

## TRADITIONAL MEDICINAL PLANT RESOURCES OF SOUTHERN PACHCHAMALAIS IN TRICHIRAPALLI DT TAMILNADU, INDIA: IMPLICATION OF TRADITIONAL KNOWLEDGE IN HEALTH CARE SYSTEM

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### ABSTRACT

Traditional medicinal plants survey was carried out to collect the information about the medicinal plants found in Southern Pachchamalais and utilized by the ethnic people of Study area. The intensive and extensive ethno botanical fields studies have resulted in the collection of 40 medicinal plant species belonging to 38 genera distributed in 29 families, which are used in traditional health care system are described under this study and also attempted to find out the medicines prepared out of these medicinal plants, forms of medicine and their matching ailments. In this communication, the information obtained from the local people was compared with the literatures on ethnobotanical studies of India. The documented medicinal plants were mostly used to cure skin diseases, Jaundice, diabetes, wounds and rheumatism. The medicinal plants used by the people are arranged alphabetically, and followed by their botanical name, family name, local name(s), part(s) used, mode of preparation and their corresponding diseases.

**KEYWORDS:** Ethnobotany, Diseases, Medicinal Plants, Southern Pachchamalais

### INTRODUCTION

Ethnobotany offers a very effective approach to tropical forest conservation, since it may provide a wealth of data on non timber products, which can often be collected in a non destructive manner. Commodities might thus be extracted from the forest with minimal ecological and / or environmental damage, yet provide some incentive for the conservation and rational utilization of the forest. According to Chherti, D.R., *et al.* (2005) more than 50000 species are used for medicinal purposes worldwide, of which almost 13% are flowering plants. Over 8000 plant species are used in traditional and modern medicine in India and 90-95% collection of medicinal plants is from the wild, of which more than 70% collection involves destructive and unscientific extraction. Over exploitation of trade species, destructive way of collection, vulnerability due to anthropogenic pressure are some of the major threats to medicinal plants.

In order to achieve sustainable harvest of medicinal plants and other non-timber forest products (food (wild edibles), fuel, fodder, timber, making agricultural tools, fiber, religious and various other purposes), a multi-disciplinary approach must be considered which include ecological, biological, socio-cultural and economical aspects of the species. The World Health Organisation (WHO) estimated that 80% of the populations rely on traditional medicines, mostly plant drugs, for their primary health care needs in developing countries. Conservation and sustainable use of medicinal plants are issues on which immediate focus is required in the context of conserving biodiversity. Considering these facts it is important to know about the medicinal plants of the nearby areas and become more crucial when the area is almost in the vicinity of the forest and well protected. Therefore, during present study was collected ethno medicinal information of medicinal plants local vaidias (physicians) and herbalists, forest officers and different tribal communities in the Forest Division. The uses recorded. Voucher specimens have been cited.

It is hoped that this effort will not only provide additional support to the earlier findings recorded in the literature, but also provide clues for new materials having medicinal potentiality for traditional Indian system of medicine.

## **MATERIALS AND METHODS**

### **Study Area**

The hills are situated on the north western border of Tiruchirapalli district and extend to the adjoining Salem district. The boundary between Tiruchirapalli and Namakkal districts passes across the plateau of Pachchamalais leaving only the southern portion in Tiruchirapalli division. The whole of southern slopes and parts of the eastern and western slopes of Pachchamalais fall within Tiruchirapalli district. The northern portions of Pachchamalais fall within Attur taluk of Namakkal district. The Pachchamalais of Tiruchirapalli Forest division are separated from Kollimalais of Namakkal district by the narrow Thammampatti valley. The elevation of the Pachchamalais varies from 500mts. to 1000mts. The slopes of the hills are generally steep and sometimes precipitous.

### **Methodology**

The present investigation was undertaken as a view to study the number of People from Riverbasin areas Tiruchirapalli Dt, Tamilnadu. A good number of aboriginal inhabitants at the River Basin areas. These people maintaining their own identify in terms of cultural aspects. The field work in village areas is the most important part of all ethnobotanical studies. Before starting this work the necessary information's were collected through the revenue records.

Mainly two methods were adapted in collecting Ethnobotanical information from people. The first step in Ethnobotanical work is to identify plants with the help of the local inhabitants and the details of population, area of distribution of the People. The second step is that the plants near the hamlets were collected and brought to the physician's house. Every plant was shown to him one after another and recorded utility of plants. The people are highly reserved, so the adequate information gathering is highly difficult from them. Although, both methods or steps were used in the present field work.

