Dysentery, Asthma,Tumors
37	*Ailanthus excels* Roxb.	Simaroubaceae	Bark	Snake bite & Scorpion sting
38	*Commiphora caudate* (Wight & Arn) Engl.	Burseraceae	Bark	Ulcer
39	*Scutia myrtina* (Burm. f.) Kurz	Rhamnaceae	Stem	Stomach problems
40	*Ventilago madraspatana* Gaertn.	Rhamnaceae	Root	Fevers and Dyspepsia
41	*Ziziphus rugosa* Lam.	Rhamnaceae	Fruit	Wounds and Diarrhea
42	*Cayratia trifolia* (Linn.) Domin	Vitaceae	Leaves	Snake bite
43	*Cissus quadrangularis* Linn.	Vitaceae	Stem	Scorpion Sting and Bone Fracture
44	*Cardiospermum halicacabum* Linn.	Sapindaceae	Roots	Lumbago and Nervous Diseases
45	*Dodonaea viscose* Jacq.	Sapindaceae	Leaves	Diabetes, Swelling
46	*Sapindus emarginata* Vahl.	Sapindaceae	Whole plant	Snake bite
47	*Anacardium occidentale* L.	Anacardiaceae	Leaves	Venereal diseases, Skin disease, Diarrhoea,
48	*Mangifera indica*. L.	Anacardiaceae	Seed	Asthma
49	*Morringa oleifera* Lam	Moringaceae	Whole plant	Cardiac and Circulatory Stimulant
50	*Derris scandens* Benth	Papilionoideae	Stem	Muscle pain
51	*Indigofera enneaphylla* L.	Papilionoideae	Whole plant	Wound healing
52	*Indiogofera tinctoria* L.	Papilionoideae	Root	Kidney stone
53	*Indigofera trita* L.f	Papilionoideae	Leaves, Seed	Tumor, Liver and Nutritive Tonic.
54	*Mucuna atropurpurea* DC.	Papilionoideae	Seed	Bone fracture.
55	*Mucuna pruriens* (L) DC.	Papilionoideae	Seed	Atherosclerosis, Nervous disorders
56	*Pseudarthria viscida* L. Weight & Arm	Papilionoideae	Root	Diarrhoea, Asthma, Cardiac troubles
57	*Sesbania aegyptiaca* Pers.	Papilionoideae	Leaves	Diarrhoea
58	*Cassia fistula* L.	Caeslpinioideae	Leaves,	Heart pain, Skin disease, Abdominal

			Seed, flower	Pain, Easy delivery
59	*Cassia hirsuta* L.	Caeslpinioideae	Root	Stomachache.
60	*Cassia occidentails* Linn	Caeslpinioideae	Seed	Diuretic, Liver detoxifier
61	*Cassia siamea* Lam.	Caeslpinioideae	Leaves	Snake bite
62	*Cassia tora* L.	Caeslpinioideae	Seed	Stomachache, Asthma, Cough & Cold
63	*Hardwickia binata* Roxb.	Caeslpinioideae	Leaves & Bark	Sexually transmitted diseases, Leucorrhoea
64	*Acacia horrida* (L) Willd.	Mimosoideae	Bark	Diarrhoea
65	*Acacia leucophloea* Wild	Mimosoideae	Bark	Bronchitis and Biliousness
66	*Acacia polycantha* Willd.	Mimosoideae	Seed	Hypoglycaemic
67	*Acacia sinuate* (Lour.) Merr.	Mimosoideae	Leaves and fruit	Jaundice, Fever & Ulcers
68	*Albizia amara* (Roxb.) Boiv.	Mimosoideae	Root	Cough
69	*Dichrostachys cinerea* (L.) Wt. and Arn.	Mimosoideae	Leaves	Stomach pains, Diarrhea
70	*Mimosa pudica* L.	Mimosoideae	Root	Urinary complaints
71	*Neptunia prostrata* (Lam.) Baillon.	Mimosoideae	Root & Flower	Jaundice, Sores of tongue, Diarrhoea with bleeding.
72	*Prosopis spicigera* L.	Mimosoideae	Bark	Scorpion sting, Dysentery, Bronchitis, Asthma, Leucoderma, Piles.
73	*Barringtonia acutangula* (L.) Gaertner.	Lecythidaceae	Whole plant	Liver disorders & Worm infestation
74	*Memecylon umbellatum* Burm.f.	Melastomataceae	Leaves	Eye troubles, Bone fracture, Diabetes, skin diseases, snake bite
75	*Ammannia baccifera* L.	Lythraceae	Seed	Rheumatic pains, Fevers,
76	*Ludwigia parviflora* Roxb.	Onagraceae	Whole plant	Fever
77	*Passiflora foetida* L.	Passifloraceae	Flower	Anxiety, Insomnia, Convulsion, Sexual dysfunction, Cough and Cancer
78	*Passiflora subpeltata* Ortega	Passifloraceae	Leaves and fruit	Hypertension, Asthma and skin diseases.
79	*Citrullus colocyanthis* **(Linn.)**	Cucurbitaceae	Fruit	Jaundice
80	*Corallocarpus epigaeus* (Rottler) C.B. Clarke	Cucurbitaceae	Rhizome	Anti diabetes and Snake bite
81	*Diplocyclos palmatus* (L.) C.Jetfory	Cucurbitaceae	Fruit	Female infertility,

