Available online at www.scholarsresearchlibrary.com

Scholars Research Library

J. Nat. Prod. Plant Resour., 2015, 5 (6):1-8
(http://scholarsresearchlibrary.com/archive.html)

Journal of Natural Product and Plant Resource
Scholars Research Library

ISSN : 2231 – 3184
CODEN (USA): JNPPB7

Ethnobotanical study of medicinal plants in Devankuruchi hills in Madurai district, Tamil Nadu

Kannan Rama Devi[1] and Muthukumar Jothi Muniyandi[2*]

[1]*Department of Biotechnology, Science Campus, Alagappa University, Karaikudi, Tamil Nadu, India*
[2]*Department of Biochemistry & Biotechnology, Sourashtra College, Madurai, Tamil Nadu, India*

Abstract

In order to create an account on medicinal plants in treatment, an ethnobotanical survey was carried out in the Devankuruchi hills, Madurai district, Tamil Nadu. This study was conducted during April 2014 to March 2015 to survey the medicinal plants and the information's were collected from the villagers through group discussions and personal interviews. The informants were selected randomly and no preparations were made prior to the visit. In this study, 54 species of valuable medicinal plants used as a cure for 45 aliments were recorded which are distributed across 31 families. The plants documented for the ethnomedicinal values have been identified and collected from the village peoples. They were represented in a table with the botanical name, their local name, parts used, and their medicinal advantages. In this study, it was found that the most abundantly utilized plant part for preparation of medicine was leaves (64%). The results inventoried a wide range of plants were used to treat various common human ailments, fodder and food by the villagers in Devankuruchi hills.

Keywords: Biosphere, Devankuruchi hills, Ethnobotanical knowledge, Medicinal plants, Tribal communities.

INTRODUCTION

India is one of the treasure houses of medicinal plants in the world. People have been using medicinal plants from time immemorial for the treatment of various types of diseases universally. Traditional medicinal plants are being used in India since 4000 years. Plants had been used by all cultures throughout history [1]. Interests in traditional medicine in India have continuously been increasing and recently, various ethanobotanical studies were reported to explore the knowledge from the various tribal communities in Tamil Nadu [2-8].

The ethnobotanical survey can bring out different clues for the development of drugs to be of great importance in the primary healthcare of individuals and communities in many developing countries. Though, herbal medicines are assumed to be of great importance in the primary healthcare of individuals and communities in many developing countries [9, 10]. According to World Health Organization (WHO), as many as 80% of the world people depends on traditional medicine for their primary healthcare needs [11, 12]. About 90% of medicinal plants using in pharmaceutical industries are collected from the wild.

The people are cultivated large amounts of banana, flowers, coconut, cashew and especially some medicinal plants and exports other countries for medicine and others purpose. So the traditional folk plants helpful for economic growth of this family and our environments.

In this paper, we report on the information gathered from village peoples on the plants used for the treatment of various diseases in Devankuruchi hill, Madurai district, Tamil Nadu.

MATERIALS AND METHODS

The study area

Devankuruchi hills are located in Madurai district, Tamil Nadu, India. The elevation of the area of investigation ranges from 1000-1500 M above the sea level. The temperature ranges from 15ºC to 39ºC. The mean of annual rainfall recorded in the site was 850 mm.

Research method

Ethnobotanical data were collected according to the method described by Jain [13]. The ethnobotanical data (local name of the plant, parts used for treatment, mode of application and their medicinal uses) were collected after interviewed and discussed with the village peoples during April 2014 to March 2015. A totally 20 respondents were interviewed, age of the persons ranged 30-75 years. The flora of Tamil Nadu carnatic and an excursion flora of central Tamil Nadu were used to ascertain in the nomenclature of the plant species [14, 15].

RESULTS

In the present study 54 medicinally important plant species belonging to 31 families were collected from the Devankuruchi hills at all seasons and identified their botanical name, family name, common or vernacular name, plant parts used for treatment and their medicinal properties were given in Table 1.

