



STUDIES ON THE FOLKLORE MEDICINAL USES OF SOME INDIGENOUS PLANTS AMONG THE TRIBES OF THIASHOLA, MANJOOR, NILGIRIS SOUTH DIVISION, WESTERN GHATS.

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**ABSTRACT:** Popular knowledge of plants used by humans is based on thousands of years experience. By “trial and error”, people learnt how to recognize and use plants, including those with a magic-religious function. Knowledge of plant use was widespread in ancient civilizations. Until the middle of the 19th century, plants were the main therapeutic agents used by humans, and even today their role in medicine is still relevant. In the present paper an attempt has been made to explore and record the folklore medically important plants frequently used to treat different ailments by Toda tribe living in Thiashola, Manjoor, Western Ghats. During survey, the experienced old folk of these communities were interacted for gathering information. A total of 57 herbaceous medicinal plants from 54 genera under 29 families were enumerated. The above enumerated species are being practiced by the Tribals for treatment of various diseases like skin diseases (*Centella asiatica*, *Erigeron karvinskianus*, *Helichrysum hookeriana*), cancer (*Cayratia pedata* var. *glabra*), rheumatism (*Anemone rivularis*, *Toddalia asiatica* var. *floribunda*), jaundice (*Physalis peruviana*, *Cynoglossum zeylanicum*) and so on. The treatment given by them is found to be effective. Plants of Asteraceae (10 species) was largely represented followed by Poaceae and Urticaceae (5 species). The plants may be useful under rural healthcare system and for herbal drug industry.

**Key words:** Folkmedicine, Thiashola, Ailments, Toda.

## INTRODUCTION

In the last few decades eco-friendly, bio-friendly, cost-effective and relatively safe herbal medicines have moved from the fringe to the mainstream with increased research in the field of traditional medicine. Medicinal plants are an integral component of alternative medical care. For millennia, Indian people traditionally played an important role in the management of biological resources and were custodians of related knowledge that they acquired through trial and error over centuries. India has a rich wealth of medicinal plants and the potential to accept the challenge to meet the global demand for them. Ayurveda, Naturopathy, Unani, Siddha and folk medicine are the major healthcare systems in Indian society, which fully depend upon natural resources. The market for herbal drugs has grown at an impressive rate due to a global resurgence in traditional and alternative healthcare systems, and therefore medicinal plants have great economic importance. However loss of biodiversity, over-exploitation and unscientific use of medicinal plants, industrialization, biopiracy, together with lack of regulation and infrastructure are the major impediments to the growth of herbal medicine. Conservation, proper research based on traditional knowledge, quality control of herbal medicine and proper documentation are essential in the 21st century for the growth of herbal medicine usage [1,2]. India is rich in ethnic diversity and indigenous knowledge that has resulted in exhaustive ethnobotanical studies. There are over 537 different aboriginal groups in India with extensive knowledge of plants [3]. Many quantitative and qualitative field surveys have documented on detailed utility of specific plants for many aboriginal groups such as Kadars, Kanikars, Irulars, Malasars, Todas and Kotas [4]. Folklore and traditional knowledge is in the process of degeneration due to disruption of forest covers, uprooting of tribal population due to industrialization. So there is urgent need to document the available information in detail for future application and scientific investigation [5,6].

Ethnobotany is the scientific study of the relationships that exists between people and plants. Since the beginning of civilization, people have used plants as medicine. Perhaps since StoneAge, plants are believed to have healing powers on man [7]. The World Health Organization (WHO) has estimated that 80% of the populations of developing countries still rely on traditional medicines, mostly plant drugs, for their primary health care needs. Demand for medicinal plant is increasingly felt, in both developing and developed countries due to growing needs of natural products being non-toxic and bereft of side-effects, apart from availability at affordable prices [8].

The medicinal plant sector has traditionally occupied a pivotal position in the socio cultural, spiritual and medicinal areas of rural and tribal families. To avoid the occurrence of toxic side effects in a long-term usage of synthetic drugs during treatment of chronic diseases, herbal drugs are being used widely [9]. Therefore proper documentation of traditional knowledge is needed. Hence, the present study is an attempt to identify the important herbaceous medicinal plants and their uses in different therapies by the tribals from Thiashola. The Toda people are a small pastoral community who live on the isolated Nilgiri plateau of Southern India. Before the 18th century, the Toda coexisted locally with other communities, including the Kota, and Kuruba, in a loose caste-like community organisation in which the Toda were the top ranking [10].

