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EXPLORATION OF PLANT SPECIES USED BY THE TRIBAL, KOTAS FOR THEIR MEDICINAL USES IN THE UPPER REACHES OF KOTAGIRI, THE NILGIRIS, WESTERN GHATS

Ganesn C.M.[1]*, K.Manikandan[2] and S.Paulsamy[2]
[1]Department of Botany, Government Arts College, Udumalpet.
[2]Department of Botany, Kongunadu Arts and Science College, Coimbatore.
*E.mail: bioganesan@gmail.com

ABSTRACT

The medicinal plants provide an efficient local aid to health care and disease free life. The present investigation has been under taken in Trichigady, Kotagiri terrace, Nilgiri biosphere during the study period June 2016 to December 2016. In order to study that the traditional uses of these folk medicinal practice day todays life it as resulted providing information of 66 wild plants. Out of the 140 species are comprised in the families like Acanthaceae, Amaranthaceae, Convolvalaceae, Euphorbiaceae, Rutaceae, Solanaceae etc. In this case study, they are used 66 plants in medicinal purpose and 74 plants are used as edible food respectively. So this investigation is held us to understand how indigenous knowledge possess by Kota tribal of study area.

Keywords: Tribal, Kotas, Western Ghats, Kotagiri.

1. INTRODUCTION

The medicinal plants represent not only a valuable part of India's biodiversity but also a source of great knowledge. The WHO has listed 21,000 plants that are used as medicine around the world. India has a rich medicinal plant flora of some 25,000 species (Bhattacharjee, 2001). There are 1532 edible wild food species in India, mostly from Western Ghats and Himalayan region (Kujur, 1989). Only about 2 percent of more than 250,000 species of higher plants have been carefully evaluated for medicinal activity (Deepak Chopra and David Simson, 2000).

The Trichigady village is a part of Kotagiri, Nilgiri Hills,the Western Ghats, Tamil Nadu, India were selected for the present study to obtain the medicinal and edible plants information from Kota tribal village. The study are located at latitudes 10º 45' to 12º 15' N and longitudes 76' to 77' 15°E. The elevation of the study area is 2320m above MSL. The species richness is high in general and many of the species showed variations in their populations which aided the species for better distribution, survival and perpetuation in different microclimatic conditions. In addition to commonly distributed species, many red listed species with various economic uses are also distributed in the existing vegetations (Prasad and Balasubramaniam, 1996; Murugesan, 2005). Further, due to illegal exploitation, it has been determined that many species attained low status of population size (Paulsamy *et al.,* 2008).

Principally, earlier studies in the Nilgiri Biosphere Reserve have dealt with medicinal species and little attention was paid to wild edible plants (Perumal Samy and Ignacimuthu 2000; Rajan *et al*., 2003; Rajasekaran *et al.,* 2005; Udayan *et al.,* 2007; Revathi and Parimelazhagan 2010; Poongodi *et al.,* 2011). Vedavathy (2002) gave an account of the real alternatives of the tribal medicine.

Rajan, *et al.* (2002) discussed the flowering plants uses for remedial purposes by the Kattunayakas of Nilgiris, Tamilnadu. Rajendran, *et al.* (2004) gave a detailed account on medicinal plants and their utilization by villages in Southwestern Ghats, Tamilnadu. Ganesan, *et al.* (2004) reported the ethno medicinal aspects of 45 species of plants used by the Paliyan and Pulayan tribe of lower Palani hills Tamilnadu. Hema, *et al.* (2006) identified a total of 15 taxa and recognized as being used by Kurumba and Paniya of Wyanad district, Kerala.

In recent times, due to inexplicable reasons there has been a rapid decline and deterioration of folk medical practice/traditional knowledge. Therefore, the revival and revitalization of this folk medical system is to be improved on its scientific base. In such cases, the tribal medicine can provide safe, stable, standardized and therapeutically effective drugs not only to the tribal communities but also to the other populations can affordable cost.

