

FLORISTIC STUDIES ON SELECTED SACRED GROVES OF TIRUCHIRAPPALLI, TAMILNADU.

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Abstract : India is well known for worship of nature, and this plays an integral role in the lives of many communities. Religion and cultural practices are closely linked with forests and also which help to conserve the Biodiversity. Some patches of forest are left untouched because of social fencing by local people. These types of forest are regarded as “sacred groves”. The present studies on sacred groves deals with the status and floristic richness of these groves in Tiruchirappalli, Tamilnadu. These sacred groves comprising of 50 plant species belonging to 28 families with 48 genera. The methodology involved in tracing the conservation strategies of sacred groves was discussed. Medicinal value also recorded, these plants are cure many diseases like digestive problems, diahthroea, dysentery, stomach ache and constipation were treated using specific herbal prescriptions by the rural peoples. Antidotes for insect and animal bite like wasp sting, dog bite, scorpion-sting and snake bite were bite were prepared using herbal medicine by the rural people from the sacred grove.

Key Words: Sacred groves, Medicinal plants, Biodiversity, Conservation.

INTRODUCTION

India has an abundance of sacred groves, which are known by several names. The conservation practices used in the groves vary in different states according to their nature, distribution and local beliefs. In India, Sacred Groves exist in 19 out of 29 states, and it was estimated that there are between 1,00,000–1,50,000 throughout the country. Biodiversity keeps the ecological processes in a balanced state, which is necessary for human survival.

The sacred groves are ecologically very significant, they maintain very rich biodiversity and play vital role in the conservation of several unique flora and fauna. Several studies are already conducted by various researches about their ecological significance throughout india. viz., Karnataka (Vasanth *et al.*, 2001), Kerala (Chandrashekara and Sankar 1998), Pondicherry (Kadamba *etal.*, 2000, Ramanujam and Kadamba 2001, Ramanujam and Kumar 2003), West Bengal (Basu R. 2000) Meghalaya (Tiwari *et al.*, 1998b, 1999, Tripathi *et al.*, 2002, Jamir 2002, Jamir and Pandey 2002) and Manipur (Khumbongmayum 2004).

The role of sacred groves in the conservation of the regional medicinal plants has been emphasized in several studies from different parts of the country. About 105 medicinal plants species (inclusive of 12 threatened) are reported from Chilkigarh sacred grove in Midnapore district of West Bengal (Bhakat and Pandit 2003). A total of 120 medicinal plants were reported to be widely used for the treatment of various ailments from four sacred groves of Manipur (Khumbongmayum *et al.*, 2005a)

Indian subcontinent has a rich tradition of usage of medicinal herbs numbering almost over 2000 plant species which are distributed throughout the vast geographical areas. These medicinal plants are extensively used in various medical practices like Ayurveda, Unani and Siddha. Only few plants are analyzed chemically and pharmacologically for their potential medicinal value (Gupta *et al.*, 2005; Sandhu and Heinrich 2005). According to the World Health Organization, most populations still rely on traditional medicines for their psychological and physical health requirements (Rabe and Van Stoden 2000).

MATERIALS AND METHODS

STUDY AREA

The study area is Srirangam region belongs to the district Tiruchirappalli, Tamilnadu, India. The elevation is 70 meters (230 ft) located almost at the geographic centre of the Tamilnadu. It is located with the help of GPS (Global Position System), to coordinates the geographical position at 10°85'66"07 N, 78°69'72"15E.

DATA COLLECTION

Regular field visits were made during the period of January - March 2019 to explore the floristic composition of sacred groves in Srirangam region from carried out in ten selected sacred groves of Srirangam region with documentation on the history, size and location of the grove, and GPS readings were taken for each site. Ethno-botanical information was gathered from the local peoples through questionnaire and oral interviews, especially septuagenarian (aged) person. The total collected data were cross-checked with the support of traditional healers. Angiosperm plant specimens available in the study area were collected for authenticity. Photographs were also taken. The herbarium specimens were identified with help of British India by Hooker and the flora of Tamil Nadu Carnatic by Mathew 1991-1995 has been referred for the correct botanical name with rules of international code botanical nomenclature.

