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Survey of wild tuberous medicinal plants of Kolli hills in Namakkal district, Tamil Nadu, India

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Abstract

This study was aimed to find out ethno wild tuberous medicinal plants of Kolli hills used to treat various diseases. The Malayali tribes is repository of rich knowledge of wild tuberous medicinal plants has a result of this study, 20 wild tuberous medicinal plants belonging to 13 families used as medicines have been documented. According to this study, wild tuberous medicinal plants are recorded for the first time. These medicinal plants associated with indigenous knowledge can be used for conservation and sustainable use of medicines in the area and for effective treatment of various diseases.

Keywords: Kolli hills, Malayali tribes, Tuberous medicinal plants, Indigenous knowledge

1. Introduction

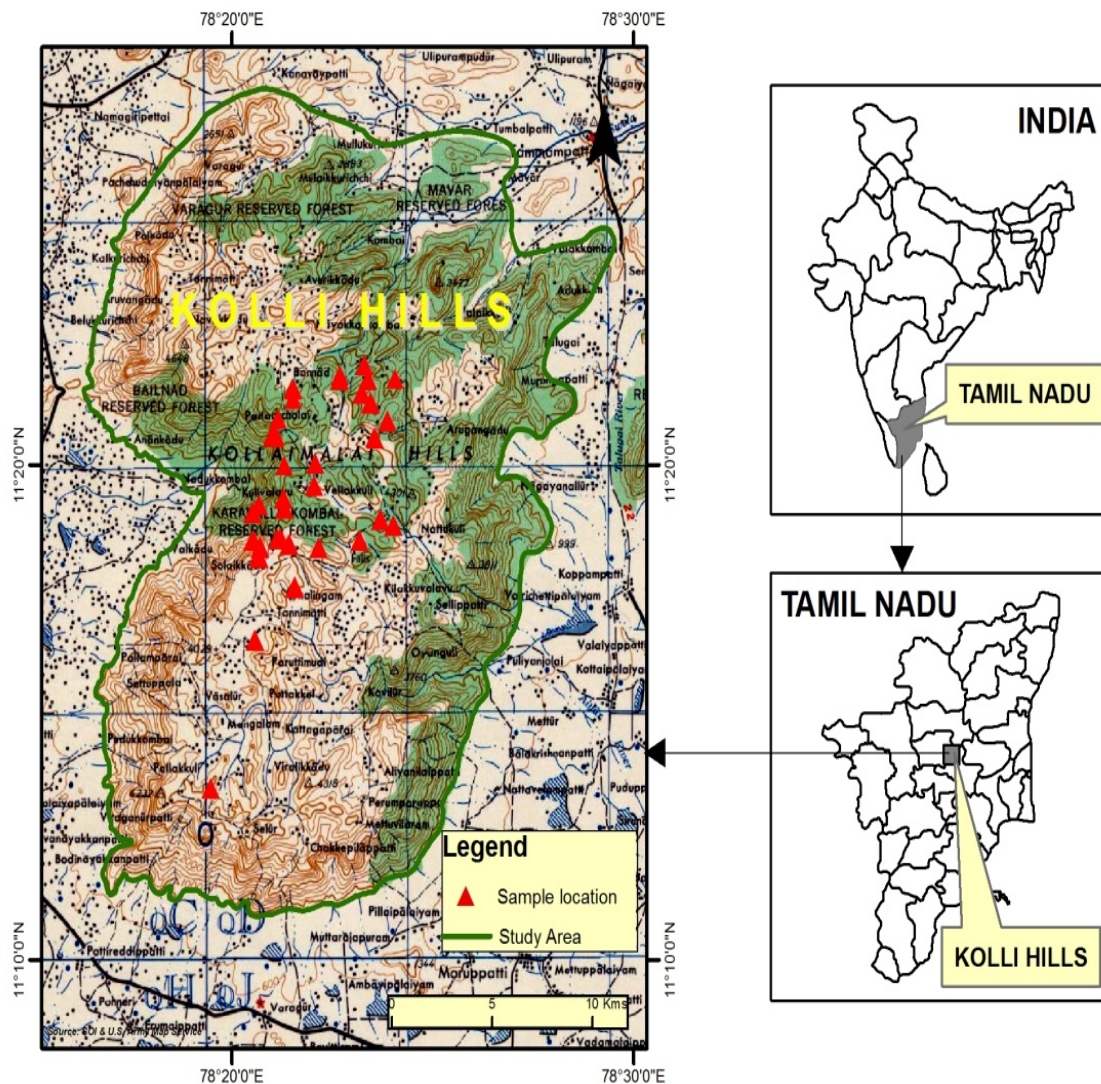
Medicinal plant sector has traditionally occupied an important position in the socio cultural, spiritual and medicinal area of rural and tribal lives of India. Medicinal plants as a group comprise approximately 8000 species and account for around 50% of all the higher flowering plant species of India. Millions of rural households use medicinal plants in a self-help mode. Over one and a half million practitioners of the Indian system of medicine in the oral and codified streams use medicinal plants in preventive, promotive and curative applications. There are estimated to be over 7800 manufacturing units in India. Plants have been used in traditional medicine for thousands of years and herbal medicines are much in demand throughout the world. The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal system such as Ayurvedha, Unani and Siddha [1]. India is well known for significant geographical diversity which has favoured the formation of different habitats and vegetation types, India is enriched with 15% (3000-3500) out of 20,000 medicinal plants all over the world, About 90% of these are found growing wild in different climate regions of the country [2]. India is also home to many language, culture and beliefs which have in turn contributed to the high diversity of traditional knowledge. Large populations in India still rely on traditional herbal medicine [3]. In India it is reported that traditional healers use 2500 plant species of medicine [4]. Ethno botanical knowledge has been documented from various parts of the Indian sub continent [5, 6]. India has one of the richest plant medical cultures in the world. It is a culture that is of tremendous contemporary relevance because it can on one hand ensure health security to millions of people and on the other hand it can provide new arid safe herbal drugs to the entire world. There are estimated to be around 2500 effective plant based formulations used in folk medicine and known to rural communities all over India and around 10000, designed formulations are available in the indigenous medical texts. Crude drugs are usually the dried parts of medicinal plants (roots, stem wood, bark, leaves, flowers seeds, fruits, and whole plants etc.) that form the essential raw materials for the production of traditional remedies of Ayurveda, Siddha, Unani, Homeopathy, Tibetan and other systems of medicine including the folk, ethno or tribal medicines. The Indian systems of medicine use around 8000 species of plants which include trees (33%), herbs (32%), shrubs (20%), climbers (12%) and epiphytes, grasses, lichens, ferns and algae put together (3%). Among 2000 drugs being used in curing humane ailments in India, only 200 are extracted from various plants [7]. In view of this, the present study was contacted to identify, collect and document the wild tuberous medicinal plants used by Malayali tribes of Kolli hills and their utilization for primary health care of human in treatments to different ailments.