2. MATERIALS AND METHODS

Each and every ethnobotanical work has various activities. They are field trip, observations, identification retrieving the medicinal properties and mode of preparation of drug from the plants by Kota tribal.

Trichigudy village is located in a part of Kotagiri, Nilgiri Hills (NBR), the Western Ghats, Tamilnadu. The present investigation was undertaken with a view of studying the uses of plants in study area. Intensive botanical exploration trip were undertaken in and around trichigady during the period of November 2013 - April 2014. In this period per a month 4 trips were done. During this trip we have collected the information about the edible plants and the medicinal plants including their parts uses and aliments were obtained from Kota tribal.

The voucher specimen plants collected were identified with the help of Flora of Presidency of Madras by J.S. Gamble (1936) and Flora of Tamilnadu and Carnatic by K.M. Mathew (1983).

The medicinal plants collected in this way are tabulated. They are documented, both family and genus are arranged according to the alphabetical order. The botanical names followed by author citation and synonyms of the plant species, local name of the plant species also provided. Most of the plants are used as a medicine rest of them served as an edible plants.

3. RESULTS AND DISCUSSION

The study area Trichigady Kota village is located in a part of Kotagiri, Nilgiri Hills [NBR], the Western Ghats, Tamilnadu. About 140 species are collected spreading over – families (Table 1 – 3). They are identified for their medicinal and edible importance with the help of Kota tribal people. The ethnobotanical studies of some tribal area are reported (Rajan and Sethuraman, 1991; Rajesekaran *etal.,* 2005; Yasodharan and Sujana, 2007; Rasingam and Rehel, 2009; Rasingam, 2010; The taxonomic position were identified through relevant literatures.

Table 1. List of medicinal plants used by Kota tribal in study area.

S.No	Scientific name	Family	Parts used	Ailments cured
1	*Acacia leucophloea*(Roxb.) Willd.	Mimosaceae	Bark	Bone Fracture, Cuts and burns
2	*Acalyphafruticosa*Forsskal	Euphorbiaceae	Whole Plant	To Control worms
3	*Achyranthusbidentata*Blumeic	Amaranthaceae	Leaf	To cure skin disorders
4	*Aeglemarmelos*(L.) Corr. Serr.	Rutaceae	Bark	Diarrhea
5	*Alangiumsalvifoliumvar.hexapettalum*Wang	Alangiaceae	Bark	Snake antidote& Paralysis
6	*Albiziaamara*(Roxb.)	Mimosaceae	Leaves ,bark	For hair growth, Cuts and burns
7	*Aloe vera*(L).Burm.f.	Xanthorrhoeaceae	Fruit	Skin disorder
8	*Andrographispaniculata*Vahl	Acanthaceae	Roots	Snake antidote
9	*Andrographisserphilifolia*Vahl.	Acanthaceae	Roots	Snake antidote
10	*Anogeissuslatifolia*Wallich ex Guill. &Perr.	Combretaceae	Bark	Stomach ache
11	*Ageratum conyzoides*Linn.	Asteraceae	Leaf	Wound healer
12	*Argyreiaspeciosa*Burm.f	Convolvulaceae	Roots	Fever and headache
13	*Arisaemaleschenaultii*Blume	Araceae	Roots	Snake antidote
14	*Azadirachtaindica*Adr.Juss.	Meliaceae	Bark	Leaves To Control worms, Mouth Ulcer
15	*Barleriabuxifolia*L.	Acantaceae	Roots	Stomach pain
16	*Bauhinia racemosa*L.	Caesalpiniaceae	Bark	Dysentery
17	*Berberiestinctoria*Lesch.	Berberidaceae	Leaves	Polycystic ovarian syndrome
18	*Calotropisgigantea*(L) R.Br	Asclepiadaceae	Leaves	Foot problems
19	*Canthiumcoromandelicum*(Burm.f.) Alston	Rubiaceae	Bark	Fever
20	*Capparissepiaria*L.	Capparaceae	Leaves	Hip pains, dysentery
21	*Cappariszeylanica*L.	Capparaceae	Leaves	Breathing problems
22	*Cassia occidentalis*L.	Fabaceae	Roots	Swellings over body
23	*Celtisphilippensis*wight	Ulmaceae	Bark	Digestion problems
24	*Centellaasiatica*L.	Mackinlayaceae	Leaves	Syphilis
25	*Chloroxylonswietenia*Roxb.	Rutaceae	Inner bark	Tooth problems
26	*Chenopodium album* Linn.	Chenopodiaceae	Leaves	Kidney stones