The visited sacred groves are namely Thaladiyar Temple, Ayinthuthalai nagammal Temple, Ettukarupu Temple, Sangiliandavar Temple, Maduraveeran Temple, Nagakanniyamman Temple, Kaliyamman Temple, Alatarupannasami temple, Mariyamman temple, Sangilikaruppasami temple. (Table1)

Table : 1

S.no	Name of village	Sacred Trees	goddess Name	GPS Coordinates	Altitude
1	Kannavanur	<i>Pithecellobium dule</i>	Thaladiyar	Latitude-10°86'80''17 Longitude-78°64'33'43	73.068m/239.726ft
2	Mutharasanallur.	<i>Ficus religiosa</i>	AyduThalai Nagammal	Latitude-10°86'39''799 Longitude-78°64'81''781	76.672m/261.391ft
3	Nagamangalam	<i>Ficus benghalensis</i>	Ettukarupu	Latitude-10°28'88''17 Longitude-78°39'84''42	81.215m/266.455ft
4	Posampatti	<i>Pithecellobium dule</i>	Sangali Andavar	Latitude-10°80'34''56 Longitude-78°56'28''05	85.403m/328.084ft
5	Melur	<i>Ficus benghalensis</i>	Maduraiveeran	Latitude-10°79'48''3 Longitude-78°70'46''73	72.523m/254.340ft
6	Melur	<i>Azadiracta indica</i>	Nagammal	Latitude-10°79'21''83 Longitude-78°70'22''57	71.710m/235.268ft
7	Nachikurichi	<i>Ficus religiosa</i>	Kali	Latitude-10°80'70''44 Longitude-78°.64'83''84	78.000m/255.906ft
8	Puliyur	<i>Azadiracta indica</i>	Mariyammn	Latitude-10°78'64''62 Longitude-78°57'82''85	100.000m/328.391ft
9	Karaikal medu	<i>Azadiracta indica</i>	Naga Kanniammamn	Latitude-10°78'64''62 Longitude-78°.57'82''85	98.221m/280.084ft
10	Kulumani	<i>Ficus benghalensis</i>	Alatkarupa Sami	Latitude-10°84'52''43 Longitude-78°59'30''53	79.604m/261.169ft

Table: 2

S.No	Specimen No.	Botanical name	Family	Habit	Vernacular Name	Part Used	Medicinal use
1	1801	<i>Melia azedarach</i> L.	Meliaceae	Tree	Malavembu	Entire plant	Skin disease, ulcers, head ache, diabetics, antibiotic, and rheumatism.
2	1802	<i>Sida cordifolia</i> L.	Malvaceae	Shrub	Manchalkatambu	Leaves and root	Nervous disease, leucorrhoea, colia pains.
3	1803	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Herb	Nerinchi mullu	Entire plant	Reduce blood pressure, chlostral, diabetes.
4	1804	<i>Morinda pubescens</i> J.E.Smith	Rubiaceae	Tree	Manchanathi	Leaf and Roots	Harmorrhages, Dysentery, Carminative.
5	1805	<i>Acalypha indica</i> L.	Euphorbiaceae	Herb	Kuppamani	Entire plant	Anthelmentic, mental for emetic, earache and skin disease.
6	1806	<i>Parthenium hysrophorus</i> L.	Amaranthaceae	Herb	Kothi mullu	Roots	Antitumor, antiamoebic, skin disorder
7	1807	<i>Clitoria ternatea</i> L.	Fabaceae	Climber	Sangupoove	Root and flower	Antidepressant, antistress, curecough, arrest uterine hemorrhage.
8	1808	<i>Catharanthus roseaces</i> L.	Apocynaceae	Shrub	Nithyakalyani	Root, leaves	Leukemia, breastcancer, sediative and stomach ache
9	1809	<i>Nerium odoratum</i> Lam.	Apocynaceae	Shrub	Arali	Entire plans	Treatment of cancer.
10	1810	<i>Bauhinia purpurea</i> L.	Caesalpiniaceae	Tree	Mantharai	Entire plant	Anti-inflammatory, Diarrhea, skin disease.
11	1811	<i>Terminalia catappa</i> L.	Comprediaceaea	Tree	Batham	Entire plant	Leprosy, dysentery, skin disease.
12	1812	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb	Mukkarattai	Root, leaves	Jaundice, child birth liver complaints.
13	1813	<i>Ocimum santum</i> L.	Lamiaceae	Herb	Thulasi	Entire plants	Cure insects bites, digestive complains, skin disease, colds, malaria, fever.
14	1814	<i>Solanum nigram</i> L.	Solanaceae	Herb	Manathakali	Entire plant	Diuretic, mouth sores, ulcer, digestive problems, fever, cough, cold.

