INTERNATIONAL JOURNAL OF PLANT, ANIMAL AND ENVIRONMENTAL SCIENCES
IJPAES
Volume-9, Issue-1 Jan-Mar-2019 Coden: IJPAJX-CAS-USA, Copyrights@2019 ISSN-2231-4490
Received: 24th Feb-2019 Revised: 25th Mar-2019 Accepted: 26th Mar-2019
DOI: 10.21276/Ijpaes http://dx.doi.org/10.21276/ijpaes Research Article

ETHNNOMEDICINAL PLANTS OF GOPALSWAMY HILLS, WESTERN GHATS, COIMBATORE DISTRICT, TAMILNADU

[1]Sathishkumar and [2]Anbarasu

[1]&[2] PG & Research Department of Botany, NGM College of Arts and Science, Pollachi, Coimbatore, Tamil Nadu

ABSTRACT: This study was conducted in Gopalswamy hills in the Western part of Southern forest division in the Coimbatore district of the state of Tamil Nadu. This study reveals the important herbaceous ethnomedicinal plants of Gopalswamy hills. A total of 100 species belonging to 42 families and 92 genera's of plants were recorded as highly useful medicines for local tribal people to cure the various diseases in Gopalswamy hills. Among the families Rubiaceae, Poaceae (9 species in each) were found to be dominant plant families followed by Fabaceae, Euphorbiaceae (6 species in each) and Acanthaceae, Malvaceae (5 species in each). Some of the ethnomedicinal plants were used for Diabetes, Skin diseases, Eye diseases, Antisyphitic, Cough and Diarrhoea and they are also very popular with the antidotes for snake bite. This kind of medicinal plant should be conserve in our study area for welfare of our future generation.

Key words: Medicinal plants, Gopalswamy hills, Western Ghats

*Corresponding autor: Anbarasu, PG & Research Department of Botany, NGM College of Arts and Science, Pollachi, Coimbatore, Tamil Nadu; Email: anbutaxon77@gmail.com

INTRODUCTION

Medicinal plants are extensively used throughout the world to cure human diseases since from ancient period. In India about 47,000 plant species are distributed in different vegetation zones [1]. This is ranking eighth in the world biodiversity. Out of these plants about 8,000 species are known to be medicinal importance. Around 2,500 plant species are used in the Indian Systems of Medicine such as Ayurveda, Unani, Siddha and Homoeopathy [2]. In India about 90% of plant materials are collected from wild sources, many of the plants have become rare, threatened, endangered or vulnerable due to the destructive harvesting [3]. In India about 427 ethnic communities and folk healers use around 8,000 species of medicinal plants are used by many tribal communities for traditional medicinal preparation. India is endowed with rich wealth of medicinal plants which are widely used by all section of peoples either directly as folk remedies or different indigenous system of medicine or indirectly in the pharmaceutical preparations of modern medicines [4]. The growing demand of the herbal products in the domestic and global market also makes the use of ecosystem specific medicinal plants a livelihood strategy. At present India is experiencing great pressure on its, resources due to its fast growing population [5]. During the past two decades the human activities on commercialization of plant based drugs and demand from the pharmaceutical industry for domestic needs and the export of herbal drugs leads scarcity of medicinal plants in forests and plains. The utility and need of botanical exploration in the country is to identify and search the economically important medicinal plant which has to be propagated and conserved for future generation [6].

MATREIALS AND METHODS

Study area

Gopalswamy hills is situated close to the Anaimalai hills 10° 13' and 10° 31' north Latitude and between 76° 52' and 77° 22' east longitude of the Western Ghats part of the Southern forest division in the Coimbatore district of the state of Tamil Nadu. It is marked in the buffer zone of Anamalai Tiger Reserve. This countryside hillock supports rich flora comprising of medicinal plants. The Gopalswamy hills have a semi-arid climate with dry and cold winter and hot and dry summer. A semi-arid climate prevails with a maximum temperature ranging between 23 ℃ to 31℃ and a minimum temperature ranging 12℃ to 18. The tribal groups living here is Pulayars, they are the untouchable caste in Hinduism forming one of the main social groups in modern-day and they are living in Kerala, Karnataka and Tamil Nadu.