				Diarrhoea, Leucorrhoea
82	*Solena amplexicaulis* (Lam.) Gandhi.	Cucurbitaceae	Root	Stimulant and Purgative
83	*Trichosanthes cucumerina* Linn.	Cucurbitaceae	Root	Diabetes, Skin swellings ,Boils, Furuncles, Diuretic and Emetic
84	*Centella asiatica* (L.) Urban.	Apiaceae	Leaves	Anaemia, Nervous tonic
85	*Alangium salvifolium* Wang.	Alangiaceae	Root	Skin disease
86	*Canthiumdicoccum*, Gaetrn	Rubiaceae	Leaves	Stomach pain.
87	*Catunaregam dumetorum* (Retz.)	Rubiaceae	Leaves	Emetic, diaphoretic
88	*Gardenia turgida* Roxb.	Rubiaceae	Root	Snake Bite and Scorpion Sting
89	*Morinda coreia* Buch.	Rubiaceae	Fruit	High blood pressure, Ulcers, Menstrual cramps, Pain relief, Burns.
90	*Morinda tinctoria* Roxb.	Rubiaceae	Root, Leaves	Eczema, Fever, Ulcers
91	*Morinda umbellate* L.	Rubiaceae	Leaves	Diarrhea and Dysentery
92	*Oldenlandia diffusa* (willd) Roxb.	Rubiaceae	Whole plant	Wounds, Cuts and Boils
93	*Randia dumetorum* Lam.	Rubiaceae	Fruit	Skin diseases.
94	*Richardia scabra* Linn.	Rubiaceae	Root	Diaphoretic
95	*Rubia cordifolia* Linn.	Rubiaceae	Root	Ulcers, Skin and Urinary diseases
96	*Spermacoce ocymoides* Burm. f.	Rubiaceae	Leaves	Dysentery and Diarrhea
97	*Tarenna asiatica* (L.) O. Ktze.	Rubiaceae	Leaves	Abdominal pains, Malaria
98	*Vicoa indica* (L) D.C.	Asteraceae	Root	Anti viral infection
99	*Xanthium indicum* Koen.	Asteraceae	Leaves	Diuretic and Antisyphilitic
100	*Diospyros montana* Roxb.	Ebenaceae	Bark	Dysentery
101	*Jasminum angustifolium* vahl	Oleaceae	Leaves	Clot of Breast milk
102	*Azima tetracantha* Lam.	Salvaderaceae	Leaves	Muscular rheumatism and Ear ache
103	*Carissa carandas* Linn.	Apocynaceae	Flower	Stomachic and Anthelmintic
104	*Carissa spinarum* Linn.	Apocynaceae	Root	Wounds
105	*Gymnema sylvestre* (Retz.) R. Br.	Asclepiadaceae	Root	Urinary Diseases and Skin Troubles
106	*Hemidesmus indicus* R.Br. ex schultes	Asclepiadaceae	Root	Reduced body heat, Pimples
107	*Marsdenia tenacissima* (Roxb.) Moon	Asclepiadaceae	Tuber	Diarrhea
108	*Oxystelma esculentum* (L.f.) R.Br. ex Schult.	Asclepiadaceae	Root	Jaundice
109	*Pergularia daemia* (Forssk.) Chiov.	Asclepiadaceae	Leaves	Asthma
110	*Sarcostemma brunonianum* Wt. & Arn.	Asclepiadaceae	Stem	Emetic.
111	*Argyreia speciosa* Sweet.	Convolulaceae	Leaves	Gonorrhea