The first step is more promising as it is not necessary to collect all the plants of an area. Local names were recorded in variably for the species collected; these will be useful in referring to the same plants again. These filed visits were carried out with the help of local informants. With the help of highly experienced old tribal people the utility of plants which are found in and around the hamlets were collected and studied.

The voucher specimens were collected and their local names were noted and the uses of parts such as leaves, fruits, roots etc were recored. The specimens were pressed with the help of blotting papers and news papers and then the specimens were poisoned. The right specimens were then made into herbarium.

The plant collected were given a field number identified with the help of Flora of the TN Carnatic and by comparing authentic sheets available in the Rapinate Herbarium of the St Josephs College. The specimens are pasted in herbarium boards and stitched with the help of thin threads. The data were labeled in herbarium boards. To each specimen a short description regarding the use and the method of application is noted.

Plants are poisoned with the help of saturated solution containing 5 gms of mercuric chloride dissolved in one litre of rectified spirit. The barks, fruits and dried inflorescence were preserved using saturated solution of 30% Formaldehyde, 10 gms of copper sulphate, 1 gm of mercuric chloride and 20 gms of Allum crystals. Seeds and millets were preserved with the help of saturated solution of methylated spirit and mercuric chloride. They were then placed in polythene bags. The herbarium specimens are deposited in the herbarium of the Department of Botany, Jamal Mohamed College,

and Tiruchirapalli-20 for future reference. During the field trips photographs of the tribal hut, tribal people and some of the plants and their products were taken with the help of “PENTAX A-3000 Camera” for future reference.

## RESULTS & DISCUSSIONS

The intensive and extensive ethno botanical fields studies have resulted in the collection of 40 medicinal plant species belonging to 38 genera distributed in 29 families are documented in this study (Figure 1). The medicinal plants used by Local people are listed with Botanical name, Family name, Vernacular name, habit of the plant, parts used and mode administration (Table 1). The life forms are analysed and found that there are 14 herbs(35%), 9 shrubs(22%), 8 trees(20%) and 9Climbers(23%), out of 40 plants (Figure 2)