Interviews with tribal practitioners

Ethnomedicinal plant informations were gathered from questionnaire survey method. The present data is outcome of field research carried out as part of ethnobotanical studies during 2016. The ethnomedicinal information was gathered from tribes who practice and have experience in the use of medicinal plants. Our questionnaire allowed descriptive responses on the plant prescribed, such as part of the plant used, medicinal uses, detailed information about mode of preparation (i.e.. decoction, paste, powder and juice), form of usage either fresh or dried and mixtures of other plants used as ingredients. Specimens were identified with the help of the Floras [7, 8].

RESULTS AND DISCUSSION

This study result showed a total of 100 species belonging to 42 families and 92 genera of plants were record as highly useful medicines for local tribal people to cure the various diseases in Gopalswamy hills (Table 1). Among the plants 38 plants were shrubs, 32 species were herbs, 15 tree species and 15 species were climbers. Shrubs and herbs (70%) were found to be the dominant medicinal plants in Gopalswamy hills (Fig.1). A total of 42 families and 91 genera of plants were record as in Gopalswamy hills. Rubiaceae, Poaceae (9 species in each) were found to be dominant plant families followed by Fabaceae, Euphorbiaceae (6 species in each) and Acanthaceae, Malvaceae (5species in each).

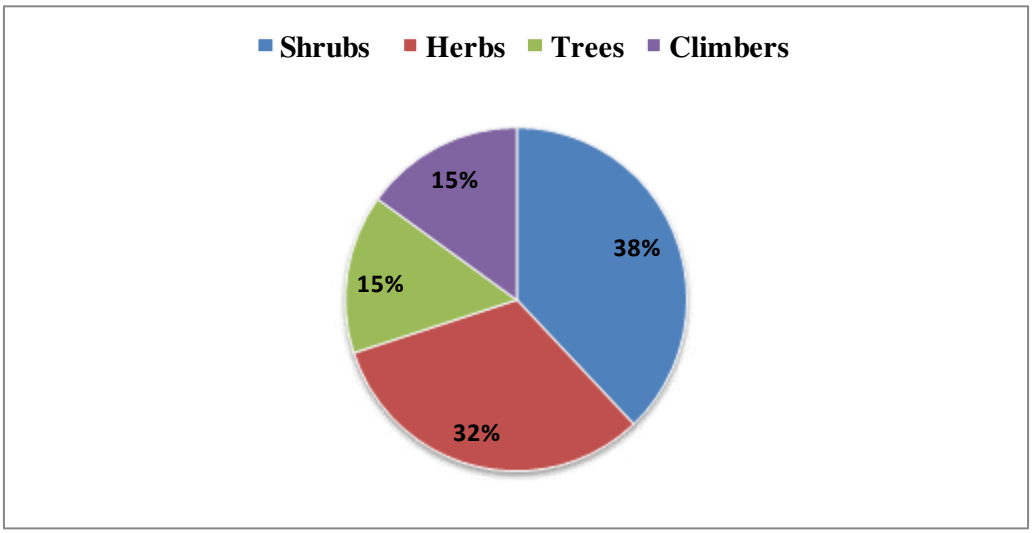

Fig. 1 Different types of plant parts used by Pulaiyar tribes for medicines

Among the ethnomedicinal plants 16 plants were used to cure skin disease followed by 12 species used to cure fever, 9 species used to cure diarrhea, 7 species used to cure diabetes, 6 species used to cure snake bite, four species used to cure Cough and one species used to cure Cancer.

Two endemic plants *Arundinella mesophylla, Cymbopogan travancorensis* (Peninsular India) and four threatened plants *Cinnamomum wightii*, *Canthium dicoccum, Santalum album* and *Dalbergia latifolia* were recorded in our study site [9] Leaves (41%) were highly preferred by local people as medicines for several diseases followed by whole plant parts (32%), barks (10%), roots (8%), fruits (5%), seeds (2%), stem (1%) and petiole (1%). Similarly leaves of fourteen plant species were highly used by local people for medicinal purpose in the Southern Western Ghats of Coimbatore district [6].