Table 1. Enumeration of ethnomedicinal data obtained from Devankuruchi hills

S. No.	Botanical Name	Local Name	Parts used	Medicinal use
Acanthaceae				
1.	*Andrographis lineate*	Siriyanangai	Leaves	▪ Antidiabetic ▪ Pain killer
2.	*Andrographis paniculata* L.	Periyanangai	Leaves	▪ Snake bites
3.	*Justica adhatoda*	Aadathoda	Leaves	▪ Relieve stomach pain ▪ Cure fever
Amaranthaceae				
4.	*Achyranthes aspera* L.	Nayurivi	Leaves	▪ Used to cure scorpion bite ▪ Control gum bleeding
5.	Amaranthus spinosus L.	Thandankeerai	Leaves	▪ Keep intestine very clean
Apocynaceae				
6.	*Catharanthus roseus* L.	Nithyakalyani	Flower, Leaves	▪ Antidiabetic
Asclepiadaceae				
7.	*Calotropis procera* L.	Yerukku	Flower	▪ Maintain youth hood in our body
8.	*Pergularia daemia*	Veliparuthu	Leaves	▪ Relieve headache
Asteraceae				
9.	*Xanthium indicum*	Karapan chedi	Young buds	▪ Relieve tooth pain
Boraginaceae				
10.	*Trichoderma indicum* L.	Kavizh thumbai	Root	▪ Control dysentery
Caesalpiniaceae				
11.	*Cassia auriculata* L.	Avaram	Leaves	▪ Reduce body heat ▪ Increase hair growth
12.	*Cassia obtuse*	Nilavagai	Leaves	▪ Cure throat infection
Caricaceae				
13.	*Carica papaya* L.	Pappaali	Leaves, Fruits	▪ Cure fever
Cucurbitaceae				
14.	*Coccinia grandis* L.	Kovai	Leaves	▪ The leaf extract mixed with milk and used in cases of jaundice.

15.	*Lagenaria siceraria*	Suraikai	Unripe fruit	▪ Reduce swelling in hand and legs
Euphorbiaceae				
16.	*Acalypha indica* L.	Kuppaimeni	Leaves	▪ Skin diseases ▪ Eczema
17.	*Phyllanthus amarus* L.	Kizhaanelli	Leaves	▪ Cure jaundice
18.	*Ricinus communis* L.	Amanaku	Leaves	▪ Cure eye related problems
19.	*Tragia involucrate* L.	Senthatti	Whole plant	▪ Migration ▪ Stomach pain (menstruation)
Fabaceae				
20.	*Erythrinia variegate* L.	Mullumurungai	Leaves	▪ Cold ▪ Cough
Gentianaceae				
21.	*Enicostema axillare* L.	Vellaragu	Leaves	▪ Fertility
Lamiaceae				
22.	*Coleus aromaticus*	Karpuravalli	Leaves	▪ Leaf juice is taken orally by children to treat indigestion and cough.
23.	*Leucus aspera*	Siruthumbai	Flower, leaves	▪ Reduce cold effect
24.	*Mentha piperita* L.	Puthina	Leaves	▪ Helps to keep our tooth clean
25.	*Ocimum sanctum* L.	Tulasi	Leaves	▪ Cure skin disease ▪ Cough ▪ Stomach ache
26.	*Plectranthus coleoides*	Omavalli	Leaves	▪ Control diarrhoea
Lythraceae				
27.	*Lawsonia inermis* L.	Maruthani	Leaves	▪ Reducing body heat ▪ Removes crack of the feet
Malvaceae				
28.	*Abutilon indicum*	Thuthi	Leaves	▪ Cure piles ▪ Relieve leg pain
29.	*Hibicus rosasinensis* L.	Semparuththi	Leaves	▪ Prevent hair loss ▪ Purify blood
30.	*Sida acuta*	Pillavalatthichedi	Leaves	▪ Kill dandruffs ▪ Strengthen hair
Meliaceae				
31.	*Azadiracta indica*	Vembu	Leaves	▪ Relieve from stomach pain ▪ Poisonous bites.
32.	*Melia azedrach* L.	Malaivembu	Leaves, Seeds	▪ Cure fever ▪ Reduce cough ▪ Treat small pox
Mimosaceae				
33.	*Acacia nilotica*	Karuvelam	Bark, fruit	▪ Skin diseases ▪ Control gum bleeding
34.	*Albizia lebbeck* L.	Vagai	Leaves	▪ Asthma ▪ Used against constipation
35.	*Mimosa pudica* L.	Thottasurungi	Leaves, root	▪ Treat cuts and wounds ▪ Snake bite.
Moringaceae				
36.	*Moringa oleifera* L.	Murunkai	Leaves, Unripe fruit	▪ Increase fertility in man ▪ Cure stomach pain
Musaaceae				
37.	*Musa paradisiaca* L.	Vazhai	Whole plant	▪ Reduce salt content and body heat
Myrtaceae				
38.	*Eucalyptus tereticornis*	Thailamaram	Leaves	▪ Control cold and cough ▪ Relieve Chest pain
39.	*Psidium guajava* L.	Koyyaa	Leaves, stem, Fruit	▪ Control diarrhoea
Nyctaginaceae				
40.	*Boerhavia diffusa* L.	Mukurattai	Roots	▪ Remove gas troubles
41.	*Pisonia grandis* R.Br.	Lachkatta keerai	Leaves	▪ Keep heart healthy
Poaceae				
42.	*Bambusa arundinacea*	Moongil	Wholeplant	▪ Used in religious functions
43.	*Cynodon dactylon* L.	Arugampul	Leaves	▪ Reduce body heat