2. Materials and Methods

2.1. Study area

The district is bounded by Salem on the north, Karur on the south, Trichy and Salem on the east and Erode on the west. The district lies between 11°09' and 11°65' north latitude and 78°23' and 79°45' east longitude. Namakkal district consist of five taluks, Namakkal, Rasipuram, Paramathi Velur, Tiruchengodu and Senthamangalam the total geographical area of the district is 4,376,57 sq km the Namakkal district is divided into four taluk (Fig.1). As of 2011, Namakkal district had a population of 1,726,601 with a sex-ratio of 986 females for every 1,000 males. The main occupation in the district is agriculture. The cultivation generally depends on monsoon rains, wells and tanks. Nearly 90 percent of the cultivated area is under food crops. The principal cereal crops of this district

are paddy, cholam, cumbu and ragi. Panivaragu, kuthiraivali, samai varagu and thinai are some of the millets cultivated. Kolli hills are situated on Eastern Ghats at an altitude of 1200 meters in the Namakkal district and are 45 km from Namakkal town. The Kolli hills are known for medicinal herbs and plants that grow in abundance on the hill slopes. The Arapaleeswarar temple, the Horticulture farm, the Herbal farm, Agaya Gangai waterfalls, Boat house, Peryaswamy temple, Ettukai Amman temple, Pineapple farms, View Point and the Telescope house are the places to visit for the interested tourist. Attukal kilangu soup and raw was selling in this hills. This is very taste and good medicine for knee pain. The "Valvil Ori" festival is organised here every year during the month of August. A Malayali tribes community depends solely on their surrounding of hills ranging from food and medicinal plants.