Table-1 Ethnomedicinal plants used by Pulaiyar tribes of Gopalswamy Hills, Anamalai Tiger Reserve, Western Ghats

S.No	Botanical name	Family	Local Name	Habit	Part Used	Medicinal Usage
1	*Abrus precatorius* L.	Fabaceae	Kundumani	Climber	Leaves	Fever, coughs, colds
2	*Abutilon indicum* G, Don.	Malvaceae	Thutthi	Shrub	Whole plant	Longs ailments, tuberculosis
3	*Acalypha indica* L.	Euphorbiaceae	Kuppaimeni	Herb	Whole plant	Promotes the flow of urine, agent of vomiting, asthma
4	*Achyranthus aspera* L.	Amaranthaceae	Nayuruvi	Herb	Whole plant	Piles, diuretic, kidney stones, vomiting
5	*Albizzia amara* boivin	Mimosaceae	Arappu	Tree	Leaves	Herbal hair cleaning
6	*Allmania nodiflora* (L.) R. Br.	Amarantaceae	Kumattikkirai	Herb	Leaves	Constipation, dysentery, febrifuge
7	*Apluda mutica* L.	Poaceae	Moongil pul	Herb	Whole	Treat mouth sore in case of calf
8	*Argyreia cymosa* (Roxb.) Sweet	Convolvulaceae	Kattu kodi	Climber	Leaves	Cracks, wounds
9	*Aristida setacea* Retz.	Poaceae	Arisipillu	Herb	Leaves	Fracture healing
10	*Aristolochia indica* L.	Aristolochiaceae	Perumarunthukodi	Climber	Leaves, roots	Snake bites, cough, biliousness
11	*Arundinella mesophylla* Nees ex Steud.	Poaceae	Malaivekkaepillu	Herb	Leaves	Fever
12	*Atalantia monophylla* Correa.	Rutaceae	Kattu Elumichai	Shrub	Fruits	Chronic rheumatism
13	*Azadirachta indica* A. juss.	Meliaceae	Vembu	Tree	Whole plant	Anthelmintic, antifungal, anti-diabetic
14	*Barleria acuminata* Wt.	Acanthaceae	Vellai kurinji	Shrub	Leaves	Fever, pain and sleeplessness
15	*Barleria prionitis* L.	Acanthaceae	Semmulli	Shrub	Whole plant	Blood purified, skin disease
16	*Basella alba* L.	Basellaceae	Vasalakkirai	Climber	Leaves	Snake bits, andidote
17	*Bauhinia recemosa* Lam.	Caesalpinaceae	Aatthi	Tree	Fruits	Malaria, dysentery, ulcers
18	*Blainvillea rhomboidea* Cass.	Asteraceae	Bannathalai	Herb	Leaves	Skin disease
19	*Brachiaria reptans* (L.) C. Gardner	Poaceae	Masapillu	Herb	Whole plant	Snake bite, anti diuretic, kidney problems
20	*Bryophyllum pinnatum* (Lam.) Karh.	Droseraceae	Malaikalli	Shrub	Leaves	Kidney stones
21	*Canthium dicoccum* (Gaertner) Teijsm.	Rubiaceae	Naluvai	Shrub	Bark	Diarrhoea, fever
22	*Canthium parviflorum* Lam.	Rubiaceae	Karaicceti	Tree	Leaves	Indigestion, pain killer, dehydration
23	*Capparis sepiaria* L.	Capparaceae	Karindhu	Shrub	Bark, roots	Aphrodisiac, wound dressing