15	1815	<i>Zizyphus mauritiana</i> Lamk.	Rhamnaceae	Tree	Ilantham	Entire plants	Heal ulcer, laxatives, throat trouble.
16	1816	<i>Mimosa pudica</i> L.	Mimosaceae	Shrub	Thottalcurunki	fruit	Blood pressure, fever, food poisoning, joint problem, ulcer.
17	1817	<i>Tabebuia rosea</i> DC.	Bignoniaceae	Herb	Padari	Leaves and seed	Earache, eye trouble, skin disease
18	1818	<i>Achyranthus aspera</i> L.	Amaranthaceae	Herb	Nayuruvi	leaves	Bitten site of dog, cure skin diseases.
19	1819	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herb	Mullukeerai	Entire plant	Cooling laxative, diuretic, stomach ache, anemia
20	1820	<i>Basella alba</i> L.	Basellaceae	Climber	Basali	Stem and leaves	Vomiting, blood pressure,
21	1821	<i>Bauhinia accuminata</i> L.	Caesalpiniaceae	Tree	Vellamantharam	Leave, flower root	Stones bladder, venereal disease, leprosy.
22	1822	<i>Azadirachta indica</i> (L.) Juss.	Meliaceae	Tree	Vembu	Roots	Impotency, Spermatorrhoea, hypertension, rheumatism.
23	1823	<i>Ocimum basilicym</i> L.	Lamiaceae	Herb	Thirunitrupachala i	leaves	Cure ring worm relieves
24	1824	<i>Leucas aspera</i> Spreng.	Lamiaceae	Herb	Thumbai	leaves	Scorpion-sting
25	1825	<i>Croton sparciflorus</i> Morang.	Euphorbiaceae	Shrub	Ban thulasi	Leaf, Stem	Purgative, constipation.
26	1826	<i>Datura metal</i> L.	Solanaceae	Herb	Umathai	seeds	Persistent diarrhea and dysentery
27	1827	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Shrub	Kattuamanaku	Entire plant	Laxative, increases appetite
28	1828	<i>Gynandropsis gynandra</i> L.	Capparidaceae	Herb	Nelvela	Leaf, Roots, Seeds	Wound healing, Skin disease, worm infection, headache,
29	1829	<i>Vernania cinerea</i> L.	Asteraceae	Herb	Poovakurunthal	Entire plants	Nausea, vomiting, insomnia, headache.
30	1830	<i>Andrographis paniculeta</i> (Burm.f) Wall.	Acanthaceae	Herb	Siriya nangai	Leaf, stem, roots	Malaria, cold, respiratory infection, diarrhea, dysentery, ear infection
31	1831	<i>Tephrosia pumila</i> Lam.	Papilionoideae	Herb	Kollukai kerai	Roots	Indyapepsia, diarrhea, rheumatism,