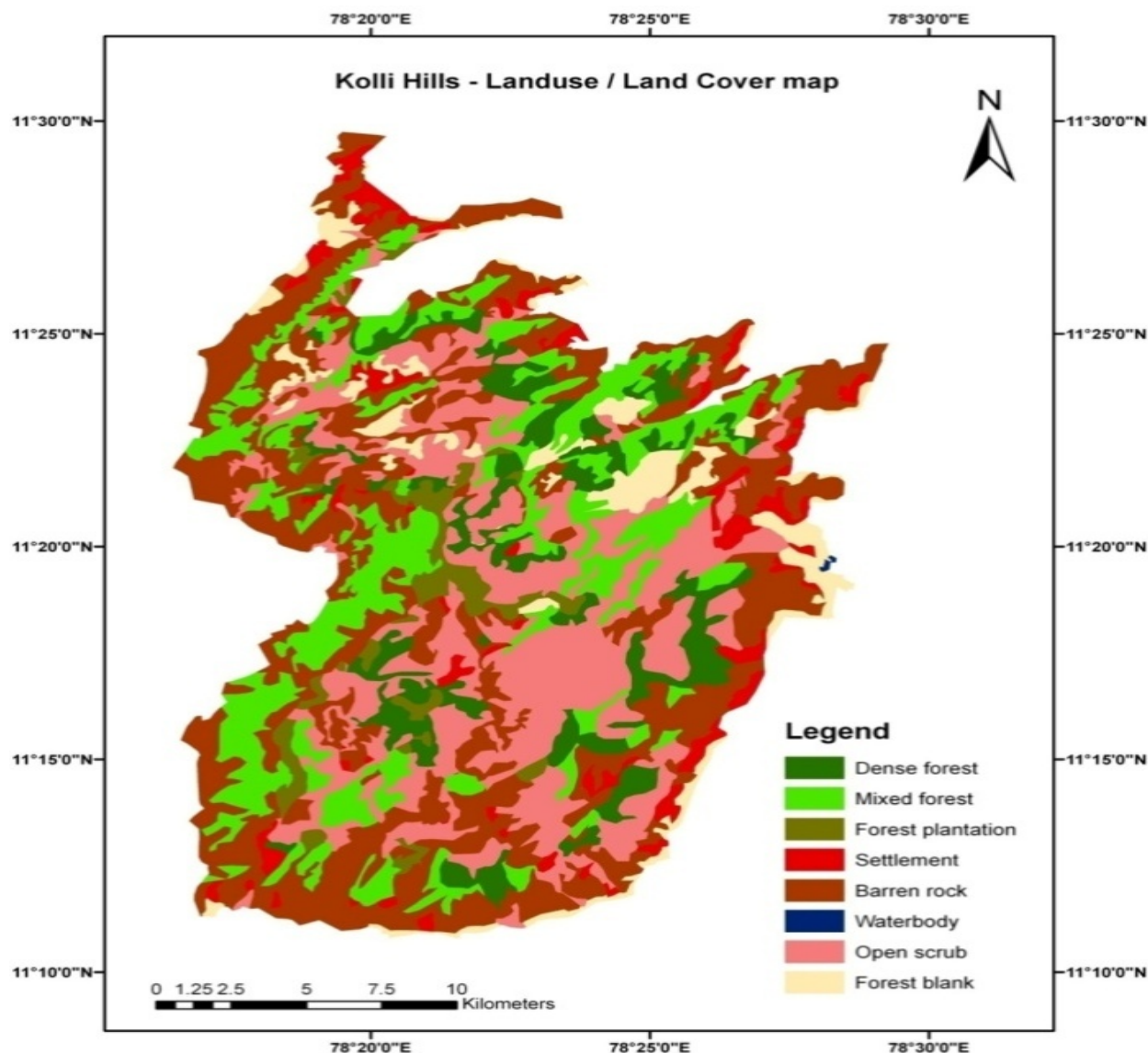


Fig 1: Study area of Kolli hills in Namakkal district, Tamil Nadu, India.