24	*Cardiospermum halicacabum* L.	Sapindaceae	Modakanthan keerai	Climber	Whole plant	Arthritis, inflammations, constipation, abdominal discomfort
25	*Carissa carandas* L.	Apocynaceae	Karandam	Shrub	Leaves, fruits	Diarrhoea, diabetic ulcers, skin diseases, urinary disorders
26	*Caryatia pedata* (Lour.) A.L Juss.	Vitaceae	Kattuppirandai	Climber	Whole plant	Antiseptic, cancer, ulcer and refrigerant
27	*Cassia absus* L.	Fabaceae	Edikkol	Herb	Whole plant	Snake bite, anemia, eye diseases
28	*Cassia auriculata* L.	Caesalpinaceae	Avarai	Shrub	Whole plant	Diabetics, cardiac tonic, diarrhoea
29	*Catharanthus pusillus* (Murrey) Don.	Apocynaceae	Chetthai	Herb	Leaves	Diabetics, asthma, rheumatism
30	*Celtis wightii* Planch.	Ulmaceae	Elumbiruthi	Tree	Bark	Nervous disorders
31	*Cinnamomum wightii*	Lauraceae	Malai lavangam	Tree	Bark	Ulcer, diarrhoea
32	*Cleome viscosa* L.	Capparaceae	Naaivelai	Herb	Seeds	Relieve earache, diaphoretic
33	*Cocculus hirsutus* Diels.	Menispermaceae	Kaattu-kodi	Climber	Leaves	Treat night blindness
34	*Corallocarpus epigeous* Hook. F.	Cucurbitaceae	Aakaasagarudan	Climber	Whole plant	Asthma, eye diseases
35	*Corchorus capsularis* L.	Tiliaceae	Mulikaai	Herb	Leaves	Liver disorder, fever, dysentery
36	*Crossandra infundibuliformis* (L.) Nees.	Acanthaceae	Kanagaambaram	Shrub	Leaves	Cough, antimicrobial, antiulcer
37	*Crotalaria retusa* L.	Fabaceae	Jalakkaai	Shrub	Whole plant	Skin diseases, fever, diarrhoea
38	*Croton bonplandianus* Baillon.	Euphorbiaceae	Reilpoondu	Shrub	Whole plant	Skin diseases,wasp sting, neurodegenerative
39	*Cryptostegia grandiflora* R.Br.	Asclepiadaceae	Naippalai	Climber	Leaves	Vomiting, asthma
40	*Cymbopogan travancorensis* Bor.	Poaceae	kamakshipul	Herb	Leaves	Mosquito repellent
41	*Cynodon dactylon* (L.) Pers.	Poaceae	Arugampul	Herb	Whole plant	Eye disorders, liver complaints
42	*Dalbergia latifolia* Roxb.	Fabaceae	Eeti	Tree	Bark	Diarrhoea, indigestion, vermifuge
43	*Datura metal* L.	Solanaceae	Oomathai	Shrub	Leaves	Improve skin quality, relieve pain
44	*Dodonaea viscosa* L.	Sapindaceae	Virali	Shrub	Leaves	Pain killing, skin rashes
45	*Ehretia microphylla Lam*	Boraginaceae	Kuruvinchi	Shrub	Leaves	Diuretic, headaches, wounds
46	*Eleusine indica* (L.) Gaertn.	Poaceae	Malakambaepillu	Herb	Whole plant	Diaphoretic, diuretic, liver complaints
47	*Eragrostis unioloides* (Retz.) Nees ex Steud.	Poaceae	Malaisiragaepillu	Herb	Roots	Flu in the event of an epidemic

48	*Erythroxylon monogynum* Roxb.	Erythroxylaceae	Sempulichaan	Shrub	Whole plant	Stomachic, fever, dropsy
49	*Givotia moluccana* (L.) Wheeler	Euphorbiaceae	Thaalamaram	Tree	Leaves	Liver diseases, hepato protective
50	*Gloriosa superba* L.	Liliaceae	Kannuvalikkodi	Climber	Leaves	Asthma, skin disorder, snake bite
51	*Glycosmis mauritiana* (L.) Wheeler	Rutaceae	Kaattu Kunali	Shrub	Leaves	Fever, liver complaints
52	*Grewia abutilifolia* Ventex. Juss.	Tiliaceae	Kaattu thadasu	Shrub	Roots	Favour, thirst
53	*Grewia flavescens* A.L. Juss.	Tiliaceae	Semparandi	Shrub	Roots	Menstrual problems, stomach problems in woman's
54	*Helicteres isora* L.	Sterculiaceae	Idampuri valampuri	Shrub	Bark	Diarrhoea, anti diarrhoeal, anti diabetic
55	*Hibiscus furcatus* Willd.	Malvaceae	Kaattu pirali	Herb	Leaves	Skin problems
56	*Hygrophila auriculata* (Schum.) Heine.	Acanthaceae	Nirmulli	Herb	Whole plant	Diuretic, blennorrhoea Hydropsy,anuria,rheumatism, ulcer
57	*Hyptis suaveolens* (L) Poitier.	Lamiaceae	Vilayatu Tulsi	Shrub	Whole plant	Indigestion, stomach pain, colds, flatulence
58	*Ipomoea obscura* (L.) Ker Gawler.	Convolvulaceae	Siruthaali	Climber	Leaves	Eye diseases
59	*Jatropha glandulifera* Roxb.	Euphorbiaceae	Vellai kattukottai	Shrub	Petiole	Ulcer
60	*Justicia tranquebariensis* L.f.	Acanthaceae	Thavasimurungai	Shrub	Leaves	Contusions
61	*Leonotis nepetifolia* (L.) R.Br.	Lamiaceae	Nirumanathi	Shrub	Whole plant	Antitumor, pneumonia, anthrax, syphilis, skin diseases
62	*Leucas aspera* (Willd.) Link.	Lamiaceae	Thumbai	Herb	Leaves	Cold, fever
63	*Lippia nodiflora* (L.) A.Rich.	Verbenaceae	Podutalai	Herb	Whole plant	Diuretic, stomachic, ulcers, asthma, bronchitis
64	*Memecylon umbellatum* Burm.f.	Melastomataceae	Sirugasa	Tree	Whole plant	Bruises, gonorrhoea, conjunctivitis, inflammation, astringent
65	*Mikania cordata* (Burm. f.) Robins.	Asteraceae	Iruthaalai Neer	Climber	Leaves	Cough, swellings, snake & scorpion bite
66	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	Nirkkatampu	Tree	Bark	Fevers, colic
67	*Mollugo nudicaulis* Lam.	Aizoaceae	Parpadagam	Herb	Whole plant	Tonic for cold and cough
68	*Ocimum sanctum* L.	Lamiaceae	Nalla Thulasi	Shrub	Whole plant	Colds, headache, stomach disorders, malaria
69	*Oldenlandia herbacea* (L.) Roxb.	Rubiaceae	Nonnanampullu	Shrub	Whole plant	Bronchial asthma
70	*Passiflora foetida* L.	Passifloraceae	Mosukkattan	Climber	Fruits	Relieve sleeping problem