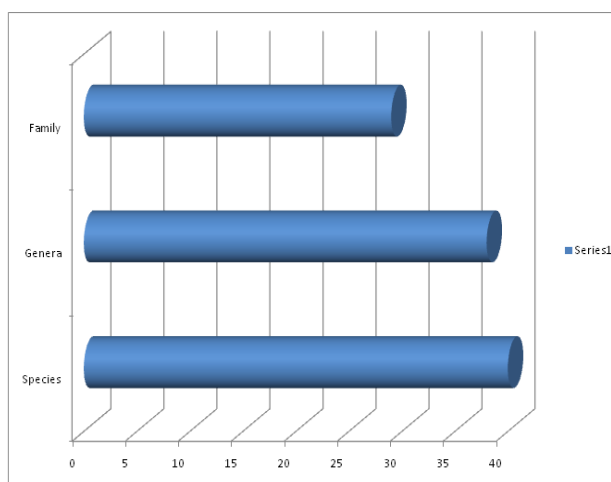


Figure 1: Total Number of Species

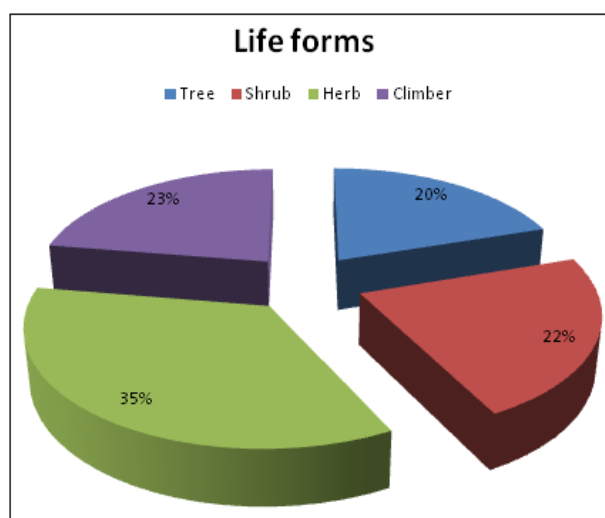


Figure 2: The Life Forms in the Study Area

Table 1

Sl. No	Botanical Name	Family Name	Vernacular Name	Part Used	Disease	Mode of Administration
1	<i>Abutilon indicum</i> (L.) Sweet.	Malvaceae	Thuthi	Leaf	Stomach pain	Leaves crushed with jaggary and tablets of approximately of 1gm are made, and taken 3 tablets once
				Leaf	Wounds	Crushed leaves are applied
2	<i>Acacia caesia</i> (L.) Willd.	Mimosaceae	Seengaikodi	Stem Bark	Wounds	Bark is ground with water and applied topically over the affected part
3	<i>Acacia leucophloea</i> (Roxb.) Willd	Mimosaceae	Velval	Stem Bark	Wounds	Paste of fresh bark is applied topically on cuttings until cure

Table 1: Contd.,

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4	<i>Acalypha indica</i> L.	Euphorbiaceae	Kupaimeni	Whole Plant	jaundice	<i>Acalypha indica</i> and <i>Momordica charantia</i> whole plants taken in 1:1 ratio & extract is given for 10 days Doses of 5 and 3 table spoons for adult and children respectively.
				Leaf	scabies, itch, ring worm	The leaf juice can be applied externally
5	<i>Aerva lanata</i> (L.) Juss.ex Schult	Amaranthaceae	Kulapoo	Whole Plant	Kidney stone	Plant extract with <i>Cuminum cyminum</i> fruits and sugar is given for 10 – 15 days
6	<i>Ageratum conyzoides</i> L.	Astaraceae		Whole Plant	Stomach disorder	extract of the entire plant is taken
7	<i>Ailanthus excelsa</i> Roxb.	Simroubaceae	Penari	Stem Bark	Rheumatic	Stem bark warmed and applied
8	<i>Andrographis paniculata</i> (Burm.F.)Wall ex Nees	Acanthaceae	Nilavembu	Leaf	skin disease	When 1 spoon of leaf powder is taken with water
				Whole Plant	diabetes	Regular taking of plant powder taken after meal controls diabetes.
				Leaf	viral fever & malaria	Leaf juice with <i>Piper nigrum</i> seeds powder is given .
9	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Mukiratai	Root	dyspepsia, jaundice,	The tea forms of the root decoction
10	<i>Cardiospermum halicacabum</i>	Sapindaceae	Mudakathan	Leaf	joint pain	Paste of leaves with onion and coconut oil is taken orally for joint pain
11	<i>Cassia alata</i>	Fabaceae	Cheemaigathi	Leaf Flower	skinrashes	The leaf and flower extracts are used as a remedy for skin rashes
12	<i>Centella asiatica</i> (L.) Urban.	Umbelliferae	Vallarai	Leaf	Jaundice	Juice of leaf is mixed with equal amount of goat's milk and taken orally for seven days
13	<i>Coccinia grandis</i> (Linn.) Voigt	Cucurbitaceae	Kovaipalam	Root	rheumatic	Root tubers well grind and juice (Milk) warmed with <i>Foeniculum vulgare</i> and it is taken orally daily twice
14	<i>Deonix elata</i> (Linn.) Gamble	Caesalpiniaceae	Vathanarayanan	Leaf	rheumatic	Leaves warmed with pepper, grind to prepare pills taken inside
15	<i>Diplocyclos palmatus</i> (L.) C. Jeffrey.	Cucurbitaceae	Lingam kai	seed	promote fertility	Half teaspoon of seeds taken once a day for 10 -15 days.
				Leaf	joint pain	Fresh leaves boiled in water are applied externally.
16	<i>Eclipta prostrata</i> (L.) L.	Astaraceae	Kanjankorai	Leaf	jaundice	Leaf curry is useful to purify the blood and reduce the white hairs leaves are also used.
				Whole plant	hair diseases	Whole plant boiled with <i>Sesamum orientale</i> oil is used like hair oil.
18	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Nelli	Fruits	anti allergic	Fruits and jaggary taken in same proportion crushed and mixed taken as anti allergic.
				Fruits	digestive	Fruits taken as digestive.
19	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Amman pacharisi	Leaf	wounds and mouth ulcers	Crushed leaf are applied.
20	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	Visnukiranthi	Root	fever and jaundice	Root mixed with <i>Andrographis paniculata</i> (Burm. f.) Wall. ex. Nees and <i>Adhatoda zeylanica</i> Medi. roots and then dried,powdered by mixing in equal proportions, then a spoonful of the powder administered 2-3 times a day for curing fever. Leaf paste mixedwith <i>Phyllanthus amarus</i> Schum. Thomm. Leaf juice and used to cure jaundice(the patient should not take salt and oil during the treatment
21	<i>Ficus retusa</i> Linn.	Moraceae	Athimaram	Leaf and fruit	Diabetes, bone fracture cold, swellings	Paste of Leaf along with their fruit combined with cumin is taken orally to cure swellings, Lung blockage. It is best for treat diabetes and applied topically over the fractured bones.
22	<i>Gloriosa superba</i> L.	Colchiaceae	Kalapai Kilangu	Stem	wounds	Stem paste applied
				Whole Plant	lice in hair	Plant powder applied externally
23	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Schultes.	Asclepiadaceae	Sirukurunjan	Leaf	Diabetes	Powdered leaves are mixed with cow's milk and boiled rice, kept over night and taken internally twice a day.
24	<i>Ipomoea obscura</i> (L.)	Convolvulaceae	Cirutali	Whole plant	cure cold, asthma and dry cough.	The fresh plant extract is mixed with gingely oil and is used
25	<i>Lantana camera</i> Linn	Verbanaceae	Unichedi	Leaf	Wound healing	Leaf paste is applied topically to treat wounds

