

Flora of sacred groves and its ethno- botanical importance in Cuddalore district of Tamil Nadu, India.

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ABSTRACT:

Tropical Dry Evergreen Forests (TDEF) are found along the Coromandel coast of peninsular India and their historical distribution ranges from Vishakapatnam in North to Ramanathapuram in South. These forests are now fragmented and reduced to a number of scattered 'sacred groves'. TDEFs have been reported to harbor plants of high medicinal values. These forests currently face threats in terms of human disturbance and are reported to be shrinking in its extant.

This study is carried out to review the current status of medicinal plants, understanding of threats and suggesting pragmatic conservation measures.

One hectare plots (100 m × 100 m) were established in two sites namely Kothattai and Sendrakillai to study the species richness and its ethno botanical importance. All trees (≥ 5 cm dbh), lianas (≥ 1 cm dbh), shrub and herb were sampled. A total of 40 species were found to have medicinal value of which 50% were trees, 37.5% were lianas, 10% were herbs and 2.5% were shrubs. The result reveals that, these fragmented forests harbor a wide species of medicinal plants which highlights the need for prioritizing the medicinal plants conservation.

Keywords:

Tropical Dry Evergreen Forest, Sacred groves, Medicinal plants.

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INTRODUCTION:

Tropical forests represent more than 40% of forests in the world covering large areas in Africa, Australia, Central and South America, India and South-East Asia (Murphy and Lugo 1986). In India Tropical dry evergreen forests are found along the Coastal plains of Tamilnadu and Andrapradesh and their distribution basically ranges from Ramanathapuram in the south to Vishakaptanam in the north (Meher-Homji, 1974).

The tropical dry evergreen forests are unique biotic communities and geographically restricted to Jamaica (Kelly et al., 1988), Thailand (Bunyavejchewin, 1999), Sri Lanka ((Meher-Homji, 1974)) and the Coromandel coast of India (Parthasarathy and Karthikeyan, 1997).The dry tropical dry evergreen forests along the Coromandel coast of peninsular India occur as small patches of relatively dense forests and conserved on religious values and beliefs as 'sacred groves'. In the tropics, sacred groves play a vital role in traditional biodiversity conservation (Wassie and Teketay, 2006). In the recent past, this ecosystem has been highly disturbed by various human activities, and is facing local population extinctions.

Human beings have found remedies within their habitat, and have adopted different strategies depending upon the climatic, phyto-geographic and faunal characteristics, as well as upon the peculiar culture and socio-structural typologies (Nichter M 1992). Most of such information is passed on to the following generations by traditional healers through oral communication and discipleship practice (Rastogi RP, Dhawan BN 1982). Moreover, the World Health Organization (WHO) has reported that about 80% of the world population relies on traditional medicine to cure ailments [Said O et al 2002]. At present in India, the majority of the remaining tropical dry evergreen forests occur in the form of small fragments of 'sacred groves' or 'temple forests', preserved due to local belief that resource extraction from these groves would bring upon them the wrath of the presiding deity (Parthasarathy and Karthikayen, 1997).But little attention has been given to their traditional expertise to incorporate their knowledge in modern medicine. This study is an attempt to identify and document the use of traditional medicine among the local fragmented sacred grove.

METHODS:

One hectare plots (100 m × 100 m) were

established in two sites namely Kothattai and Sendrakillai. Both the sites Kothattai and Sendrakillai are located in Chidambaram Taluk of the Cuddalore district. ((11°43' N and 79°49' E). In two 1-ha (100 m x 100 m) plots were subdivided into 10 m x 10 m subplots for studying vegetation structure . During the inventory all trees (≥ 5 cm dbh) and lianas (≥ 1 cm dbh) were recorded. The plant specimen were collected from the sites and identified by referring the local flora. For ethno botany study, regular field trips were made to the study area and the information was collected from the age group of 30 to 60, mainly from people who depended on the sacred grove through Observation, personal and targeted interviews and group discussion.