## MATERIALS AND METHODS

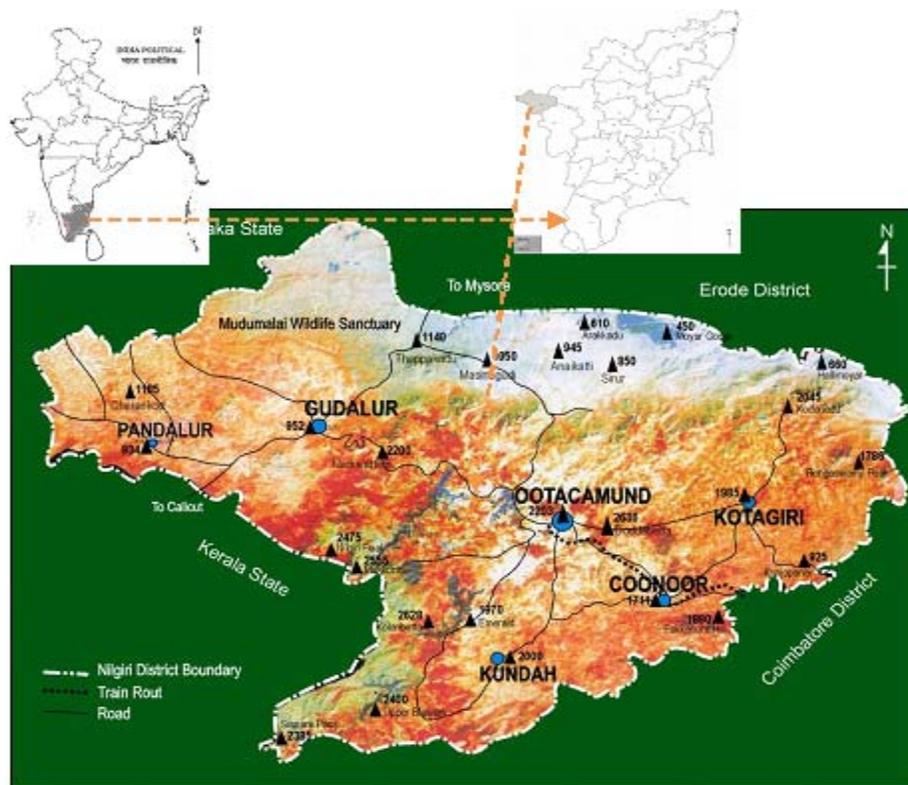
The present work was carried out to provide a comprehensive account of folklore medicinal plants of Thiashola, Manjoor, Nilgiri District, Western Ghats. During the study, an extensive field survey of the medicinal plants was done during 2009-2010 through informal interviews and the species used as folklore medicines were enumerated (Plate 1).



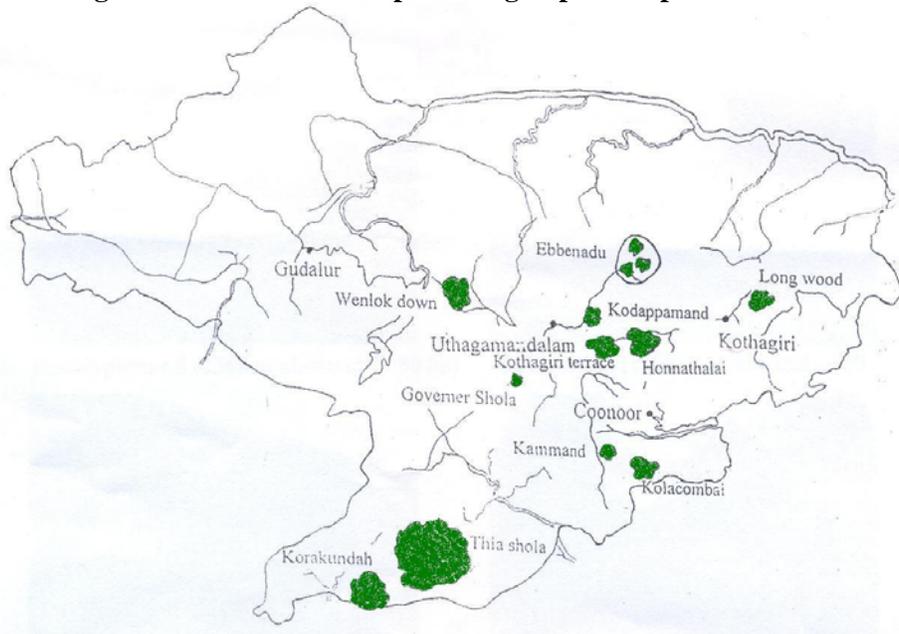
**Plate 1 : Upper view of the study shola**