				▪ Lower blood pressure ▪ Increase memory power
Piperaceae				
44.	*Piper betle* L.	Vethalai	Leaves	▪ Used for digestion
Rhamnaceae				
45.	*Ziziphus jujube* L.	Elandhai	Leaves, root, Fruit	▪ Treat diarrhoea ▪ Fever ▪ Cure wound
Rubiaceae				
46.	*Morinda pubescens*	Manjanathi	Leaves	▪ Improve nerves power
	Rutaeceae			
47.	*Citrus lemon* L.	Elumichi	Fruit	▪ Maintain body temperature
48.	*Murraya koenigii* L.	Karivepilai	Leaves	▪ Strong and natural hair
Solanaceae				
49.	*Physalis angulata* L.	Manathakkali	Leaves	▪ Control haemorrhage
50.	*Solanum surattense*	Kandankaththiri	Fruit	▪ Control tooth sensitive
51.	*Solanum trilobaum* L.	Thuthuvalai	Leaves	▪ Cough
Spindaceae				
52.	*Cardiospermum halicacabum* L.	Mudakkaththan	Leaves	▪ Relieve rheumatic pains ▪ Remove gas trouble
Vitaceae				
53.	*Cissus quadrangularis* L.	Pirandai	Leaves, Stem	▪ Inducing appetite ▪ Control sugar
Zygophyllaceae				
54.	*Tribulus terrestris* L.	Nerunji	Leaves, Bark	▪ Heat reduction ▪ As pain killer ▪ Stops dysentery

Devankuruchi villagers used various plants as medicine to remediate variety of diseases and ailments like anti diabetic, asthma, cold, cough, fever, cuts and wounds, diarrhea, dysentery, eczema, gum bleeding, gas troubles, hair growth, killing dandruffs, jaundice, migration, leg pain, rheumatic pains, stomach pain, pain killer, poisonous bites, snake bites, scorpion bite, piles, reduce body heat, skin diseases, throat infection, tooth sensitivity etc.,. The village peoples used these plants for medication in the form of juice, decoction, powder, extract, and paste (cooked or raw forms).

The photographs of medicinal plant families such as Euphorbiaceae, Meliaceae, Mimosaceae were given in Figure 1, which were present abundantly in Devankuruchi hills. Figure 2 represents the plant species commonly used by the villagers. Similarly [16] documented the traditional knowledge by surveying tribes of Achanakmar-Amarkantak Biosphere reserve, Central India.

