



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

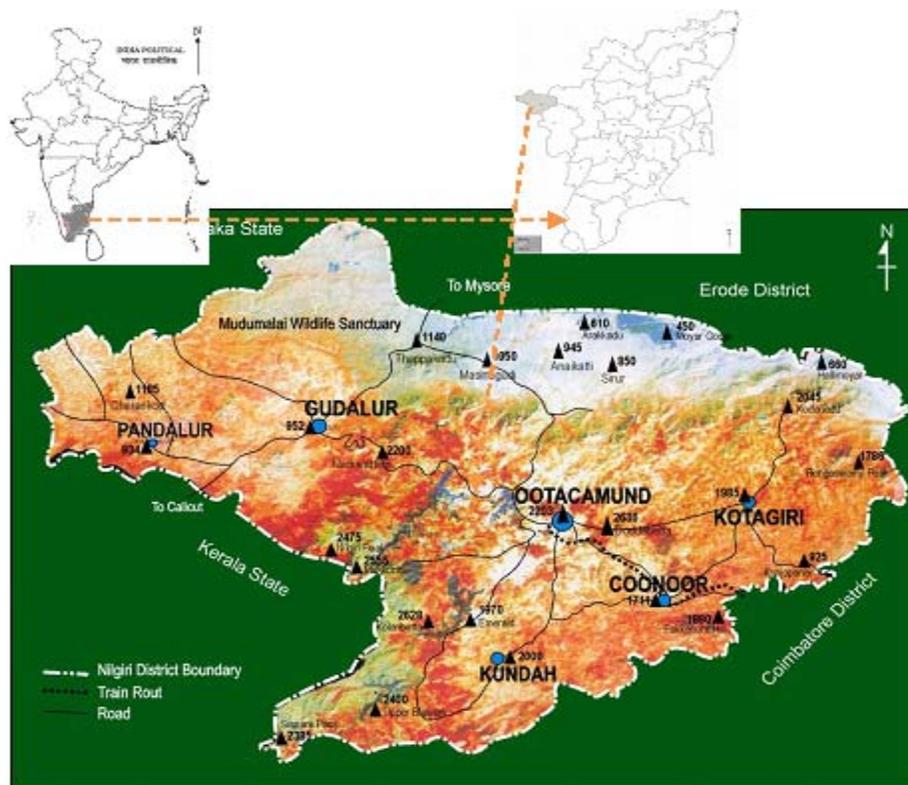
The present work was carried out to provide a comprehensive account of folklore medicinal plants of Thiashola, Manjoor, Nilgiri District, Western Ghats. During the study, an extensive field survey of the medicinal plants was done during 2009-2010 through informal interviews and the species used as folklore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



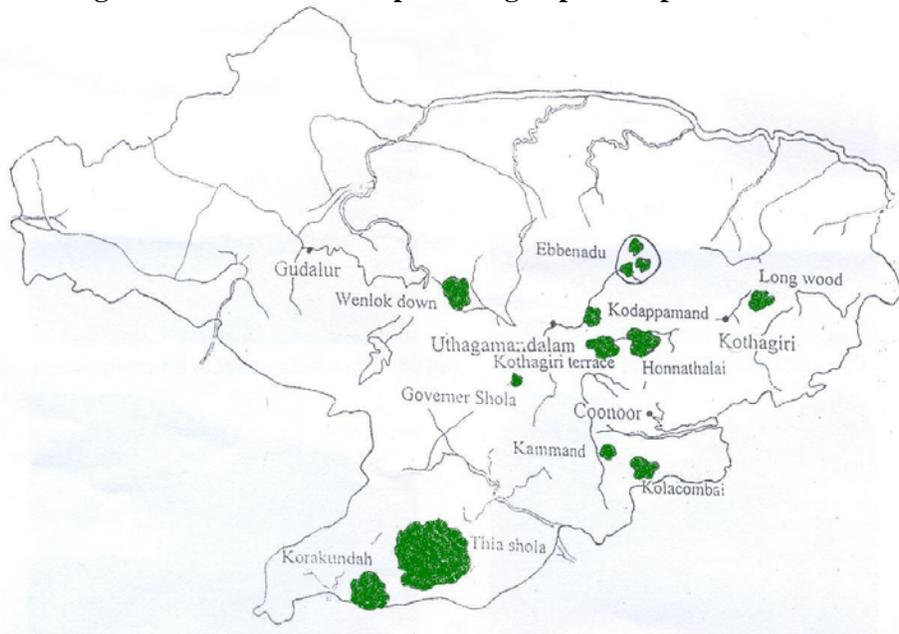
Plate 1 : Upper view of the study shola

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 km² in the states of Karnataka (1527.4 km²), Kerala (1455.4 km²) and Tamil Nadu (2537.6 km²) 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% HgCl₂ 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. Nadanakunjdam [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

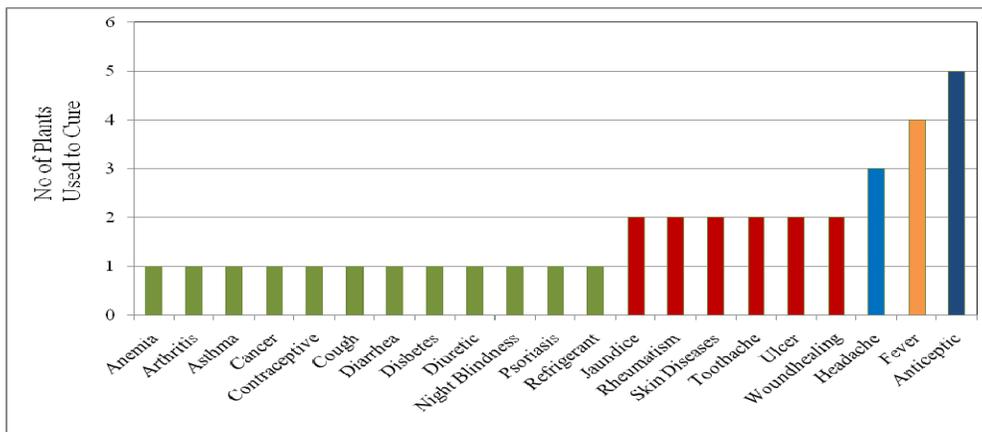


Fig. 1. Ailments treated using different plant species in Thiashola

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 |

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|-----|--|------------------------------|-----------------|-------------------------|---|
| 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. tomentosa | 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.

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