

Phytodiversity of sacred groves of Thiruvarur district, Tamil Nadu, India

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ABSTRACT

In the present investigation, three sacred groves were selected surrounding by Thiruthuraipoondi Taluk, Thiruvarur district were explored for floristic studies and reported for the first time in India. Intensive field surveys were made during the year 2017-2018 to the floristic composition and the conservation status of the Karaiyankadu - Arulmigu kuravinayagamoorthi temple, Thillaivilagam - Sri Periya Ayyanar Temple, and Vilankadu - Sri Nalla Manikkar Swamigal Temple. Sacred groves of Thiruthuraipoondi Taluk, Thiruvarur District. Herbarium specimens prepared for all the plant specimens by using proper methodology. Totally 214 plant species in 170 genera representing 58 families have been reported with respective. Family wise distribution Fabaceae was the most specious family with 10 genera and 13 species and Poaceae was the co-dominant family represented by 11 genus and 11 species. In the 214 plants species 84 species were herbs and grasses, 49 species were trees, 46 Shrubs, 26 Climbers, Sedges 5 Creepers 3 and Clum 1. In Current scenario environmental awareness programme should be implemented among the local community to educate them about the ecological significances of sacred groves for the conservation and management plan to attain the sustainable biological wealth.

Keywords: Phytodiversity, sacred groves, conservation of plants

INTRODUCTION

Sacred groves are forest fragments of varying sizes which are communally protected and which usually have a significant religious connotation for the protecting community. They were distinct segments of various landscapes containing trees and other forms of life and geographical features (Gadgil and Vartak, 1975). The conserving natural biodiversity through preservation plots in forest areas or sacred groves are a unique feature in Indian culture (Khullar, 1992). Sacred groves are the oldest existing form which is known as Modern biodiversity hot spots and ancient Botanical Garden (Vijai Malik, 2015). Nature worship has been a key force, it shaping the human attitudes towards conservation and sustainable utilization of natural resources. Such traditional practices have been invariably

operating in different parts of India (Athwal *et al.*, 2006). Sacred groves are the tracts of virgin forest. These virgin forests are believed to be pre - Vedic in origin and area of sacred groves ranges from a few square meters to several hectares. It serves as a home for several mammals and birds and indirectly has Symbiotic relationship with other animal species conservation (Islam *et al.*, 1998). The role of sacred groves in the conservation of biodiversity has long been recognized (Kosambi, 1962; Gadgil and Vartak, 1976; Haridasan and Rao, 1985; Khan *et al.*, 1997; 2008). Several reports have been discussed on the floristic wealth of sacred groves from several states including Tamil Nadu, India. The floristic wealth of (i) Arulmigu kuravinayagamoorthis Temple -Karaiyankadu (ii) Sri Periya Ayyanar Temple-Thillaivilagam and (iii) Sri Nalla Manikkar Swamigal Temple - Vilankadu Sacred groves at Thiruthuraiipoondi Taluk, Thiruvarur district of Tamil Nadu state was reported here first time in order to prepare the conservation and management plan for the biodiversity protection.

MATERIALS AND METHODS

Study area

Three sacred groves are study areas ie (i) Arulmigu Kuravinayagamoorthis Temple Karaiyankadu, it occupied about half acre and this is one of the Village of Vilankadu Panjayath. (ii) Sri Periya Ayyanar Temple at Thillaivilagam, (10.4458°N and 79.562°E) is located in 6.2km East from Muthupetai to Vedharanyam road surrounded by evergreen tropical dry forest about 4 acre and (iii) Sri Nalla Manikkar Swamigal Temple Vilankadu, (10.4607°N and 79.6165° E) is 18 km East from Muthupetai to Vedharanyam state highways. It occupied about one acre. All the above three sacred groves (SG) have been located at Thiruthuraiipoondi taluk in Thiruvarur district of the Indian state of Tamil Nadu. The head quarter of taluk is the town of Thiruthuraiipoondi (TTP). It located 10.5321 N and 79.6395 E. TTP has average elevation of 4M (13ft). It located 28km south from Thiruvarur and 28km East from Mannargudi and 330 km south from Chennai (Fig. 1). In this district annual range of temperature is 22-37°C and annual average rainfall is 1124 mm. Most of the rains occur during north east monsoon (665mm Sep-Dec). Soil is deep black soils are commonly found.

Amaranthaceae (9% with 9 species), Asclepiadaceae, Asteraceae, and convolvulaceae (8% with 8 species) respectively. Among top 3 generic wise distributions the genera such as *Cassia* and *Cyperus*, were the dominant genera represented (16% with 5 species each) followed by *Ipomia*, *Ocimum*, *Solanum* (12% with 4 species each) and *Alternanthera*, *Euphorbia* and *Ficus* by 10% with 3 Species each represented respectively. These following 12 species were presented in all the three sacred groves so its frequency of presence is 100% *Acalypha indica*, *Aerva lanata*, *Azadiracta indica*, *Commiphora caudate*, *Croton sparsiflorus*, *Mollugo oppositifolia*, *Morinda tinctoria*, *Phyllanthus niruri*, *Prosopis juliflora*, *Sida acuta*, *Tephrosia purpurea* and *Tridax procumbens*. Total number of species were present in each sacred groves are following SG1 - 49 species, SG2-144 species and SG3 - 132 species.