112	*Evolvulus alsinoides* (Linn.) Linn	Convolulaceae	Whole plant	Memory loss, Azoospermia,
113	*Evolvulus mummularius*. (L.) L.	Convolulaceae	Leaves	Diarrhoea, Dysentery and Scabies.
114	*Ipomoea aquatica* Forssk.	Convolulaceae	Leaves	Diabetes
115	*Ipomea pestigridis* Linn.	Convolulaceae	Leaves	Pimples and Carbuncle
116	*Ipomoea obscura* (L)Ker,	Convolulaceae	Leaves	Ulcers
117	*Ipomea pestigridis* Linn.	Convolulaceae	Leaves	Headaches and Snake Bite
118	*Ipomoea sepiaria* J.	Convolulaceae	Leaves	Boils, Sores, Pimples and Carbuncles.
119	*Physalis minima* L.	Solanaceae	Whole plant	Scabies and Itching.
120	*Solanum anguivi* Lam	Solanaceae	Fruit	Blood Pressure and Diabetes
121	*Solanum nigrum* Linn.	Solanaceae	Leaves	Diarrhoea and Eye Troubles
122	*Solamum surattense*	Solanaceae	Leaves	Chronic fever, Skin infection
123	*Solanum torvum* SW	Solanaceae	Leaves, fruits	Fever, Wounds, and Tooth Decay
124	*Andrographis alata* (Nees)	Acanthaceae	Root	Snake bite and Cancer.
125	*Andrographis paniculata* (Burm.f)	Acanthaceae	Root	Snake bite and Scorpion sting
126	*Asystasia gangetica* (L.) T. Anderson.	Acanthaceae	Whole plant	Swellings and Rheumatism.
130	*Barleria buxifolia* Linn.	Acanthaceae	Root	Febrifuge
131	*Adhatoda vasica* Nees.	Acanthaceae	Whole plant	Asthma, Lumber pain, Swellings, Venereal diseases
132	*Phyla nodiflora* (L.) Greene	Verbenaceae	Leaves	Diuretic and Febrif
133	*Stachytarpheta jamaicensis* (L.) Vahl.	Verbenaceae	Leaves	Cardiac troubles
134	*Stachytarpheta mutabilis* (Jacq.) Vahl.	Verbenaceae	Leaves	Painful menstruation
135	*Vitex negundo* L.	Verbenaceae	Leaves	Snake bite
136	*Breynia retusa* (Dennst.) Alst.	Euphorbiaceae	Leaves	Galactagogue.
137	*Cleistanthus collinus* (Roxb.) Benth. Ex Hk.f.	Euphorbiaceae	Leaves	Abortifacient
138	*Euphorbia antiquorum* Linn.	Euphorbiaceae	Leaves	Nervine troubles and Dropsy
139	*Euphorbia cyathophora* L.	Euphorbiaceae	Leaves	To Induce lactation of Women
140	*Euphorbia hirta* Linn.	Euphorbiaceae	Whole plant	Cough and Asthma
141	*Jatropha gossypifolia* Linn.	Euphorbiaceae	Root	Leprosy
142	*Phyllanthus amarus* Schum & Thonn.	Euphorbiaceae	Whole plant	Urinary problems & Snake Bite
143	*Ricinus communis* Linn.	Euphorbiaceae	Seed	Cathartic, Combustible fuel , Reduce body heat
144	*Ficus glomerata* Roxb.	Moraceae	Root	Diarrhoea and Diabetes

The main ailments in the study area were snake bites, asthma, cough & cold, skin disorders, dysentery, diabetes, fever, wound healing, jaundice and stomach problems (Table 1). Different types of preparations were made from plant species includes juice, paste, decoction and whole plant extract. Many plants were even used in more than one form of combinations.

Most of the plants were used in the form of decoction obtained from the leaves, roots, seeds and flowers. This is the constant with the previous reports which has been indicated earlier in relation to medicinal plants uses by the Indian traditional system of medicine like Siddha and Ayurveda (Kirtikar and Basu, 2001). However, the therapeutic uses of plant species reported here are having less information on their phytochemical study. So, further studies on chemical and pharmacological action are suggested to validate the claim.

In conclusion, the present study revealed that the knowledge and usage of conventional medicine for the treatment of various diseases among the rural community is still a major part of their life and culture. They have a strong faith in the efficacy and success of traditional medicine and the results of the present study provide evidence that the medicinal plants continued to play a vital role in the healthcare system of this community.

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