	*Cissampelospareira*L.	Menispermaceae	Leaves	Snake antidote
27	*Cocciniagrandis*(L)J.voigt	Cucurbitaceae	Leaves, tubers	Throat pain
28	*Cocciniaindica*	Cucurbitaceae	Roots	Antidote
29	*Colocassiaesculenta*(Linn.) Schott. &Endl.	Araceae	Leaves	Stomach disorder
30	*Cordiamonoica*Roxb.	Boragianaceae	Leaves	Chest pains
31	*Curcuma pseudomontana*J.Graham.	Zingiberaceae	Gingers	Wounds and cuts
32	*Curcuma neilgherrensis*wight	Zingiberaceae	Rhizome	Anti diabetic
33	*Cyanodondactylon*L.	Poaceae	Fibre	Headache
34	*Daturametel*L.	Solanaceae	Leaves	Pain relief
35	*Dichrostachysscinerea*Wight *et al.*	Mimosaseae	Fibre paste	Vomiting
36	*Dodonaea viscose* (Linn.) Jacq.	Sapindaceae	Leaves	Joint sprains, Fractures
37	*Elaeagnuskologas*chlecht.	Elaeagnaceae	Leaves	Antifeedants
38	*Erythroxylonmonogynum*Roxb.	Erythroxylaceae	Bark	Skin disorder
39	*Gaultheria fragrantissima*Wall.	Ericaceae	Leaves	Antiseptic
40	*Givotiamollucana*L.	Euphorbiaceae	Bark	Breathing problems
41	*Gmelinaarborea*Roxb.	Verbenaceae	Leaves	Stomach ache
42	*Hibiscus micranthus*L.f.	Malvaceae	Roots	Swellings over body
43	*Ipomeaobscura*(L.) Ker Gawl.	Convolvulaceae	Leaves	Sprain, stomach ache
44	*Jasminumauriculatum*Vahl.	Acanthaceae	Stems& roots	Bone fractures
45	*Jatrophacurcas*L.	Euphorbiaceae	Inner bark	Cold and fever
46	*Leucasaspera*(Willd.) Link	Lamiaceae	Whole Plant	Typhoid
47	*Manilkarahexandra(*Roxb.)Dubard.	Sapotaceae	Bark	Hip pains
48	*Moringaconcanensis*	Moringaceae	Bark & leaves	De-worming, Dysentery & fever
49	*Narinjicrenulata*(Roxb.) Nicols.	Rutaceae	Leaves	Leg pains
50	*Nerium oleander* L.	Apocyanaceae	Leaves	For speech to children
51	*Partheniumhysterophorus*L.	Asteraceae	Leaves	Cuts and burns
52	*Phyllanthusdebilis*kleinex wild	Euphorbiaceae	Leaves	Jaundice
53	*Pleiospermumalatum*Wight&Arn.	Rutaceae	Bark	Chest pains
54	*Prunella vulgaris* Linn.	Lamiaceae	Roots	Hematinic
55	*Raphidophorapertusa*Hassk	Araceae	Whole Plant	Swellings in groin joints
56	*Ricinuscommunis*L.	Euphorbiaceae	Seed oil	Dysentery
57	*Sapindusemarginata*Vahl.	Sapindaceae	Inner bark	Tooth problems
58	*Siegesbeckiaorientalis*Linn.	Asteraceae	Leaves	Insect bites & rashes
59	*Solanumnigrum*L.	Solanaceae	Whole Plant	Stomach ache& fever
60	*Solanumsurattense*Burm.F.	Solanaceae	Fruits, leaves	Vomiting &Tooth paste
61	*Tephrosiapurpurea*(Linn.)Pers.	Fabaceae	Leaves	Antitumor
62	*Terminaliachebula*Retz.	Combretaceae	Fruits	Cough and Fever
63	*Wattakakavolubilis*(Linn.F)stapf.	Asclepiadaceae	Leaves	Dysentery
64	*Xanthium indicum J*. Koenig ex Roxb.	Asteraceae	Leaves	Dog bite
65	*Ziziphusmauritiana*Lamk	Rhamnaceae	Bark	Dysentery
66	*Ziziphusrugosa*Lamk	Rhamnaceae	Bark	Dysentery