Table 1: Contd.,

26	<i>Lantana whitiana</i> Wall.	Verbanaceae	Vellai Unichedi	Leaf	Skin disease	The leaf is ground with <i>Cipadessa baccifera</i> root, leaf and bark & applied topically to treat Psoriasis
27	<i>Leucas aspera</i> (L.) <i>R.Br. ex Vatke</i>	Limniaceae	Thumabai	Leaf	jaundice	50gm of leaves are crushed well water is given orally once a day for 5-8 days.
28	<i>Pandanus amaryllifolius</i>	Pandanaceae	Thazham poo	Stem	jaundice	Tender shoots are directly eaten
29	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Keelanelli	Leaf	reduce heat	Leaf with fruits <i>Cuminum cyminum</i> (jeera) and sugar cubes reduce crushed with water and taken 30-40 ml
				Whole plant	laxative	Whole plant eaten directly.
				Whole plant	jaundice and leucorrhea	Whole plant crushed and tablets are prepared, taken twice a day for 10 days.
				Whole plant	loss motion	Whole plant crushed and taken with ghee.
30	<i>Rauvolfia serpentina</i>	Apocynaceae	Sarpahandi	Root	Rheumatism	Decoction
31	<i>Ricinus communis</i> L.	Euphorbiaceae	Katamanakku	Root	Rheumatism	Juice of root is taken orally
32	<i>Scoparia dulcis</i> Linn.	Scrophulariaceae	Sarkaraivembu	Leaf	diabetes and hypertension.	The leaf extract taken with 100 ml 3 times daily
33	<i>Solanum trilobatum</i> L.	Solanaceae	Thoodhuvai	Leaf	Asthma	Juice of leaves is taken orally for seven days
34	<i>Thespesia populanea</i> Cav.	Malvaceae	Poovarasam	Bark & wood	skin and liver diseases	The decoction of the bark is commonly used for the treatment of skin and liver diseases
35	<i>Tephrosia purpurea</i> (L.) Pers	Fabaceae	Kolingi	Whole plant	liver disease, paralysis	The whole plant powder with curd taken 20-30 ml orally.
				Root	tooth ache	Root is used as tooth brush.
36	<i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. f & Thoms.	Menispermaceae	Seenthil Kodi	Leaf	tonic	1 or 2 leaves daily taken early morning.
				Leaf	jaundice	Leaf juice with honey for treating jaundice.
37	<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	Kindu mullu	Leaf	stomach pain	Decoction of leaves is given internally
38	<i>Trianthema portulacastrum</i> L.	Aizoaceae	Saranai	Leaf	jaundice	Leaf juice with 30ml curd taken.
39	<i>Zizyphus mauritiana</i> Linn	Rhamnaceae	Ilandai	Leaf	Paralyze	Paste of leaf along with the leaves of <i>Ailanthus excelsa</i> Roxb. is taken internally as well as topically to treat paralyze
40	<i>Zingiber officinale</i> Rosc	Zingiberaceae	Ingi	Rhysome	Stomachache	Chewing rhizome