### Description of the study Area

For the present study, Thiashola in Manjoor region of Nilgiris, Tamil Nadu, India was selected (Map I and II); (Plate 1 and 3). The Nilgiri Biosphere Reserve or Blue Mountains is an International Biosphere Reserve occupies a total area of 2542.49 Sq Kms, located in the Western Ghats of Palghat Gap ( $10^{\circ} 45' - 12^{\circ} 5' N$  latitude and  $76^{\circ} 10' - 77^{\circ} 10' E$  longitude), spreads over an area of 5,520 km<sup>2</sup> in the states of Karnataka (1527.4 km<sup>2</sup>), Kerala (1455.4 km<sup>2</sup>) and Tamil Nadu (2537.6 km<sup>2</sup>) and falls under the biogeographical region of the Malabar rain forest. The total geographical area of sholas in Nilgiris is 4225 ha. One among the shola in Nilgiris is Thiashola. It is a montane subtropical wet evergreen forest located in the glens or depressions at an altitude between 1800 and 2200 m above mean sea level with limited geographical area of 1600 ha. Thiashola is located in close proximity at latitude  $11^{\circ} 13' N$  and longitude,  $76^{\circ} 39' E$ . The study forest is located in the hill slopes and surrounded by grasslands which extend upto hill tops throughout the slopes.



Map 1. The Nilgiri District Satellite map showing important places with Altitude in meter



Map 2. Location of the study shola

### Data collection and Documentation

The data on medicinal plants was recorded through interview, discussion (Plate 2) and field observation with knowledgeable elder people using standard methods adopted by Jain and Goel [11]. The information about plants and their local names, parts of plant used for preparation of drug and mode of administration in different diseases were documented in the field survey and it was confirmed by cross checking with respondents and also with the already existing literature.

The collected specimens were pressed properly. Dried specimens were poisoned with 0.1% HgCl<sub>2</sub> following the method of Jain and Rao [12]. Field data with collection number, locality, short description, vernacular name and collector's name were transferred from the field note book to the right hand corner of the herbarium sheet for ready identification. The herbaria were deposited in Department of Botany, Vellalar College for Woman, Thindal, Erode. Photographs were also taken to supplement the herbarium. The collected plants were identified with the help of the existing Floras [13-15] (Matthew, 1983) and compared with type specimens available in the herbarium of Botanical Survey of India, Southern Circle, TNAU Campus, Coimbatore, Tamil Nadu and through recent floras and taxonomic revisions. The ethnobotanical data collected through interview were documented alphabetically with their family, binomial, vernacular names, parts used and medicinal uses.