2.2. Data collection

Ethnobotanical observation on wild tuberous medicinal plant of Kolli hills, in Namakkal district, Tamil Nadu was carried between October - 2014 to February - 2015. The methodology as proposed by [8-11]. The information about the all plants were collected from study area of Solakkadu, Keel Solakkadu, Puttur, Dindupatty, Moolakadai, Semmedu, Melmenur, Poverkadu, and Othakadai in different Malayali tribe and folklore people and survey also carried out for cross checking information on wild tuberous medicinal plants. About the medicinal plants information and its medicinal uses were received from different ethnic groups, villages, tribe peoples and folklore who use the plants for ethno botanical observation on wild tuberous medicinal plants. All the species of plants were identified with help of available Indian literature [12-14] and the identified were verified with the help of Rapinet Herbarium, St. Joseph's college, Tiruchirapalli, Tamil Nadu, India.

2.3. Photography

Photography taken for the macroscopic characters of plants with the help of Digital camera Nikon scan Auto selector SONY 4x zoom (14.0 mega pixies) colour prints were made with art colour paper.

3. Results

Survey of ethno botanical observation on wild tuberous medicinal plants are arranged in alphabetical order with their botanical name, vernacular name, family, parts used medicinal uses (Plate 1 to 3). In present studies, all the medicinal plant about parts of uses, mode of administration and medicinal uses were collected from Aryur Solai Solakkadu, Keel Solakkadu, Poonthottam, Plandur, Mel kalingam, Semmedu, Melmenur, Poverkadu and Othakadai. A total of the 20 species survey of ethno botanical tuberous medicinal plants, distributed among 16 genera belonging to 13 families were recorded (Table-1). Among the families, most of the species were belong to Acoraceae (1species), Amaryllidaceae (1species), Apocynaceae (1species), Araceae (3 species), Arecaceae (1 species) Asparaginase (1 species), Asteraceae (1 species), Cucurbitaceae (2 species), Dioscoreaceae (3 species), Liliaceae (3 species), Musaceae (1 species), Polypodiaceae (1 species), Zingiberaceae (1 species), the results are summarized in table-2.

Plate 1



Amorphophallus sylvaticus Kunth.



Borassus flabellifer L.



Amorphophallus sylvaticus Kunth.



Borassus flabellifer L.



Corallocarpus epigeus Hook. f



Crinum asiaticum L.

Plate 2



Curcuma longa L.



Coccinia grandis (L.) Voigt



Dioscorea oppositifolia L.



Dioscorea esculenda Burk.



Drynaria quercifolia (L.) Smith.



Dioscorea alata L.

Plate 3



Dahlia coccinea Cav.



Ensete superbum Roxb.



Ornithogalum umbellatum L.



Scilla indica Baker.



Sansevieria roxburghiana Schult. f.



Tulipa albanica Kit Tan & Shuka

Table 1: Enumeration of wild tuberous medicinal plants of Kolli hills.