Table 2. List of edible plants used by Kota tribal in study area.

S.No	ScientificName	Family	Tamil Name	Edible Part
1	*Acacia pennata*(L.)Willd.	Mimosaceae	Seengai	Leaf
2	*Alternantherasessilis*(L.) R. Br. ex DC.	Amaranthaceae	Ponnakanni	Leaf
3	*Amaranthuscaudatus*L.	Amaranthaceae	keeraiThandu	Leaf
4	*Amaranthusgraecizans*L.	Amaranthaceae	Sirukeerai	Leaf
5	*Amaranthusspinosus*L.	Amaranthaceae	Mullu	Leaf
6	*Amaranthusviridis*L.	Amaranthaceae	Pattikerae	Leaf

7	*Asparagus racemosus*Willd.	Liliaceae	Neervekkaea	Tuber
8	*Nastusborbonicus*J.F.Gmel.	Poaceae	Periamungil	Shoot
9	*Basella alba* L.	Basellaceae	Vasaladagu	Leaf
10	*Boerhaviadiffusa*L.	Nyctaginaceae	Serandai	Leaf
11	*Brassica juncea*(L.) Czern.	Brasscicaceae	Kadugu	Leaf
12	*Cansjerarheedii*J.F.Gmel.	Opiliaceae	Povi	Leaf
13	*Canthiumcoromandelicum*Alston	Rubiaceae	Bellakarai	Fruit
14	*Cappariszeylanica*L.	Capparaceae	Kevisi	Fruit
15	*Caralluma bicolor Ramach,* J. *et al.,*	Asclepiadaceae	Kattalae	Shoot
16	*Cardiospermumhalicacabum*L.	Sapindaceae	Sitiki	Leaf
17	*Carissa carandas*L.	Apocynaceae	Kallakai	Fruit
18	*Carissa spinarum*L.	Apocynaceae	Sirukallakai	Fruit
19	*Celosia argentea*L.	Amaranthaceae	Pannae	Leaf
20	*Cereus pterogonus*Lem	Cactaceae	Oocikalli	Flower
21	*Cissusquadrangularis*L.	Vitaceae	Naralai	Leaf
22	*Cocciniagrandis*(L.) Voigt	Cucurbitaceae	Kovakai	Fruit
23	*Commelinabenghalensis*L.	Commelinaceae	Kannae	Leaf
24	*Cordiasinensis*Lam.	Boraginaceae	Sellai	Leaf & Fruit
25	*Cordiadichotoma*G.Forst.	Boraginaceae	Karadisellai	Fruit
26	*Cycascircinalis*L.	Cycadaceae	Enthu	Tuber & tender leaf
27	*Decalepishamiltonii*Wight &Arn.	Asclepiadaceae	Magalie	Tuber
28	*Digeramuricata*(L.) Mart.	Amaranthaceae	Theyya	Leaf
29	*Dioscoreaoppositifolia*L.	Dioscoreaceae	Riya	Tuber
30	*Dioscoreatomentosa*J.König ex Spreng.	Dioscoreaceae	Noorai	Tuber
31	*Diospyrosmontana*Roxb.	Ebenaceae	Bankini	Leaf
32	*Diospyrosmalabarica*(Desr.) Kostel.	Ebenaceae	Benson	Fruit
33	*Drypetessepiaria*Wight &Arn.	Euphorbiaceae	Thanuvam	Fruit
34	*Elaeagnusconferta*Roxb.	Elaeagnaceae	Kolaga	Fruit
35	*Ficusbenghalensis*L.	Moraceae	Aal	Fruit
36	*Ficusracemosa*L.	Moraceae	Athi	Fruit
37	*Glycosmispentaphylla*(Retz.) DC.	Rutaceae	Melaekulukki	Fruit