## RESULTS AND DISCUSSION

Though there is a wide range of herbaceous remedial plants traditionally being used by tribal peoples of Thiashola, Nilgiri district (Table 1 and Fig. 1). During the study 57 herbaceous medicinal plants from 54 genera under 29 families were enumerated (Table 1 and Plate 4). For each species listed, correct botanical names followed by vernacular names, family, parts used and their medicinal uses are given. The study area was selected due to richness of flora and dearth of ethno botanical information of this region. In general, tribals select the time and seasons for collection of medicinal plants depending on the parts used for their efficacy [7]. Among the enumerated families presented in the study shola Asteraceae contributed higher number of species (10 species) followed by Poaceae and Urticaceae with 5 species and the rest of the families are represented with lesser number of species. Ramakrishnan [16] opined that the existence of high reproductive effort, wide ecological amplitude, different responses to soil nutrients and success in interspecific competition would ensure the higher frequencies of occurrence for the members of Asteraceae and Poaceae. *Centella asiatica* and *Hydrocotyle javanica* are present with higher density. The abundance of *Centella asiatica* and *Hydrocotyle javanica* in the shola is possible due to the presence of continuous wetness, a most favourable factor for their growth [17]. *Physalis peruviana*, *Lycianthes bigeminata*, *Cayratia pedata* var. *glabra* and *Gnaphalium indicum* are found to be a curing agent for many major ailments such as jaundice, ulcer, fever and antiseptic. Tribals used different plants in different diseases like skin diseases (*Centella asiatica*, *Erigeron karvinskianus*, *Helichrysum hookeriana*), cancer (*Cayratia pedata* var. *glabra*), rheumatism (*Anemone rivularis*, *Toddalia asiatica* var. *floribunda*), jaundice (*Physalis peruviana*, *Cynoglossum zeylanicum*) and so on. Nadanakunjidam [18] reported the availability of high number of 211 plant species with ethnomedicinal values in the Attapadi region, a hilly block adjacent to Manjoor region, the Nilgiris in Western Ghats. The preparation of medicine is an art and is prepared in various forms like infusion, decoction, paste, powder, pill, syrup, juice, etc.



Plate 2: Investigator gathering information on ethnomedicinal plants from the Toda tribe at Thiashola.



Plate 3 : Investigator – Survey and collection at Thiashola

*Acmella calva* (DC.) R. K. Jansen



*Asparagus fysoni* J. F. Macbr.



*Justicia simplex* D. Don.



*Oberonia verticillata* W.



*Hydrocotyle javanica* Thunb.



*Parochetus communis* Buch.- Ham. ex. D. Don.



Plate 4 : Snapshots of some of the surveyed species

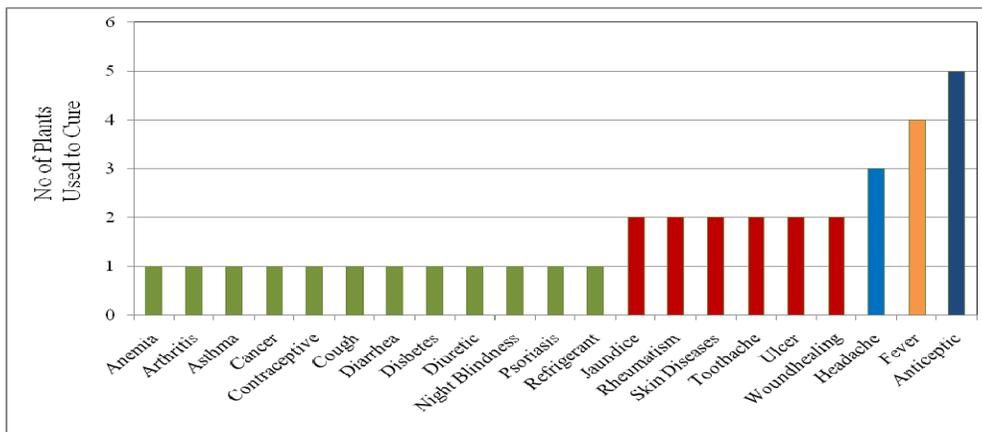


Fig. 1. Ailments treated using different plant species in Thiashola

Table 1: List of folklore medically important plants widely used by Tribes of Thiashola, Manjoor, Western Ghats.