71	*Pavonia zeylanica* (L.) Cav.	Malvaceae	Sittamutti	Shrub	Roots	Inflammation, haemorrhage, dysentery
72	*Phyllanthus amarus* Schum. & Thonn.	Euphorbiaceae	Kezhaanelli	Herb	Whole plant	Hepatitis A, benefiting diuretic, ulcers, diabetes, liver tonic
73	*Phyllanthus virgatus* Forster f.	Euphorbiaceae	Perukeelanelli	Herb	Whole plant	Bleeding
74	*Physalis minima* L.	Solanaceae	Sodakkuthakkali	Herb	Leaves	Diabetic patient, anti spasmodic, anti asthmatic
75	*Plumbago zeylanica* L.	Plumbaginaceae	Chithiramulam	Shrub	Whole plant	Diuretic, piles, skin diseases, scabies
76	*Pouzolzia auriculata* Wt.	Urticaceae	Ranthaali	Herb	Roots	Fresh Wounds
77	*Pterolobium hexapetalum*	Caesalpinaceae	Karu indu	Tree	Leaves	Decoction of the leaf relieves labour pain
78	*Randia dumetoram* (Retz.) poiret.	Rubiaceae	Mathukkarai	Shrub	Bark	Joints pain
79	*Randia ovalifolia*	Rubiaceae	Sirukaai	Shrub	Leaves	Pains
80	*Rhynchosia refescens* (Willd.) Dc.	Fabaceae	Malaikollu	Shrub	Seeds	Energy producers
81	*Santalum album* L.	Santalaceae	Chandanam	Tree	Bark	Skin disorder, heart ailments
82	*Sapindus emarginata* (Vahl.)	Sapindaceae	Poovan kotti	Tree	Fruits	Asthma, colic, dysentery
83	*Sapindus laurifolium*	Sapindaceae	Soappu maram	Tree	Leaves	Hair and fair skin tone
84	*Secamone emetica* (Roxb.) R. Br.	Asclepiadaceae	Nilamarandai kodi	Climber	Roots	Leucorrhoea, fever, headache
85	*Sida cordifolia* L.	Malvaceae	Nila Thutthi	Shrub	Stem	Emollient, diuretic, urinary diseases
86	*Solanum pubescens* Willd.	Solanaceae	Kaattu Sundaikaai	Shrub	Fruits	Heal bowel complains and Joint pain
87	*Spermacoce ocymoides* Burm.f.	Rubiaceae	Peruthaali	Herb	Leaves	Headache and wounds
88	*Spermacoce hispida* L.	Rubiaceae	Nattai-churi	Herb	Whole plant	Cardiovascular disorder, diarrhoea, dysentery
89	*Stachytarpheta jamaicensis* (L.) Vahl.	Verbenaceae	Seemai naayuruvi	Shrub	Leaves	Blood cleanser, asthma
90	*Strychnos nux-vomica* L.	Loganiaceae	Yetti	Tree	Leaves	Stomach upset, vomiting, abdominal pain, eye diseases
91	*Tarenna asiatica* (L.) Kuntze	Rubiaceae	Thaerani	Shrub	Roots	Suppuration and skin diseases
92	*Tephrosia hirta* Bush.	Fabaceae	Kolinchi	Shrub	Whole plant	Dropsy and diabetes
93	*Themeda triandra* Forssk.	Poaceae	Movvaelpillu	Herb	Roots	Dysmenorrhoea
94	*Tinosphora cordifolia* Miexs.	Menispermaceae	Shindilakodi	Climber	Whole plant	Enhance memory, skin diseases, hepatitis patients
95	*Tribulus terrestris* L.	Zygophyllaceae	Nerinji	Herb	Whole plant	Kidney stones, skin disorder, liver diseases

