

**INDIGENOUS KNOWLEDGE OF THE MEDICINAL PLANT RESOURCES
OF COROMANDEL COAST FORESTS OF PENINSULAR INDIA IN
MODERN PERIOD***

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The project was taken up to make an assessment of the plant resources which are depleting globally at an alarming rate including a number of economically and medicinally important plants. The project was concerned with medicinal plant resources and indigenous knowledge on them from the tropical dry evergreen forests on the southern Coromandel coasts of India in the modern period. The main aim of the study was to (i) document the history of medicinal plants, use pattern, species documentation, parts used and purpose of medicinal plant resource use and (ii) investigate the indigenous knowledge system pertaining to medicinal plant resources in the Coromandel coast forests of peninsular India in order to preserve biological and cultural diversity with sustainable development/sustainable resources use pattern pertaining to the modern period. The study was carried out in the broad framework listed below:

- I. Documentation of indigenous knowledge on medicinal plant resources in 100 tropical dry evergreen forest sites on the Coromandel coast.
- II. Interview of total of 47 traditional healers in 31 villages in 125 field trips.
- III. Listing of 200 medicinal plants of 86 sites, which are prescribed for 58 ailments.
- IV. Emphasis on conservation significance of studied sites, plant species and the traditional knowledge of 47 healers.

Traditional knowledge is vital for sustainability of natural resources including forests, water and agro-ecosystems across landscape continuum spanning from households through farms, village, commons and wilderness. Local knowledge systems have been found to contribute to sustainability in diverse fields such as

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biodiversity conservation and maintenance of ecosystems services, tropical ecological and bio-cultural restoration, sustainable water management, genetic resource conservation and management of other natural resources. Local knowledge has also been found useful for ecosystem restoration and often has ingredients of adaptive management.

Sacred groves are protected by the local people on the ground of indigenous cultural and religious beliefs and taboos. Sacred groves are the repositories of rare and endemic species and can be regarded as the remnant of primary forest left untouched by the local people and protected by them due to the consideration that the deities reside in these forests. Sacred places have long and diverse histories in human cultures and demonstrate ancient links between peoples and their environments. Sacred places are a universal human phenomenon not associated with any specific religion or worldview, but they have a strong religious context and are influenced by traditional local beliefs. In many regions of the world, sacred sites have been shown to have a major effect on conservation, ecology and environment due to the special precautions and restrictions associated with them.

The project was approached in three phases for medicinal plant survey and documenting the history and indigenous knowledge. Phase I—Marakkanam to Pondicherry and adjoining areas, Phase II—Cuddalore to Chidambaram and adjoining areas, Phase III—Vedharanyam and adjoining areas. Documentation on medicinal plant resource use and bioresource potential of eighty six Tropical Dry Evergreen Forest (TDEF) sites were under taken during this project period, the sites are concentrated around Pondicherry (11°56'N and 79°53'E), Villupuram (11°93'N and 79°48'E), Cuddalore (11°43'N and 79°49'E) and Pudukottai (10°23'N and 78°52'E) on the Coromandel coast of peninsular India. The area extent of TDEF sites studied ranged from 0.5 ha to ~10 ha. The climate is tropical dissymmetric type with most rainfall received during the northeast monsoon (October-December) and very little and inconsistent rainfall in the southwest monsoon (June to September). The main annual rainfall is 1282, 1079 and 1033 mm in the nearest towns namely, Pondicherry, Cuddalore and Pudukottai respectively. The dry season lasts for six months (January to June) and receives less than 60 mm rainfall on monthly average. Mean annual maximum and minimum temperatures are 32.58°C and 24.51°C in Pondicherry, 22.75°C and 33.64°C in Cuddalore and 33.4°C and 25.4°C in Pudukottai.

Medicinal Plant and Traditional Knowledge Documentation

Medicinal plants were documented with voucher plant specimen collections from the forests. Field notes, based on thorough interviews and field observations on medicinal plants, including parts used, purpose, nature and duration of medication and their history were documented. Documentation of indigenous knowledge system on medicinal plant resources was made in a total of 100 sites and a total of 47 traditional healers were interviewed from 31 villages.

A total of 125 field trips were undertaken for documenting indigenous knowledge about the medicinal plants, interviews from Natural healers “*Nāttu vaithyas*” who know about the plants around them, their local names, parts used, uses in various purpose, method of preparation, mode of administration and doses. Further information was documented about whether the medicine is to be taken as a single or in combination with other plant products and with additives etc. A total of 47 natural healers were interviewed from 31 villages. In order to record the site history more than 100 people in the age group 60 to 80 years were interviewed. From the result of interviews we assigned the history of sites and disturbances level. A number of parameters were undertaken to assign history and present status of sites. The local floras were referred to analyze the phytogeographical distribution of documented plant species from 86 TDEF sites.

Major results

In the 86 sites, a total of 200 medicinal plant species were listed that belonged to 171 genera and 76 families, which includes true tropical dry evergreen forests (TDEF) species as well as common plants. The most used plant part is leaves followed by fruits, root and bark. Of the 200 plant species such as *Pterospermum conescens*, *Sansevieria roxburghiana*, *Premna corymbosa*, *Aziuma tetraacantha*, *Tinospora cordifolia* etc., are the mostly used TDEF species. Plant species such as *Andrographis paniculata*, *Phyllanthus amarus*, *Solanum nigrum*, *Eclipta prostrata*, *Piper nigrum* and *Zingiber officinale* are commonly used medicinal plants. Species belonging to Acanthaceae (9 species), Apocynaceae and Papilionaceae (8 species each) and Rubiaceae (7) are commonly used. The enlisted 200 species are prescribed for more than 58 ailments. Among 58 ailments, the dominant common diseases include snake bite, scorpion sting, sexual diseases. Among the 86 sites, only 18 (21%) sites are relatively undisturbed, 48 sites are moderately disturbed, 20 sites were entirely degraded 6-8 years ago, due to high anthropogenic impact.

Conservation Significance and Conclusions

The conservation of TDEF sites is essential considering the restricted geographical distribution and representation of the unique and under-studied TDEF type, their extant level of biodiversity and bioresource potential including medicinal plants, socio-economic and ecological values of these systems. The following long-term conservation strategies are recommended to preserve these sites:

- (i) Promoting eco-awareness on biodiversity conservation and bioresource values and cultural traditions associated with the sacred groves to people living around the TDEF sites who are also dependent on the forests and their resources, particularly to conserve the sites that still remain relatively undisturbed,
- (ii) Moderately disturbed sites need to be restored with characteristic TDEF species, involving the local communities in restoration programs and also in nurturing the planted saplings,
- (iii) Much disturbed sites deserve immediate protection and conservation by providing legal status to the forests and developing forest management systems involving local community.

The TDEFs are one of the highly productive, unique and threatened tropical ecosystems of the world. Further, the conservation significance is emphasized based on outcome of this project research work, including documentation of a total of 149 native plant species in 86 TDEFs studied, their medicinal values and above all the wealth of traditional knowledge interviewed from a total of 47 traditional healers.

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