							asthma, dental pains.
32	1832	<i>Trichodesma indicum</i> L.	Boraginaceae	Herb	Kallutai thumbai	Entire plants	Joint swelling, diuretic activity, nephrotic syndrome, skin disease.
33	1833	<i>Verbesinaen celiodes</i> Cav.	Asteraceae	Herb	Nei citti	Entire plants	Hemorrhoid, spider bites, cancer, gastro intestinal disorder, skin disease
34	1834	<i>Anisomeles malabarica</i> L.	Lamiaceae	Shrub	Peyimaruthi	Leaves	Cancer, liver disorders, fever, swelling, diarrhea
35	1835	<i>Ipomoea palmate</i> Forssk.	convululaceae	Climber		Flower, leaves	Cancer, purgative
36	1836	<i>Jasmine sambac</i> L.	Oleaceae	Shrub	Mallikai	Leaves and flower	Jaundice, ulcer, removing intestinal worms, skin disease.
37	1837	<i>Aerva lanata</i> L.	Amaranthaceae	Herb	Bula poo	Entire plants	Dissolving kidney stones, treating gonorrhea, diarrhea
38	1838	<i>Trianthema portulacastrum</i> L.	Aizoaceae	Herb	Saranai	Entire plants	Diuretic, analgesic, antioxidant.
39	1839	<i>Alternanthera sessilis</i> L.	Amaranthaceae	Herb	Ponnaganni	Leaves	Asthma, chronic disease, headache, vomiting.
40	1840	<i>Blumea mollis</i> D.Don.(Merr).	Asteraceae	Herb		Leaves and flower	Hepatotoxicity, asthma, dropsy
41	1841	<i>Tridax procumbens</i> L.	Asteraceae	Herb	Thathapoo	Leaves and stem	anti-inflammatory, antiviral, , insecticidal, antibiotic
42	1842	<i>Stemodia viscosa</i> Roxb.	Scrophalaciaceae	Herb		leaves	Skin disease, antioxidant
43	1843	<i>Malvastrum coromandalia</i> L.	Malvaceae	Herb	Ponmuchuttai	leavess	anti inflammatory, skin disease, Laxative
44	1844	<i>Muntingia calabura</i> L.	Elaeocarpaceae	Tree	Then pazham	Leaves	antiseptic or antipruritic and cure abdominal cramps
45	1845	<i>Hyptis suaveolens</i> L.	Lamiaceae	Herb		Entire plants	stomach disorder, gastric ulcer, mouth ulcer
46	1846	<i>Crotalaria verrucosa</i> L.	Fabaceae	Herb	Gilugiluppai	Entire plants	Wound healing, diuretic activity
47	1847	<i>Ageratum congzoides</i> L.	Asteraceae	Herb	Pumpillu	Leaves and	Insect bite, skin disease, allergy

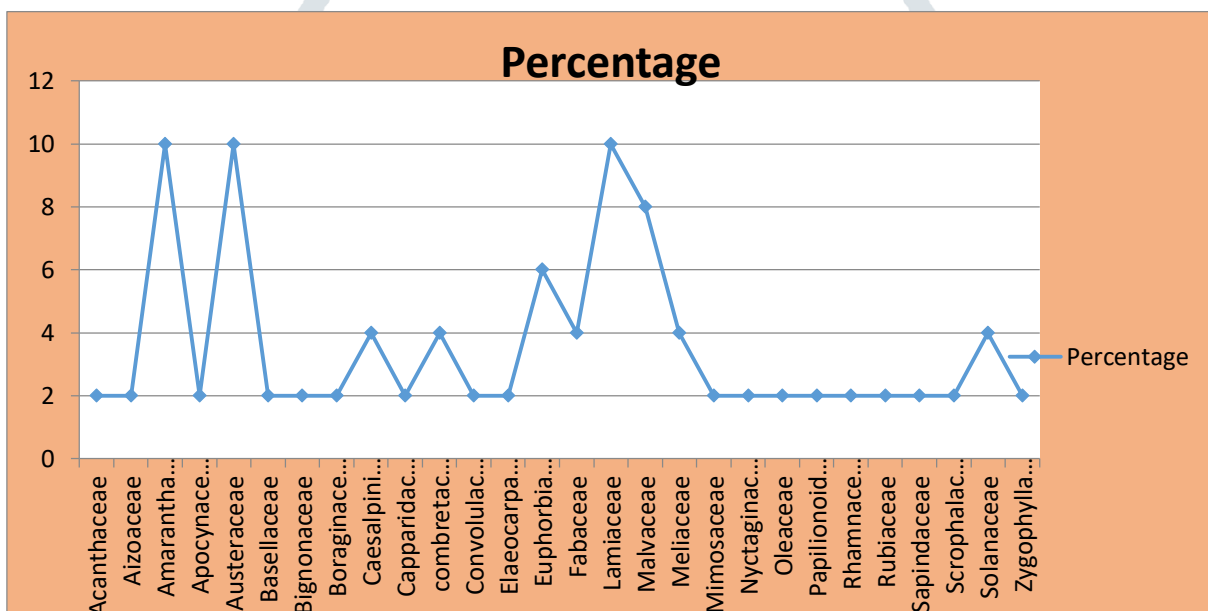
						stems	
48	1848	<i>Cardiospermum halicacabum L.</i>	Sapindaceae	Herb	Mudakattan	Entire plants	diaphoretic, diuretic, emetic, laxative, refrigerant, stomachic and rheumatism, nervous diseases
49	1849	<i>Corchorus tridens L.</i>	Malvaceae	Herb	Yennai cheti	Leaves, roots	Nausea, skin disease
50	1850	<i>Hibiscus rosa- sinensis L.</i>	Malvaceae	Herb	Sepparuthi	Entire plants	cough treatments, laxative, diarrhea, diabetic, colds