RESULTS AND DISCUSSION:

The present ethno medical field survey indicated that 40 medicinal plant species belonging to a total of 29 families are present in scared groves which are being used by the local people (**Table 1**). Based on the habit classification of the 40 species, maximum 50 % of species were trees, 37.5 % of species were lianas, 10 % of species were herb and 2.5 % were shrub. Among the family, Capparaceae was the dominant family (**Table 2**) and plants like *Memecylon umbellatum*, *Garcinia spicata*, *Olex scandens* and *Atalantia monophylla* are frequently used for medicinal purpose and dominant species in the sacred groves (**Figure 1 to Figure 4.**)



Figure 1. *Memecylon umbellatum* Burm.f

Figure 2. *Garcinia spicata* (Wight & Arn.)J.D. Hook



Figure 3. *Olex scandens* Roxb

Figure 4. *Atalantia monophylla* (L.) Correa



Table 1. List of Species having ethno botanical importance in Tropical dry evergreen forest sites.

Sl. No	Species Name	Family	Life form	Parts Used	Uses
1	<i>Acalypha indica</i> L.	Euphorbiaceae	Herb	Leaves	Skin Disease, Purgative
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	Herb	Leaves and Root	Poisonous bites and Gum bleeding.
3	<i>Albizia amara</i> (Roxb.) Boivin	Mimosaceae	Tree	Leaves	Leaf paste is used for cleaning the hair
4	<i>Allophylus serratus</i> (Roxb.) Kurz	Sapindaceae	Tree	Leaves	Leaf paste is applied for fracture.
5	<i>Asparagus racemosus</i> Willd	Liliaceae	Liana	Root	Root paste is a soothing tonic that acts mainly on the digestive.
6	<i>Atalantia monophylla</i> (L.) Correa	Rutaceae	Tree	Fruit	Mature fresh fruit juice is used to strengthen the body.
7	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Tree	Leaves and Fruit	Ripe fruit is used to control the body temperature and leaves are used to cure digestive problem.
8	<i>Cansjera rheedii</i> Gmel.	Opiliaceae	Liana	Leaves	Powder of leaves is internally used for poisonous bite.
9	<i>Canthium dicoccum</i> (Gaertn.) Teijsm and Bin.	Rubiaceae	Tree	Root	Used in treating skin infection
10	<i>Capparis brevispina</i> DC.	Capparaceae	Liana	Root	Paste used in tooth ache and infected gums
11	<i>Capparis rotundifolia</i> Rottl.	Capparaceae	Liana	Root	Root paste applied for head ach
12	<i>Capparis zeylanica</i> L.	Capparaceae	Liana	Fruit and Bark	Ripen fruits are used for diabetes problems.
13	<i>Carissa spinarum</i> L.	Apocynaceae	Liana	Fruit	Ripen fruits are used to cure mouth ulcers and digestive problem.
14	<i>Cissus quadrangularis</i> L.	Vitaceae	Liana	Whole plant	The plant juice is given as body enhancer.
15	<i>Cissus vitigenia</i> L.	Vitaceae	Liana	Root	Root paste was applied on Swellings.
16	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Liana	Root and Leaves	Root paste was applied on forehead to relief head ache.
17	<i>Combretum albidum</i> G. Don	Combretaceae	Liana	Bark	Bark is used for skin disease treatments.
18	<i>Cordia obliqua</i> Willd.	Boraginaceae	Tree	Bark and Fruit	Powdered fruits are used as a remedy for stomach problems.
19	<i>Cynodon dactylon</i> (L.)	Poaceae	Herb	Whole plant	The plant juice is used as blood purifier.
20	<i>Diospyros ebenum</i> Koen.	Ebenaceae	Tree	Leaves and root	The leaves and root paste are used for digestive problems
21	<i>Diospyros ferrea</i> (Willd.) Bakh.var. <i>buxifolia</i> (Rottb.) Bakh.	Ebenaceae	Tree	Leaves	The leaves juice is used to strengthens the liver.
22	<i>Eugenia bracteata</i> (Willd.) Roxb. ex DC.	Myrtaceae	Tree	Root	Root Paste is used for mumps treatment.
23	<i>Ficus benghalensis</i> L.	Moraceae	Tree	Latex and bark	Latex and bark are used for dysentery, diabetes.