96	*Tricodesma indicum* (L.) R.Br.	Boraginaceae	Kaasithumbai	Herb	Leaves	Diuretic, dyspepsia
97	*Tridax procumbens* L.	Asteraceae	Vettukkaaya thalai	Herb	Leaves	Wound healing, backache, stop bleeding, diabetic
98	*Waltheria indica* L.	Malvaceae	Shengalipoondu	Herb	Leaves	Anti syphilitic
99	*Ziziphus oenoplia* (L.) Mill.	Rhamnaceae	Suraimullu	Shrub	Leaves	Wounds, dysentery
100	*Ziziphus rugosa* Lam.	Rhamnaceae	Kattilandai	Shrub	Barks	Astringent, anti Diarrhoea, hypotension

CONCLUSION

The present investigation is first report from Gopalswamy hills, Western Ghats region in Coimbatore district to quantify the medicinal plants used by tribal people. The results of our exploration showed that, traditional use of plants to treat various diseases in an area is based on the knowledge of tribal people reside in those regions and diversity of medicinal plants. Many endemic and threatened plants also used as medicine in our study area these plants needs to conserve at any cost. The present study demonstrated that, traditional herbal remedies which are in current use by informants of study area need further attention on dissemination of this knowledge to next generation.

ACKNOWLEDGEMENT

We thank District forest officer, Pollachi for his support and permission to carry out this work in the field. We sincerely express our thanks to Dr. P.M. Palanisamy, Principal, NGM College, Pollachi for his encouragement during the work. Our heartfelt thanks to my colleagues Dr. Neelamathi (PG Botany, Head of the Department), Dr. Sathishkumar and Dr. Raakkimuthu for their valuable suggestions and support during the field work. We express our gratitude towards Dr. Kannan (UG Botany, Head of the Department) for his immense and useful guidance for this study.

REFERENCES

[1] Ganesan S., N. Suresh and L. Kesaven, 2004. Ethnomedicinal Survey of lower Palani Hills of Tamil Nadu, Indian J. Traditional Knowledge, 3(3):299-304.

[2] Madhan, C., Nisha, and Sevanan Rajeshkumar. 2010. Survey of crude drugs from Coimbatore city, *Indian* Journal of Natural Products and Resources.1 (3):376-383.

[3] Baby Shalini C, S Chidambaram Pillai, and V.R Mohan, 2014.Ethnomedicinal plants used by the Kanikkars of southern Western Ghats, Int.J.Pharm.Sci.Rev.Res, 28(2):101-107.

[4] Sindhu, S., Uma, G. and Kumudha, P. 2012.Survey of medicinal plants in Chennimallai hills, Erode Districts, Tamilnadu, Asian J Plant Sci. Res.2(6):712-717.

[5] Pandi Kumar, P., Ayyanar, M. and Ignacimuthu, S. 2007. Medicinal plants used by *Malasar* tribes of Coimbatore district, Tamil Nadu, Indian Journal of Traditional Knowledge.6(4):579-582.

[6] Murugeshwaran, R., Rajendran, A., Venkatesan, K., Binu Thomas. and Aravindhan, V. 2014. Potential plants for Unani system of medicine from southern Western Ghats of Coimbatore District, Tamil Nadu, India, Journal of Science, 4(2):106-112.

[7] Gamble, J.S. 1935. The flora of the Presidency of Madras, London: Adlard&son, Ltd. London.

[8] Matthew, K.M. 1983. The flora of the Tamil Nadu Carnatic. The Rapinat Harbarium, St.Joseph's College, Vol.1- 3. Trichirappalli, India.

[9] IUCN standards and petition Subcommittee 2018. Guidelines for using the IUCNRed List Categories. www.iucnredlist.org/documents/Redlist guidelines.pdf

INTERNATIONAL JOURNAL OF PLANT, ANIMAL AND ENVIRONMENTAL SCIENCES

ISSN 2231-4490

International Journal of Plant, Animal and Environmental Sciences