S.No.	Botanical Name	Vernacular Name	Family	Parts Used	Medicinal Use
1.	<i>Achyranthes bidentata</i> Blume.	Sighappu nayuruvi, Sennayuruvi	Amaranthaceae	Roots, spike and leaves	Asthma, antidote, contraceptive and night blindness
2.	<i>Acmella calva</i> (DC.) R. K. Jansen	Agragaram	Asteraceae	Inflorescence	Tooth ache
3.	<i>Ageratina adenophora</i> (Spreng.) R. M. King & H. Rob.	Kattuvadai or Kattu vaadai	Asteraceae	Leaves	Wound healing
4.	<i>Agrostis peninsularis</i> Hook. f.	Oosi pullu	Poaceae	Aerial parts	Fodder
5.	<i>Anemone rivularis</i> Buch. Ham. ex DC.	Not available	Ranunculaceae	Leaves and stem	Rheumatism, headache and fever
6.	<i>Asparagus fysoni</i> J. F. Macbr.	Perumoolam	Asparagaceae	Tubers	Tonic
7.	<i>Asparagus racemosus</i> Willd.	Thanneer vittan kizhangu	Asparagaceae	Tubers	Stimulant
8.	<i>Bidens pilosa</i> L.	Mukkutthi	Asteraceae	Leaves	Antiseptic and cough
9.	<i>Cardamine africana</i> L.	Kattu kadugu	Brassicaceae	Leaves and flowers	Psoriasis
10.	<i>Carex longipes</i> D. Don. ex Tilloch. & Taylor.	Back's sedge	Cyperaceae	Flowers	Wound healing, analgesic
11.	<i>Cayratia pedata</i> (Lam.) Gagnep. var. <i>glabra</i> Gamble	Kattuppirandai	Vitaceae	Whole plant	Antiseptic, cancer, ulcer and refrigerant
12.	<i>Centella asiatica</i> Urban.	Vallarai	Apiaceae	Whole plant	Skin diseases
13.	<i>Clematis roylei</i> Rehder.	Royle's Clematis	Ranunculaceae	Aerial parts	Cold

14.	<i>Cyanotis arachnoidea</i> Clarke.	Grass of the Dew	Commelinaceae	Whole plant	Rheumatic
15.	<i>Cynoglossum zeylanicum</i> Thunb.	Pisin ottarai	Boraginaceae	Roots	Jaundice
16.	<i>Cyrtococcum deccanense</i> Bor.	Arisi pullu	Poaceae	Aerial parts	Fodder
17.	<i>Desmodium scalpe</i> DC.	-	Fabaceae	Aerial parts	Diarrhea, dysentery, diuretic, astringent
18.	<i>Dichrocephala integrifolia</i> Kuntze.	Sirunaachinar	Asteraceae	Tender shoots and flower buds	Wounds and cuts
19.	<i>Drymaria cordata</i> (L.) Roemer ex Schult.	Sadhakeerai	Caryophyllaceae	Whole plant	Headache
20.	<i>Eragrostis nigra</i> Ness ex Steud.	Not available	Poaceae	Aerial parts	Fodder
21.	<i>Erigeron karvinskianus</i> DC.	Thaer chedi	Asteraceae	Whole plant	Skin diseases
22.	<i>Euphorbia rothiana</i> Spreng.	Not available	Euphorbiaceae	Latex	Boils and acne
23.	<i>Gaultheria fragrantissima</i> Wall.	Morppazham, Kolakkai	Ericaceae	Leaves	Arthritis
24.	<i>Girardinia diversifolia</i> (Link.) Friis.	Seemai senthatti	Urticaceae	Roots and leaves	Stimulant, headache, swollen joints and fever
25.	<i>Gnaphalium indicum</i> DC.	Saambapachai	Asteraceae	Whole plant	Fever
26.	<i>Helichrysum hookeriana</i> Wight. & Arn.	Peru vellaragu	Asteraceae	Flowers	Skin diseases
27.	<i>Hydrocotyle javanica</i> Thunb.	Padaiotti	Apiaceae	Leaves	Blood purifier
28.	<i>Hypochaeris glabra</i> L.	Not available	Asteraceae	Roots and leaves	Tonic, astringent, and diuretic
29.	<i>Isachne kunthiana</i> (Steud.) miq.	Mosumpul	Poaceae	Aerial parts	Fodder
30.	<i>Justicia simplex</i> D. Don.	Not available	Acanthaceae	Leaves	Cooling, aperients and small pox in children
31.	<i>Launaea pinnatifida</i> Cass.	Beach Launaea	Asteraceae	Whole plant	Antifungal
32.	<i>Lycianthes bigeminata</i> (Nees) Bitter	Sirungunni, Siru thakkali	Solanaceae	Fruits and leaves	Ulcer
33.	<i>Neonitis indica</i> (DC.) Lewis.	-	Rubiaceae	Aerial parts	Malarial fever
34.	<i>Oberonia verticillata</i> W.	Large Column Foot Orchid	Orchidaceae	Aerial parts	Dementia
35.	<i>Oplismenus compositus</i> (L.) P. Beauv.	Kozhipul, Kozhi arugampul	Poaceae	Aerial parts	Fodder
36.	<i>Oxalis latifolia</i> Kunth.	Kattu puliarai	Oxalidaceae	Whole plant	Astringent, antiseptic and anemia
37.	<i>Parochetus communis</i> Buch.- Ham. ex. D. Don.	Blue oxalis	Fabaceae	Flowers, leaves	Antimicrobial
38.	<i>Passiflora edulis</i> Sims	Thuraipadalai	Passifloraceae	Fruits	Edible
39.	<i>Persicaria chinensis</i> (L.) H. Gross.	Yerumai naaku chedi	Polygonaceae	Roots	Diarrhoea
40.	<i>Phyllanthus virgatus</i> G. Forst.	Perukeelanelli	Euphorbiaceae	Whole plant	Bleeding