Herbal medicine are considered the oldest forms of health care known to mankind on this earth. Prior to the development of modern medicine, the traditional systems of medicine that have evolved over the centuries within different communities, are still maintained as a great traditional knowledge base in herbal medicines (Mukherjee and Wahil, 2006). Traditionally, this treasure of knowledge has been passed on orally from generation to generation without any written document (Perumal samy and Ignacimuthu, 2000) and is still retained by various indigenous groups around the world. People use more than one plant either separately or mixed together. They combine plants as ingredients to cure diseases instantaneously. Generally, fresh part of the plant is used for the preparation of medicine. When fresh plant parts are not used as simple drugs and some plants are used with some other plant parts. The information collected from this study is in deals with the previous information (Jain, 2001; Sandhya et al., 2006; Ganesan et al., 2004).

The parts of the plant used for medicinal purposes are leaves, root, stem, fruits, the complete aerial parts, the whole plant, barks (root and stem) and flowers. However, leaves were found most frequently used part.

Common health ailments in the study area were skin problems. Kani tribals in Tirunelveli Hills of Tamil Nadu were using 14 plants for the treatment of skin problems (Ayyanar & Ignacimuthu, 2005). Tribals of Uttar Karnataka district used 52 herbal preparations from 31 plants for skin diseases, a nearest state of Tamil Nadu (Harsha et al., 2003) and people of Eastern Cape Province, South Africa used 38 plant species for the treatment of wounds (Grierson and Afolayan, 1999).

Several studies have enumerated the plants used for wound healing and skin diseases in various parts of the world (Chah et al., 2006; Ayyanar and Ignacimuthu, 2005; Harsha et al., 2003). Ghorbani (2005) reported 16 plant species that were used for respiratory diseases and 48 plants for the treatment of gastrointestinal disorders in north Iran. Safety and efficacy of the treatment for respiratory tract infections were reviewed (Coon and Ernst, 2004). Traditional healers of Kancheepuram district used nine plant species to treat stomach problems among them 3 plants to treat stomachache and 6 plants to cure digestive problems (Chellaiah et al., 2006). (Muthukumarasamy et al., 2003) has reported the use of 21 medicinal plants from 20 families to treat gastro-intestinal complaints by using paliyar community.

The tribal people of Western Madhya Pradesh of India used 13 plants for the treatment of Jaundice (Samvatsar and Diwanji, 2000). In the present study on *Phyllanthus amarus* and *Eclipta prostrata* were used for the treatment of jaundice. *Spilanthes acmella* was used to treat toothache. *Syzygium cumini*, *Santalum album* and *Ficus retusa* are reported to treat diabetes. It is in agreement with earlier reports in the treatment of oral diseases (Tapsoba and Deschampus, 2006; Hebbar et al., 2004). *Andrographis paniculata*, *Catheranthus roseus* and *Gymnema sylvestre* were used to treat diabetes by the local traditional healers (Chellaiah et al., 2006). The tribal people of Sikkim and Darjeeling Himalayan region in India utilized 37 species of plants belonging to 28 different families as antidiabetic agents (Chherti et al., 2005).

From our survey of ethnomedicinal plants, the results obtained confirm the therapeutic potency of some plants used in traditional medicine. In addition, these results form a good basis for selection of potential plant species for further phytochemical and pharmacological investigation. The leaf paste of *Zizyphus mauritiana* along with the leaves of *Ailanthus excelsa* is taken internally as well as topically to treat paralyzes. *Aerva lanata* is used to treat Kidney stone, Leaf juice of *Solanum trilobatum* is applied Juice of leaves is taken orally to cure Asthma. 5gm of whole plant with 1 to 2 gm of ginger crushed in water and 20-30 ml taken twice a day for 15 days. treat arthritis rheumatism, *Lantana camera* Leaf paste is applied topically to treat wounds and *Cardiospermum helicacabum* and also documented.

## CONCLUSIONS

The data collected shows that majority of the remedies are taken orally. Herbal medicines prescribed by tribal people are either preparation based on single plant or a combination of several plant parts. Most of the reported preparations are drawn from a single plant; mixtures are used rarely. The fresh plant parts are used for the preparation of medicine. When fresh plant parts are unavailable, dried parts are also used. Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that medicinal plants continue to play an important role in the healthcare system of this ethnic community.