38	*Grewiahirsuta*Vahl	Tiliaceae	Kallai	Fruit
39	*Grewiatiliifolia*Vahl	Tiliaceae	Lumma	Fruit
40	*Grewiavillosa*Willd.	Tiliaceae	Jenukallai	Fruit
41	*Hemidesmusindicus*(L.)	Asclepiadaceae	Nannari	Tuber
42	*Ipomoea staphylina*Roem. &Schult.	Convolvulaceae	Unnagodi	Tuber
43	*Jasminumtrichotomum*B.Heyneex Roth	Oleaceae	Malligai	Leaf
44	*Lantana camara*L.	Verbenaceae	Unnichedi	Fruit
45	*Madhucalongifolia*J.F.Macbr.	sapotaceae	Lippae	Fruit
46	*Mangiferaindica*L.	Anacardiaceae	Manga	Fruit
47	*Moringaoleifera*Lam.	Moringaeceae	Nugae/Murungai	Leaf
48	*Murrayakoenigii*(L.) Spreng.	Rutaceae	Kariveppilai	Leaf
49	*Opuntiamonacantha*(Willd.) Haw.	Cactaceae	Kalli	Fruit
50	*Opuntiastricta*(Haw.) Haw.	Cactaceae	Chappathikalli	Fruit
51	*Oxalis corniculata*L.	Oxalidaceae	Pulichera	Leaf
52	*Pachygoneovata*(Poir.) Diels	Menispermaceae	Varinkodi	Fruit
53	*Phoenix loureiroi*Kunth	Arecaceae	Eechipullu	Tender shoot & fruit
54	*Phyllanthusemblica*L.	Euphorbiaceae	Nelli	Fruit
55	*Phyllanthusindofischeri*Bennet	Euphorbiaceae	Nelli	Fruit
56	*Phyllanthusreticulatus*Poir.	Euphorbiaceae	Poola	Fruit
57	*Physalisangulata*L. var. angulata	Solanaceae	Potolai	Fruit
58	*Pithecellobiumdulce*(Roxb.) Benth.	Mimosaceae	Konapuli	Fruit
59	*Portulacaoleracea*L.	Portulacaceae	Goni	Leaf
60	*Psydraxdicoccos*Gaertn.	Rubiaceae	Oppai	Fruit
61	*Riveahypocrateriformis*Choisy	Convolvulaceae	Mustae	Leaf
62	*Schleicheraoleosa*(Lour.) Merr.	Sapindaceae	Pulipoocha	Fruit
63	*Scutiamyrtina*(Burm.f.) Kurz	Rhamnaceae	Sodalie/Julie	Fruit

64	*Sennatora*(L.) Roxb.	Caesalpiniacea	Oosithagarai	Leaf
65	*Solanumamericanum*Mill.	Solanaceae	Kakaedagu	Leaf
66	*Solanumvirginianum*L.	Solanaceae	Kandakathiri	Fruit
67	*Solanumrudepannum*Dunal	Solanaceae	Sundai	Fruit
68	*Strychnospotatorum*L.f.	Loganiaceae	Sillakottai	Fruit
69	*Syzygiumcuminii*(L.) Skeels	Myrtaceae	Neera/Naval	Fruit
70	*Tamarindusindica*L.	Caesalpiniacea	Puli	Fruit
71	*Zaleyadecandra*(L.) Burm. f.	Portulacaceae	Konidagu	Leaf
72	*Ziziphusmauritiana*Lam.	Rhamnaceae	Lanthai	Fruit
73	*Ziziphusoenopolia*(L.) Mill.	Rhamnaceae	Julie	Fruit
74	*Ziziphusabyssinica*Hochst. exA.Rich.	Rhamnaceae	Kottae	Fruit

Table 3. List of families with number of species in study area.