41.	<i>Physalis peruviana</i> L.	Perungunni	Solanaceae	Leaves and dried seeds	Jaundice and glaucoma
42.	<i>Pilea angulata</i> Blume.	Kaanchori	Urticaceae	Aerial parts	Fodder
43.	<i>Pilea wightii</i> Wedd.	Not available	Urticaceae	Aerial parts	Fodder
44.	<i>Piper brachystachyum</i> Wall. ex. Hook. f.	Kattu kurumilagu	Piperaceae	Stem and fruit	Tooth ache and dyspepsia
45.	<i>Plectranthus malabaricus</i> R.H. Willemse.	Kurali	Lamiaceae	Seeds	Cold, cough
46.	<i>Polycarpon tetraphyllum</i> L.	Four-leaf allseed	Caryophyllaceae	Leaves	Rheumatism
47.	<i>Pouzolzia bennettiana</i> Wight	Not available	Urticaceae	Whole plant	Cuts and fracture
48.	<i>Pouzolzia bennettiana</i> Wight var. <i>tomentosa</i>	Not available	Urticaceae	Leaves	Antiseptic
49.	<i>Rubia cordifolia</i> L.	Oacchai muruli, Saayakkodi	Rubiaceae	Whole plant	Diabetes, Rhinal infections, astringent, ant dysenteric, antiseptic and deobstruent
50.	<i>Rubus racemosus</i> Roxb.	Sheetthi, Vellai sheetthi	Rosaceae	Fruits	Edible
51.	<i>Senecio candicans</i> DC.	Dusty miller	Asteraceae	Leaves	Influenza, cold, throat infection
52.	<i>Smilax aspera</i> L.	Settai kodi	Smilacaceae	Whole plant	Intestinal diseases
53.	<i>Smilax zeylanica</i> L.	Kaattukkodi	Smilacaceae	Root	Antidote, venereal diseases and skin troubles
54.	<i>Spergula arvensis</i> , L.	Corn spurry	Caryophyllaceae	Aerial parts	Diuretic, antibacterial, antifungal
55.	<i>Tetrastigma nilagiricum</i> (Miq.) B. V. Shetti.	Kattu thiratchai, Perumuruli	Vitaceae	Fruits and aerial parts	Edible
56.	<i>Toddalia asiatica</i> (L.) Lam. var. <i>floribunda</i> Gamble	Kindu mullu	Rutaceae	Roots and fruits	Fever and rheumatism
57.	<i>Zehneria mysorensis</i> Wight & Arn.	Kattu kovai	Cucurbitaceae	Fruits	Blood purifier

## CONCLUSION

A good number of plants are used by the tribal communities of Thiashola, Nilgiri district as medicines but their full potential have not yet been utilized scientifically. Traditional beliefs, concepts, knowledge and practices among them for preventing and curing diseases are accessible till now. Still they depend upon such traditional healthcare and the need for immediate documentation of such knowledge and conservation of these valuable plants are emphasized to secure it for our future generation. Most of the recorded plants have no or less toxic effects to human body. The plant species have tremendous medicinal potentialities and may be the subject of study through various methods of clinical trials and pharmacological studies. These informations may be used for adopting the proper healthcare measures by the policy makers and may provide a lead in the development of new drugs. So, there is urgency of recording information of plants used for medicinal purpose by tribals before depletion of these traditional knowledge. The present study was very much useful for the human society for the identification of the new drugs.