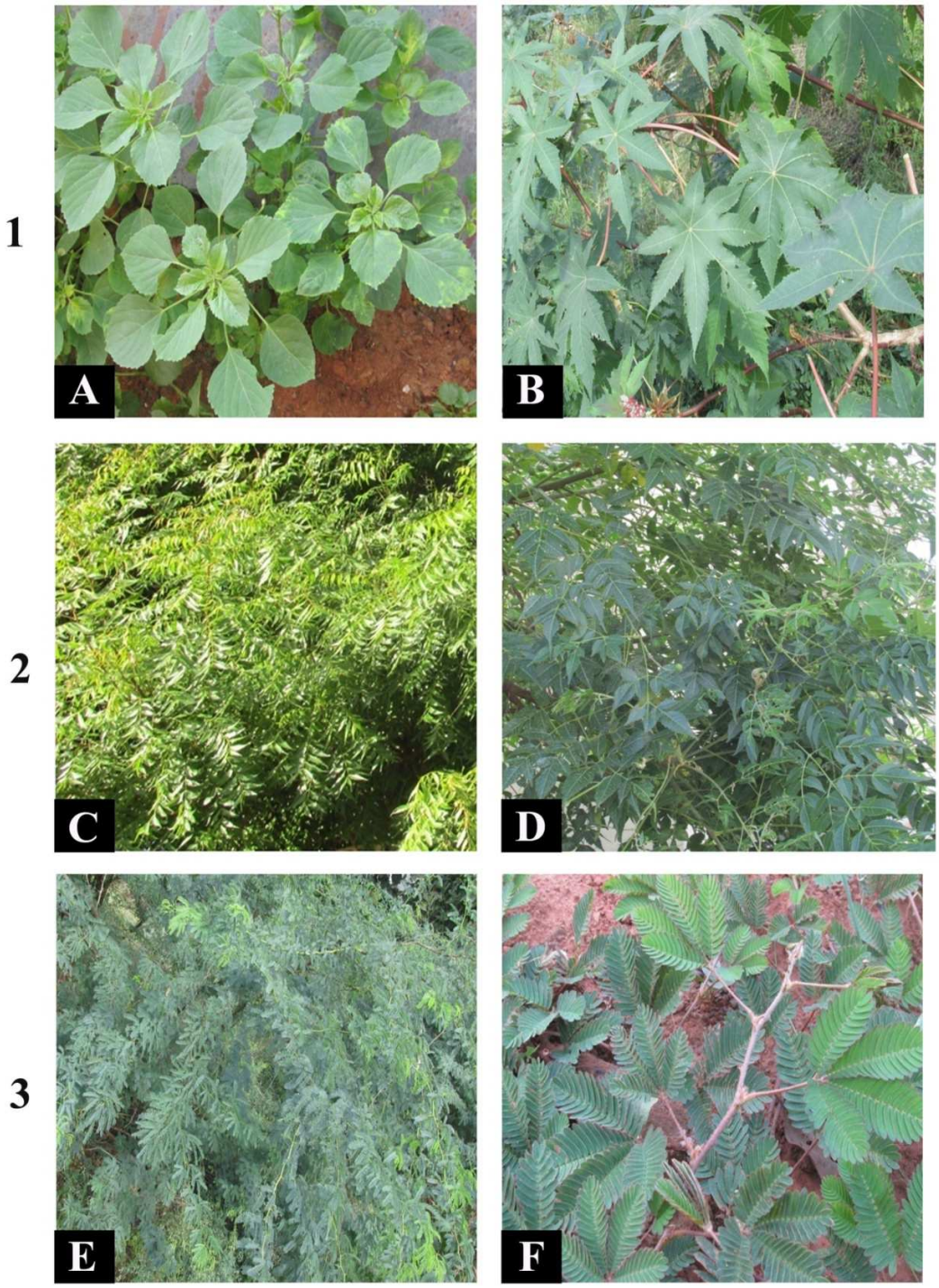

Figure 1. Medicinal plant families. 1. Euphorbiaceae (A, B), 2. Meliaceae (C, D), 3. Mimosaceae (E, F); A. *Acalypha indica* L., B. *Ricinus communis* L., C. *Azadiracta indica*, D. *Melia azedrach L*,. E. *Acacia nilotica* F. *Mimosa pudica* L.,