S.NO	Name of the Family	Number of Species
1	Acanthaceae	04
2	Alangiaceae	01
3	Amaranthaceae	08
4	Anacardiaceae	01
5	Apiaceae	01
6	Apocynaceae	03
7	Araceae	03
8	Arecaceae	02
9	Asclepiadaceae	04
10	Asteraceae	03
11	Basellaceae	01
12	Berberidaceae	01
13	Boraginaceae	03
14	Brasscicaceae	01
15	Cactacea	03
16	Capperaceae	03
17	Caesalpiniaceae	03
18	Chenopodiaceae	01
19	Combretaceae	02
20	Commelinaceae	01
21	Convolvalaceae	04
22	Cucurbitaceae	03
23	Cycadaceae	01
24	Dioscoreaceae	02
25	Ebenaceae	02
26	Elaegnaceae	02
27	Ericaceae	01
28	Erythroxylaceae	01
29	Euphorbiaceae	08
30	Fabaceae	02
31	Lamiaceae	02
32	Liliaceae	01
33	Loganiaceae	01
34	Mackinlayaceae	01
35	Malvaceae	01
36	Meliaceae	01
37	Menispermaceae	02
38	Mimosaceae	04
39	Moraceae	02
40	Moringaceae	02
41	Nyctaginaceae	01
42	Oleaceae	01
43	Opiliaceae	01
44	Oxalidaceae	01
45	Poaceae	02
46	Portulacaceae	02
47	Rhamnaceae	06
48	Rubiaceae	03
49	Rutaceae	07
50	Sapindaceae	04
51	Sapotaceae	02
52	Solanaceae	07
53	Tiliaceae	03
54	Ulmaceae	01
55	Verbinaceae	03
56	Vitaceae	01
57	Xanthorhoaeaceae	01
58	Zingberaceae	02
	Total	140

Fig. 1. Location of the study area

Fig. 2 Overview of the study area.

Fig. 3. Preparation of herbal products by Kota tribal in study area

Fig. 4. Medicinal plants used by Kota tribal in study area.

The collected plants are having medicinal properties, which is constructed towards the plant parts like stem, root, leaf and bark etc. Each and every plant differ from mode of utilization as a medicinal and edible food to the human beings and cattle.

4. CONCLUSION

In order to study that the traditional uses of these folk medicinal practice day todays life it as resulted providing information of 66 wild plants. Out of the 140 species are comprised in the families like Acanthaceae, Amaranthaceae, Convolvalaceae, Euphorbiaceae, Rutaceae, Solanaceae, etc.,. In this case study, they are used 66 plants in medicinal purpose and 74 plants are used as edible food respectively. So this investigation is held us to understand how indigenous knowledge possess by Kota tribal of study area.

Since most of ethylic communities do not have their own script and return languages the information about the medicinal plants, their dosage, attitude towards disease are unclimbed. So our study is suggested that it is essential to collect information about the use of medicinal plants by the traditional healers and document the same to study them scientifically.

REFERENCES

Bhattacharjee, S.K., (2001). *Hand book of medicinal plants.* Pointer publishers, Jaipur, Third revised edition.

Deepak chopra and David Simon, (2000). *The Chopra centre herbal hand book*. Natural prescription for perfect health and imprint of crown publishing grp, Random House Inc., USA, pp.: 1-2.

Gamble, J.S., (1936). Flora or the Presidency of Madras. Vol **1-3.** Allard and Co. London. (Reprinted- 1956 Botanical Survey of India), Calcutta.

Ganesan, S., N. Suresh and L. Kesavan, (2004). Ethno medicinal survey of lower Palani Hills of Tamilnadu. *Indian journal of Traditional Knowledge* **3** (3):299 - 304.

Hema, E.S., M. Sivadhasan and N. Anilkumar (2006). Studies on edible species of Amaranthaceae and Araceae used by Kurumba and Pania tribes in Wayanad district, Kerala, India. *Ethnobotany* **18** : 122 – 126.