RESULT AND DISCUSSION

The tree worship, as a part of nature worship is a trait of all traditional societies. Sacred trees have been chosen on the basis of certain ecological, economical and mythological considerations. This has enabled a variety of local trees to be conserved within the temples. In the present study was undertaken by Srirangam region ten sacred groves comprises of 50 plant species and 28 families were identified, (Table 2) in highest representative of 10% in 3 families from Lamiaceae, Amaranthaceae, Asteraceae, 8% from the Malvaceae, 6% from Euphorbiaceae, 4% in 5 families from Combreadaceae, Solanaceae, Meliaceae, Fabaceae, Caesalpiniaceae, and 2% in 13 families from Boraginaceae, Capparidiaceae, Convolvaceae, Elacocarbiaceae, Mimosaceae, Nyctaginaceae, Oleaceae, Paplionoideae, Rhamanaceae, Rubiaceae, Scarphalaciaceae, Sapindaceae, Zygothyllaceae to each one (Figure-1).

Figure: 1



Medicine preparations made from different parts of medicinal plants included whole fresh plant. Flower, leaves, bark, fruit, root and tubers were used for treatment of various diseases by the village people. However, fresh plant parts were preferred over dried ones for the preparation of most of the drugs. Gastro intestinal problems like digestive problems, diarrhoea, dysentery, stomach ache and constipation were treated using specific herbal prescriptions by the rural peoples. Antidotes for insect and animal bite like wasp sting, dog bite, scorpion-sting and snake bite were prepared using herbal medicine by the rural people from the sacred grove. Respiratory problem like cough, cold, bronchitis and asthma also used medicinal plant. Swellings, Leucorrhoea, skin problems, joint pains, urinary diseases, diuretic, bleeding piles, fever, diabetes, treatment of boils, paralysis, nervous system, sores, throat problem, parasitic worm, ear ache, teeth ache and menstrual problems also treated by herbal medicines by the rural peoples in the grove.

Herbaria act as a repository of pattern of vegetation to any given area over time. They are also used as resources of plant DNA for taxonomical and molecular systematic. So I did prepare herbarium, of collected 50 highly medicinal valued plant species from selected sacred groves in srirangam , and also the taxonomic identification and authentication of this plants was carried out by Dr. S. John Britto, Director, &Head, The Rapinat Herbarium, St. Joseph s College (Autonomous), Tiruchirappalli. The specimens vouchers also verified, finally authenticated herbarium sheets are digitalized with the help of Canon EOS 1203 Camera and kept in Bishop Heber College (Autonomous), Tiruchirapalli.

CONCLUSION

Many plants have great significance and considered sacred because of their association with deities. In India conservation of plants by indigenous people is very common. Sacred groves are example of such conservation. The degradation of sacred groves in the form of loss of species and loss of rich cultural heritage of area should be prevented by proper conservation and protection of such areas. People involved in the conservation of sacred groves should be encouraged and incentives should be provided to them.