24	<i>Ficus microcarpa</i> L.f	Moraceae	Tree	fruit	Fruits mix with pepper and applied on wounds and Itches.
25	<i>Garcinia spicata</i> (Wight & Arn.) J.D. Hook.	Clusiaceae	Tree	Root	Root Paste applied for pains and swellings.
26	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Rutaceae	Tree	Root	Root paste used for snake bite treatment.
27	<i>Gmelina asiatica</i> L.	Verbenaceae	Liana	Fruit and Root	Fruit-paste and root paste were applied on head for cooling.
28	<i>Grewia rhamnifolia</i> Heyne ex Roth	Tiliaceae	Liana	Fruit	Fruit juice taken orally in case of stomach ache and digestion problems.
29	<i>Jasminum angustifolium</i> (L.) Willd.	Oleaceae	Liana	Leaves	The leaves juice taken for Rabies.
30	<i>Lannea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	Tree	Leaf and Stem bark	Leaf juice taken orally for ulcers.
31	<i>Lantana camara</i> L.	Verbenaceae	Shrub	Leaves	Skin infection treatment.
32	<i>Lepisanthes tetraphylla</i> (Vahl) Radlk.	Sapindaceae	Tree	Fruit	Traditional people eat the fruit.
33	<i>Leucas aspera</i> (Wild.) Link	Lamiaceae	Herb	Root	Plant past is applied for headache.
34	<i>Mallotus rhamnifolius</i> Muell.-Arg.	Euphorbiaceae	Tree	Leaves	Leaves are used for muscle pain
35	<i>Memecylon umbellatum</i> Burm. f.	Melastomataceae	Tree	Leaves	The leaves are used to help immunity.
36	<i>Olax scandens</i> Roxb.	Olacaceae	Liana	Stem	The decoction of Stem is used for the treatment of kidney diseases.
37	<i>Pterospermum canescens</i> Roxb.	Sterculiaceae	Tree	Leaves	Leaf paste is applied on the affected portion in the treatment of fracture.
38	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Tree	Fruit	Fruits are traditionally used for the treatment of diabetes.
39	<i>Ventilago madaraspatana</i> Gaertner	Rhamnaceae	Liana	Leaves	Paste is applied for skin diseases and the Juice is a remedy for body pains
40	<i>Ziziphus oenoplia</i> (L.) Miller	Rhamnaceae	Tree	Fruit	Traditional people eat the fruit for getting relief from stomach pain.

The study of sacred groves in relation to its majestic mythological as well as cultural tradition; is vital as it provides the need of the locality and the local people. The increasing threats against the sacred groves like site encroachment, human habitation, building structures like temple, temple visitors, grazing, resource removal and biological invasion have to be addressed at this moment. Sacred grove still poses a great heritage of diverse gene pool of many forest species having socio-religious attachment and possessing medicinal values (Khumbongmayum, 2004).

CONCLUSION:

Sacred grove has a remarkable impact on the 'habitat-species –culture-human well being' relationship and various communities in India follow nature worship based on the premise that all creations of nature have to be protected. The legal status and management of sacred grove should be

given high priority in local self governance body as well as amongst policy makers since it's the artery of rural landscape.

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Table2. Family wise list of Species having ethno botanical importance in Tropical dry evergreen forest sites.

Sl. No	Family	No. of Species
1.	Amatanthaceae	1
2.	Anacardiaceae	1
3.	Apocynaceae	1
4.	Boraginaceae	1
5.	Capparaceae	3
6.	Clusiaceae	1
7.	Combretaceae	1
8.	Cucurbitaceae	1
9.	Ebenaceae	2
10	Euphorbiaceae	2
11	Lamiaceae	1
12	Liliaceae	1
13	Melastomataceae	1
14	Meliaceae	1
15	Mimosaceae	1
16	Moraceae	2
17	Myrtaceae	2
18	Olacaceae	1
19	Oleaceae	1
20	Opiliaceae	1
21	Poaceae	1
22	Rhamnaceae	2
23	Rubiaceae	1
24	Rutaceae	2
25	Sapindaceae	2
26	Sterculiaceae	1
27	Tiliaceae	1
28	Verbenaceae	2
29	Vitaceae	2

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