Kujar, A.A., (1989). *A study in cultural geography*, (The daughter of St. Anne. Ranchi) pp: 5-7.

Matthew, K.M., (1983). *The Flora of Tamilnadu Carnatic*. The Rapinact Herbarium, Tiruchirapalli, Tamilnadu.

Murugesan, M., (2005). Floristic diversity and ethnobotanical studies in Velliangiri Hills, the Western Ghats of Coimbatore district, Tamil Nadu, India. *Ph.D.Thesis*, Bharathiar University, Coimbatore, India.

Paulsamy, S., K.K. Vijaya kumar, M. Murugesan, M. Sivashanmugam, P. Senthilkumar and D. Suresh, (2008). *Medicinal and other economic plants of shola understories, the Nilgiris, Western Ghats*. IBD Publisher and Distributors p. 112.

Perumal Samy, R. and S. Ignacimuthu, (2000). Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats of India. *J. Ethno. Pharmaco*. **69**: 63 - 71.

Poongodi, A., S. Thilagavathi, V. Aravindhan and A. Rajendran, (2011). Observations on some ethno medicinal plants in Sathyamangalam forests of Erode district, Tamil Nadu, India. *J. Med. Plant Res.* **5**:4709-4714.

Prasad, S.M. and P. Balasubramanian, (1996). *Strategies for sustainable exploitation of ethnobotanical resources of the Nilgiri Biosphere Reserve, south India*. In: S.K. Jain (ed.). Ethnobiol. Human Welfare Deep Publications, New Delhi, pp.331-333.

Rajan, S., M. Sethuraman and P.K. Mukherjee, (2002). Ethnobiology of the Nilgiri Hills, India. *Phytother. Res.* 16:98-116.

Rajan, S. and M. Sethuraman, (1991). Plants Used In Folk Medicine By The Kotas Of Nilgiri District, Tamil Nadu. *Ancient Science of Life*. **10**(4): 223 – 230.

Rajan, S., M. Jayendran and M. Sethuraman, (2003). A study on the Kattunayaka tribe of Nilgiri hills, Tamilnadu. *J. Nat. Remed.* **3**(1): 68-72.

Rajasekaran, A., S.N. Prasad and P. Balasubramanian, (2005). Commercial exploited medicinal plants in the Nilgiri Biosphere Reserve, India. *J. Non-Timber Forest Prod*. **12**: 8-14.

Rajendran, S.M., S.C. Agarwal and V. Sundaresan, (2004). Lesser Known thnomedicinal Plants of the Ayyakarkoil Forest Province of Southwestern Ghats, Tamil Nadu, *India-Part I. J. Herbs, Spices Med. Plants* **10**: 103 -112.

Rasingam, L. and S.M. Rehel (2009). Major wild edible plants of the Nilgiri Biosphere Reserve in India. *Voices* **17**: 8-9.

Rasingam, L. (2010). Wild edible Tubers and Rhizomes of the Nilgiri Biosphere Reserve. *Newsl. Nilgiri Natur. Hist. Soc.* **1**: 3.

Revathi, P. and T. Parimelazhagan, (2010). Traditional Knowledge on Medicinal Plants Used by the Irula Tribe of Hasanur Hills, Erode District, Tamil Nadu, India. *Ethno botanical Leaflets* **14**: 136-60.

Udayan, P.S., K.V. Tushar, S. George and I. Balachandran, (2007). Ethnomedicine of the Chellipale community of Namakal district, Tamil Nadu. *Ind. J. Trad. Know.* **6**: 574 - 578.

Vedavathy, S. (2002). Scope and importance of traditional medicine. *Ind. J. Trad. Know.* **2**(3): 236 - 239.

Yasodharan, K. and K.A. Sujana, (2007). Wild edible plants traditionally used by the tribes in the Parambikulam Wildlife Sanctuary, Kerala, *India. Natur. Prod. Rad.* **6**: 74 - 80.