This study provides an ethnobotanical data of the medicinal plants used by the people to cure different diseases. Moreover, this study will promote a practical use of botanicals and must be continued focusing on its pharmacological validation. Further detailed exploration and collection of ethnobotanical information, chemical studies and screening for medicinal properties will provide cost effective and reliable source of medicine for the welfare of humanity.

## REFERENCES

1. Chherti, D.R., Parajuli, P. and Subba, G.C. 2005. Antidiabetic plants used by Sikkim and Darjeeling Himalayan tribes, India. *Journal of Ethnopharmacology* 99: 199-202.
2. Mukherjee, P.K. and Wahil, A. 2006. Integrated approaches towards drug development from Ayurveda and other systems of medicine. *Journal of Ethnopharmacology* 103: 25-35.

3. Perumal Samy, R. and Ignacimuthu, S. 2000. Antibacterial activity of some folklore medicinal plants used by tribals in Western Ghats of India. *Journal of Ethnopharmacology* 69: 63-71
4. Jain, S.K. 2001. Ethnobotany in modern India. Phytomorphology golden jubilee Issue, *Trends in plant science* 39-54.
5. Sandhya, B., Thomas, S., Isabel, W. and Shenbagarathai, R. 2006. Ethnomedicinal plants used by the Valaiyan community of Piranmalai hills (Reserved forest), Tamil Nadu, India-A pilot study. *African Journal of Traditional CAM* 3(1): 101-114.
6. Ganesan, S., Suresh, N. and Kesavan, L. 2004. Ethnomedicinal survey of lower palni Hills of Tamil Nadu. *Indian Journal of Traditional Knowledge* 3(3): 299-304.
7. Ayyanar, M. and Ignacimuthu, S. 2005. Traditional knowledge of Kani tribals in Kouthalai of Tirunelveli hills, Tamil Nadu, India. *Journal of Ethnopharmacology* 102: 246-255
8. Harsha, V.H., Hebber, S.S., Shripathi, V., Hedge, G.R., 2003. Ethnomedicobotany of Uttat Kannada District in Karnataka, India-plants in treatment of skin diseases. *Journal of Ethnopharmacology* 84(1): 37-40.
9. Grierson, D.S. and Afolayan, A.J. 1999. An ethnobotanical study of plants for the treatment of wounds in the Eastern Cape, South Africa. *Journal of Ethnopharmacology* 67: 327-332.
10. Chah, K, F., Eze, C.A., Emuelosi, C.E., and Esimone, C.O. 2006. Antibacterial and wound healing properties of methanolic extracts of some Nigeria medicinal plants. *Journal of Ethnopharmacology* 104: 164-167.
11. Ghorbani, A. 2005. Studies on pharmaceutical ethnobotany in the region of Turkmen Sahra, north of Iran (Part I): general results. *Journal of Ethnopharmacology* 102: 58-68.
12. Coon, J.T. and Ernst, E. 2004. *Andrographis paniculata* in the treatment of upper respiratory tract infections: a systematic review of safety and efficacy, *Planta medica* 70: 293-298.
13. Chellaiah Muthu, Muniappan Ayyanar, Nagappan Raja and Savarimuthu Ignacimuthu, 2006. Medicinal plants used by traditional healers in Kancheepuram district of Tamil Nadu, India. *Journal of Ethnobiology and Ethnomedicine* 2: 43.
14. Muthukumarasamy, S., Mohan, V.R., Kumaresan, S. and Chelladurai, V. 2003. Herbal medicinal plants used by paliyars to obtain relief from gastro-intestinal complaints. *Journal of Economic and Taxonomic Botany* 27(3): 711-714.
15. Samvatsar, S. and Diwanji, V.B. 2000. Plant sources for the treatment of jaundice in the tribals of western Madhya Pradesh of India. *Journal of Ethnopharmacology* 73: 313-316.
16. Topsoba, H. and Deschampus, J.P. 2006. Use of medicinal plants for the treatment of oral diseases in Burkina Faso. *Journal of Ethnopharmacology* 104: 68-78.
17. Hebbar, S.S., Harsha, V.H., Shripathi, V. and Hedge, G.R. 2004. Ethnomedicine of Dharwad district in Karnataka, India-plant used in oral health care. *Journal of Ethnopharmacology* 94: 261-266.