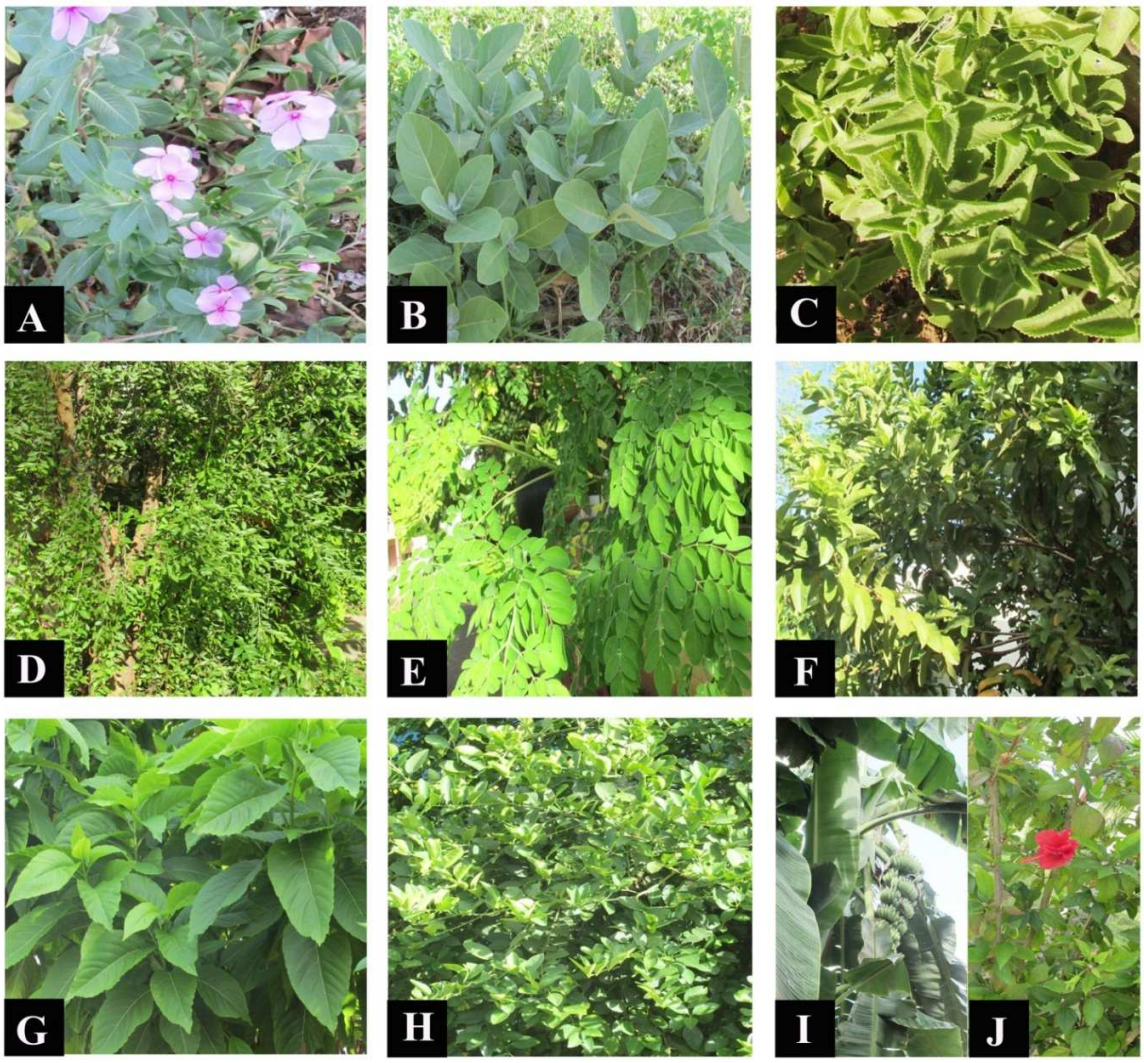

Figure 2 Some of the medicinal plants present in Devankuruchi hills. A. *Catharanthus roseus* L., B. *Calotropis procera* L., C. *Plectranthus coleoides*, D. *Lawsonia inermis* L., E. *Moringa oleifera* L., F. *Psidium guajava* L., G. *Pisonia grandis* R.Br., H. *Citrus lemon* L., I. *Musa paradisiaca* L., J. *Hibicus rosasinensis* L.,

Lamiaceae species is represented by the highest number (5 species) followed by Euphorbiaceae (4 species), Mimosaceae, Malvaceae and Solanaceae (3 species), and other ten families were represented by 2 species and 16 families represented by a given single species. Among the different plant parts used for the preparation of medicine were leaves (64%), fruits (12%), roots (6%), whole plants (5%), flowers (5%), bark (3%), stems (3%), seeds (3%) and young buds (2%) (Figure 3).