| S. No | Botanical name | Family | Vernacular Name | Uses |
|-------|--|----------------|--|---|
| 1. | <i>Acorus calamus</i> L. | Acoraceae | Vasambu | Tubers are used to make fragrances and the dried powdered used as a substitute for ginger. |
| 2. | <i>Amorphophallus paeoniifolius</i> (Den.) Ni. | Araceae | Karunai kizhangu or Senai kizhangu | Tuber is used for in bronchitis and asthma. |
| 3. | <i>Amorphophallus campanulatus</i> Blume. | Araceae | Kattu karunai | Tuberous are used for treatment of tumors and also used for post delivery problems. |
| 4. | <i>Amorphophallus sylvaticus</i> Kunth. | Araceae | Sepang kizhangu | Tubers are used cough, sexual weakness. |
| 5. | <i>Borassus flabellifer</i> L. | Arecaceae | Panam kizhangu | Powders of tubers are used for obesity. |
| 6. | <i>Corallocarpus epigaeus</i> Hook. f. | Cucurbitaceae | Akasha karuden | Tubers boiled with coconut oil are applied once a day for six months on the affected parts to cure leprosy. |
| 7. | <i>Coccinia grandis</i> (L.) Voigt. | Cucurbitaceae | Kovai kizhangu | A paste made of tuber is applied to the skin to for scabies. |
| 8. | <i>Crinum asiaticum</i> L. | Amaryllidaceae | Veli moonky | Paste of tuber is used remedy for swelling arthritis and skin disease. |
| 9. | <i>Curcuma longa</i> L. | Zingiberaceae | Manjal | Paste of tuber is apply for anti-inflammatory. |
| 10. | <i>Dahlia coccinea</i> Cav. | Asteraceae | Dahlia kizhangu | Paste of tubers is mixed with common salt and applied to heal wounds. |
| 11. | <i>Dioscorea oppositifolia</i> L. | Dioscoreaceae | Malaiyan kizhangu (or) pavalakodi | Ground tubers with milk and the extract given to are itching. |
| 12. | <i>Dioscorea esculenta</i> Burk. | Dioscoreaceae | Mulli kizhangu (or) Siruvalli kizhangu | Decoctions of tubers are given to treat retention of urine. |
| 13. | <i>Dioscorea alata</i> L. | Dioscoreaceae | Rasa valli kizhangu | Tuber is prepare to porial eaten to laxative and vermifuge. |
| 14. | <i>Drynaria quercifolia</i> (L.) J. Smith. | Polypodiaceae | Attukal kizhangu | Powder of tuber used for anthelmintic. |
| 15. | <i>Ensete superbum</i> Roxb. | Musaceae | Kalvalai or Kattuvalai | Decoction of tuber is used to urinary infections. |
| 16. | <i>Ornithogalum umbellatum</i> L. | Liliaceae | Nega suthi kizhangu | Juice of tubers is used to stomach pain. |
| 17. | <i>Percularia damia</i> (Frossk.) Chiov. | Apocynaceae | Veliparuthi | Powder of tuber is used to abortipation and gonorrhea. |
| 18. | <i>Sansevieria roxburghiana</i> Schult. f. | Asparagaceae | Marul | Juice boiled with coconut oil is applied to ear ache. |
| 19. | <i>Scilla indica</i> Bak. | Liliaceae | Kattuvella vengayam | Juice of tubers mixed with papper and given to cure fever. |
| 20. | <i>Tulipa albanica</i> Kit Tan & Shuka | Liliaceae | Tulipa flower | Paste of tuber is mixed with butter and applied externally to cure bone fracture. |

Table 2: List of family wild tuberous medicinal plants collected from Kolli hills

| S. No. | Family | Number of species |
|--------|----------------|-------------------|
| 1 | Acoraceae | 1 species |
| 2 | Amaryllidaceae | 1 species |
| 3 | Apocynaceae | 1 species |
| 4 | Araceae | 3 species |
| 5 | Arecaceae | 1 species |
| 6 | Asparagaceae | 1 species |
| 7 | Asteraceae | 1 species |
| 8 | Cucurbitaceae | 2 species |
| 9 | Dioscoreaceae | 3 species |
| 10 | Liliaceae | 3 species |
| 11 | Musaceae | 1 species |
| 12 | Polypodiaceae | 1 species |
| 13 | Zingiberaceae | 1 species |
| | Total | 20 species |

4. Conclusion

Kolli hills has glorious traditional background in the field of ethno medicinal practices, but in the process of modernization, this knowledge is vanishing very rapidly. This information survived by being passed from words of mouth but now a days young generation does not take interest in such practice some of the tuberous medicinal plants were commonly used by Malayali tribes. But during exploitation it our prime duty to protect and conserved these tubers medicinal plants in proper way. Therefore it is necessary to record such type of tubers valuable information before it get last forever. In future, phyto

chemical, pharmacognostical and pharmacoecological investigation of these tuberous medicinal plants will be very helpful for developing the new drugs.

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