## REFERENCES

- [1] Joana Camejo-Rodrigues, A., Lia Ascensão, B.M., Àngels Bonet, C. and Joan Vallès, C. 2003. An ethnobotanical study of medicinal and aromatic plants in the Natural Park of “Serra de São Mamede” (Portugal), *Journal of Ethnopharmacology*, 89, pp 199–209.
- [2] Sen, S.A, Chakraborty, R.A. and De, B.B. 2011. Challenges and opportunities in the advancement of herbal medicine: India's position and role in a global context, *Journal of Herbal medicine*, 1(3-4), pp 65-75.
- [3] Jain, S.K. 1991. *Dictionary of Indian Folk Medicine and Ethnobotany*, Deep Publications, New Delhi.
- [4] Abraham, Z. 1981. Ethnobotany of the Todas, the Kotas and the Irulars of Nilgiris, In: *Glimpses of Indian Ethnobotany*, edited by S.K. Jain, Oxford and IBA Publishing Co., New Delhi, pp 308-320.
- [5] Chakraborty, N.K. and Bhattacharjee, A. 2006. Some common ethnomedicinal uses for various diseases in Purulia district, West Bengal, *Indian Jour. of Tradi. Know.*, 5(4): pp 554-558.
- [6] Xavier TF., Kannan M., Lija L., Auxillia A., Rose AK. and Kumar SS. 2014. Ethnobotanical study of Kani tribes in Thoduhills of Kerala, South India, *Jou. Ethnopharmacol.*, 152(1), pp 78-90.
- [7] Sandhya Rani, A. and Jaganmohan Reddy, K. 2009. Folklore medicinal uses of some indigenous plants among the Tribes of Telangana Region, Andhra Pradesh, India, *Ad. Plant Sci.*, 22(1), pp 199-204.
- [8] Sur, P.R., Sen, R., Halder, A.C. and Bandyopadhyay, S. 1992. Ethnomedicine in the Ajodhya hills region of the purullia district, West Bengal, India, *Jor. Econ. Taxon. Bot., Addl. Ser.* 10, pp 333.
- [9] Umapriya, T., Rajendran, A., Aravindhan, V., Binu Thomas and Maharajan, M. 2011. Ethnobotany of Irular tribe in Palamalai Hills, Coimbatore, Tamil Nadu, *Indian J. of Natural Products and Resources*, 2(2), pp 250-255.
- [10] Marshall, William E. 1873. *Travels amongst the Toda, or the study of a primitive tribe in South India*, London: Longmans, Green and Co. Pp. xx, 269.
- [11] Jain, S.K. and Goel, A.K. 1995. *A manual of Ethnobotany* (Scientific Publishers, Jodhpur).
- [12] Jain, S.K. and Rao, R.R. 1970. *Hand Book of Field and Herbarium Methods*. New Delhi.
- [13] Fyson, P.F. 1915-20. *The Flora of the Nilgiri and Pulney hill tops*. Superintendent, Government Press, Madras, 3 Vol.
- [14] Gamble, J.S. and Fischer, C.E.C. 1957. *Flora of the Presidency of Madras*. Botanical Survey of India, Calcutta, 3 Vol.
- [15] Matthew, K.M. 1999. *The Flora of the Palani Hills, South India*. The Rapinat Herbarium, The Swedish International Development Authority, New Delhi, pp 236-237.
- [16] Ramakrishnan, P.S. 1991. *Biological invasion in the Tropics*. Ecology of Biological invasion in the Tropics, International Scientific Publications, New Delhi, pp 1-19.
- [17] Saxena, K.G. 1991. *Biological invasions in the Indian subcontinent: Review of invasion by plants*, In: *Ecology of Biological invasion in the Tropics*. International Scientific Publications, New Delhi.
- [18] Nadanakunjidam, S., 2003. Ethnomedicinal observation from attapadi hills of western. Ghats. *J. Econ. and Taxan. Bot.*, 27(3), pp 732-740.