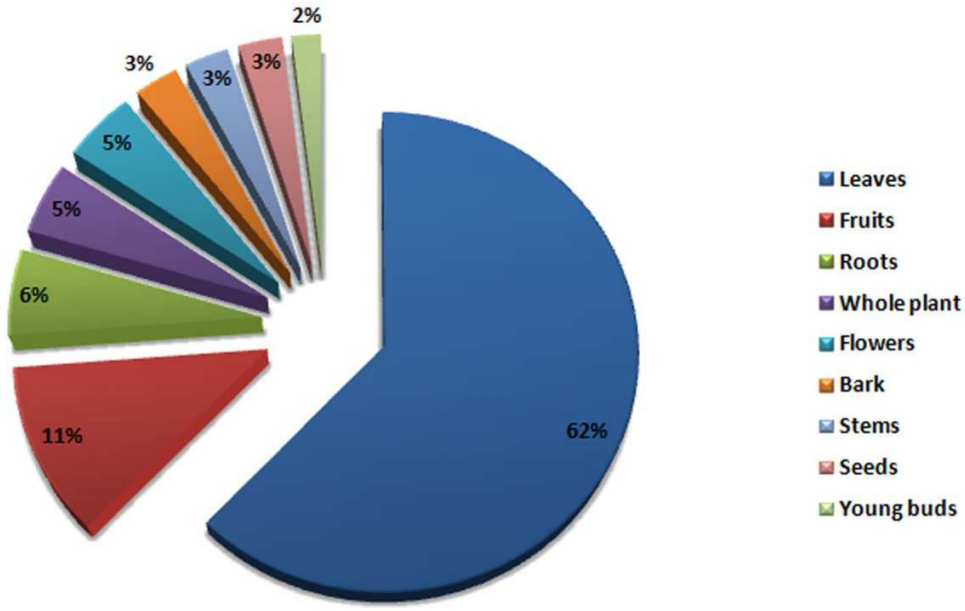

Figure 3. Percent distribution of plant parts with medicinal properties.

People use more than one plant either separately or mixed together and used for their health care. They mix several plants as ingredients to cure diseases immediately. Generally, fresh part of the plant was also used for the preparation of medicine.

CONCLUSION

The present investigation revealed that the herbal medicines are still play an important in primary health care of the village people at Devankuruchi hills. *Azadiracta indica*, *Ocimum sanctum and Acalypha indica* are the leading species used as remedies against a variety of complaints like stomach pain, poisonous bites, cough and skin diseases etc.,. The information gathered from the village people is useful for further researches in the field of ethno-medico-botany, taxonomy and pharmacology. The results of the present study provide evidence that medical plants continue to play an important role in the human health care system.

Acknowledgements
The authors are grateful to all people of Devankuruchi hills, Madurai district for sharing their knowledge on herbal medicine during our field visits. The authors are also thankful to Dr. A. Jayachitra, Assistant Professor, Department of Plant Biotechnology, School of Biotechnology, Madurai Kamaraj University, Madurai and Dr. K. Thangakrishnakumari, Assistant Professor, Department of Botany, Sri Kumara Gurupara Swamigal Arts College, Srivaikuntam for their encouragement and support throughout this study.

REFERENCES

[1] B Sivasankari; S Pitchaimani; M Anandharaj. *Asian Pacific Journal of Tropical Biomedicine* **2013**, 3 (12), 975-979.
[2] S Ignacimuthu; M Ayyanar; K Sankara Sivaraman. *Journal of Ethanobiology and Ethnomedicine*, **2006**, 2 (25), 1-7.
[3] RM Anan; N Nandakumar; L Karunakaran; M Ragunathan; V Murugan. *Nat prod radiance*, **2006**, 5 (2), 139-143.
[4] S Shanmugam; M Annadurai; K Rajendran. *Journal of Applied Pharmaceutical Science*, **2011**, 1(08), 84-97.
[5] S Shanmugam; N Gayathri; B Sakthivel; S Ramar; K Rajendran. *Ethnobot Leaflets*, **2009**, 13, 370-378.
[6] S Ganesan; N Ramar pandi; N Banumathy; *eJournal of Indian Medicine*, **2007**, 1, 1-18.

[7] S Ganesan; L Kesavan. *J Econ Taxon Bot*, **2003**, 27 (3), 754-760.
[8] S Ganesan; N Suresh; L Kesavan. *Indian J Tradit Know*, **2004**, 3 (3), 299-304.
[9] A Ghosh. *Indian J Tradit Know*, **1999**, 2, 292-296.
[10] K Suresh; R Kottaimuthu; T Selvin Jebaraj Norman; R Kumuthakalavalli; Sabu M Simon. *Int J Res Ayurveda Pharm*, **2011**, 2 (2), 502-508.
[11] H Azaizeh; S Fulder; K Khalil; O Said. *Fitoterapia*, **2003**, 74, 98-108.
[12] C Muthu; M Ayyanar; N Raja; S Ignacimuthu. *J Ethnobiol Ethnomed*, **2006**, 2 (43), 1-10.
[13] SK Jain; *Folklore*, **1964**, 5, 145–150.
[14] KM Matthew. Rapinat Herbarium, St. Joseph's College (Thiruchirapalli, India, **1983**).
[15] KM Matthew. An Excursion flora of Central Tamilnadu, India. Oxford and IBH Publishing Co., New Delhi, **1991**.
[16] AP Tiwari; RLS Sikarwar; PC Dubey, *Indian J Nat Prod Resour*, **2014**, 5 (4), 345-350.