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REFERENCE

- [1] Amirthalingam, M. (1998). "Sacred Trees of Tamilnadu". C.P.R. Environmental Education Centre, Chennai, Eco News, **4**(4): 12-16.
- [2] Basu R. (2000). Studies on sacred groves and taboos in Purulia district of West Bengal, Indian Forester, 126 (12), 1309- 1318
- [3] Bhakat RK and Pandit PK. (2003). Role of a sacred grove in conservation of medicinal plants, Indian Forester.; **129**: 224-232.
- [4] Chandrashekara, U.M. and Sankar, S. (1998). Structure and functions of sacred groves: Case studies in Kerala. In: Ramakrishna, P.S., Sabena, K.G. and Chandrashekara, U.M. (Editors), Conserving the Sacred for Biodiversity Management. UNESCO and OxfordIBH Publishing, New Delhi. 323-335,
- [5] Gupta, M. P., Solis, P.N., Calderon, A. J., Guinean – Sinclair, F., Correa, M. Glades, C., Guerra, C., Espinosa, A., Lavender, G.L., Robles G and Olampo, R. (2005). Medical ethno botany of the tribes of Bocas del Toro, Panama. Journal of Ethno pharmacology **96**:389-401.
- [6] Jamir, S.A. (2002). Studies on Plant Biodiversity, Community Structure and Population Behavior of Dominant Tree Species of Some Sacred Groves of Jantia Hills, Meghalaya. Ph.D. Thesis, North-Eastern Hill University, Shillong, India. Pp. 120.
- [7] Jamir, S.A. and Pandey, H.N. (2002). Status of biodiversity in the sacred groves of Jaintia Hills, Meghalaya. Indian Forester **128**(7): 738-744.
- [8] Kadamba, D., Ramanujam, M.P., Praveen Kumar, C.K. and Krishnan, V. (2000). Changing strategy for biodiversity conservation: rediscovering the roots in cultural traditions. National Symposium on Environmental Crisis and Security in the New Millennium (December 14-16): 10-11. Pondicherry University, India
- [9] Khumbongmayum, A.D., Khan, M.L. and Tripathi, R.S. 2004. Sacred groves of Manipur: ideal centres for biodiversity conservation. Current Science 87(4): 430- 433.
- [10] Khumbongmayum, A.D., Khan, M.L. and Tripathi, R.S. 2005a. Sacred groves of Manipur, northeast India: Biodiversity value, status and strategies for their conservation. Biodiversity and Conservation 14(7): 1541-1582.
- [11] Rabe, T. and Vanstoden, J. 2000. Isolation of an antimicrobial sesquiterpenoid from Warbugialesalutaris. Journal of Pharmacology. **93**:171-174.
- [12] Ramanujam, M.P. and Kadamba, D. 2001. Plant biodiversity of two tropical dry evergreen forests in the Pondicherry region of south India and the role of belief systems in their conservation. Biodiversity and Conservation **10**(17): 1203-1217.
- [13] Ramanujam, M.P. and Kumar, C.P.K. 2003. Woody species diversity of four sacred groves in the Pondicherry region of South India. Biodiversity and Conservation **12**: 289-299.

- [14] Sandhu, D. S. & Heinrich, M. 2005. The use of health foods, spices and other botanicals in the Sikh community in London, *Phyto therapy Research* **19**:633-642.
- [15] Tiwari, B.K., Barik, S.K. and Tripathi, R.S. 1998b. Biodiversity value, status and strategies for conservation of sacred groves of Meghalaya, India. *Ecosystem Health* **4**(1): 20-32.
- [16] Tiwari, B.K., Barik, S.K. and Tripathi, R.S. 1999. Sacred Forests of Meghalaya: Biological and Cultural Diversity: Regional Centre, National Afforestation and Eco Development Board, North-Eastern Hill University, Shillong. 120 pages
- [17] Tripathi, O.P. 2002. Study of Distribution Pattern and Ecological Analysis of Major Forest Types of Meghalaya. **34**: 277-291.
- [18] Vasanth, V.K.R., Shivprasad, P.V. and Chandrashekar, K.R. 2001. Dipterocarps in a sacred grove at Nadikoor, Udupi Districts of Karnataka, India. In: Ganeshiah, K.N., Uma Shaanker, R. and Bawa, K.S. (Editors) *Tropical Ecosystems: Structure, Diversity and Human Welfare*. Oxford and IBH Publishing, New Delhi. 599-603,