Floristic study of vegetation is important to determine the distribution of food plants for wildlife (Ejtehadi *et al.*, 2005) and prerequisite for much fundamental research in tropical community (Jayakumar *et al.*, 2011). The present findings are comparable with other studies reported in sacred groves of adjoining districts such as Pudukkottai and Thanjavur in Tamil Nadu and other regions of India. In Tamil Nadu, several studies with respect to floristic inventory of sacred groves were reported includes 260 species in 176 genera and 62 families from Malliganatham (John Britto *et al.*, 2001a), 224 species in 175 genera and 63 families from Vamban (John Britto *et al.*, 2001b), 77 species in 61 genera and 30 families (Mani and Parthasarathy, 2006) from 4 sacred groves of Coromandel coast, 265 species from 50 sacred groves collectively (Karthikeyan and Tangavelou, 2011), 35 species in 32 genera and 22 families (Sridhar Reddy and Parthasarathy, 2006). Thus the present study indicated as the basic evidence to support the view that the sacred groves are the repository and home to several threatened flora (Gadgil and vartak, 1976; Unnikrishnan, 1995, and Chandrasekara and Sankar, 1998).

TABLE -1

ENUMERATED SACRED GROVES IN THIRUTHURAIPOONDI TALUK, THIRUVARUR DISTRICT

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
1	Thuthi	<i>Abutilon indicum</i> G.Don.	Malvaceae	Shrub	-	-	+	Cough and fever
2	Karuvel	<i>Acacia arabica</i> Willd.	Mimosaceae	Tree	-	+	-	Cancers and tumors
3	Kari indu	<i>Acacia caesia</i> (L.) Willd	Mimosaceae	Shrub	-	+	-	Asthma and bronchitis
4	Kuppaimeni	<i>Acalypha indica</i> L.	Euphorbiaceae	Herb	+	+	+	Skin disease and earache
5	Naayuruvi	<i>Achyranthes aspera</i> L.	Amaranthaceae	Shrub	-	+	+	Hemorrhoids, cough, asthma, jaundice and snake bite
6	Adathodai	<i>Adhatoda vasica</i> (L.) Nees	Acanthaceae	Shrub	-	+	-	Asthma, Cough, Fever, and Malaria
7	Vilvam	<i>Aegle marmelos</i> (L.) Corr. Serr	Rutaceae	Tree	-	+	+	Dysentery, ulcer, diabetes, and heart disease
8	Sirukanpeelai	<i>Aerva lanata</i> (L) Juss.	Amaranthaceae	Herb	+	+	+	Jaundice, cholera, skin conditions, and urinary
9	Pampillu	<i>Ageratum conyzoides</i> L.	Asteraceae	Herb	-	+	+	Dysentery and diarrhea.
10	Azhinjil	<i>Alangium lamarckii</i> Thwaites.	Alangiaceae	Tree	-	+	-	Piles, paralysis, vomiting, and skin diseases
11	Vaagai	<i>Albizia lebeck</i> (L.) Benth.	Mimosaceae	Tree	-	+	+	Eye, lung problems, and abdominal tumors.
12	Katralai	<i>Aloe vera</i> L.	Liliaceae	Herb	-	+	+	Ulcers, Diabetes, and Cancer,
13	Joyweed	<i>Alternanthera bettzickiana</i> G. Nicholson	Amaranthaceae	Herb	-	+	+	Purifying and nourishing blood
14	Creeping Chaffweed	<i>Alternanthera pungens</i> Kunth	Amaranthaceae	Herb	-	+	+	Pain-killers, dysentery, and venereal disease

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
15	Naattu ponnaganni	<i>Alternanthera sessilis</i> L.	Amaranthaceae	Herb	-	+	+	Tight chest, bronchitis, and asthma
16	Kasukodi	<i>Alysicarpus monilifer</i> (L.) DC.	Fabaceae	Herb	-	-	+	Fever, jaundice, skin diseases and kidney stones.
17	Alyce clover	<i>Alysicarpus ovalifolius</i> Leonard	Fabaceae	Herb	-	-	+	Fever, dysentery and colic
18	Mullikeerai	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herb	-	-	+	Fever and jaundice
19	Kuppaikerai	<i>Amaranthus viridis</i> L.	Amaranthaceae	Herb	-	+	-	dyspepsia, dysentery, and malaria
20	Gopuramthangi	<i>Andrographis echiodides</i> Nees.	Acanthaceae	Herb	-	+	+	Astringent, carminative and febrifuge
21	Nilavembu	<i>Andrographis paniculata</i> Nees.	Acanthaceae	Herb	-	+	+	Rheumatism and anticancer
22	Payimiratti	<i>Anisomeles malabarica</i> R.Br.	Lamiaceae	Herb	-	-	+	Skin diseases, and fever
23	Custard apple	<i>Annona squamosa</i> L.	Annonaceae	Tree	+	-	-	Piles, bleeding, chronic and ulcer
24	Bramma thandu	<i>Argemone mexicana</i> L.	Papaveraceae	Herb	-	+	-	Glandular diseases, ulcers, and bleeding disorders
25	Eswaramooli	<i>Aristolochia indica</i> L.	Aristolochiaceae	Herb	-	+	-	Malaria, skin diseases, TB, and ulcer,
26	Calico flower	<i>Aristolochia littoralis</i> Parodi	Aristolochiaceae	climber	-	+	-	Dysuria, diseases and aphrodisiac
27	Jack	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Tree	+	-	-	Asthma, jaundice, anaemia and blood pressure
28	Neermulli	<i>Asteracantha longifolia</i> L.	Acanthaceae	Herb	-	+	+	Toothache, coughs, urinary problems, and snake bite
29	Vembu	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Tree	+	+	+	Biliousness, dysentery gonorrhoea, and ulcers
30	Bamboo	<i>Bambusa arundinacea</i>	Poaceae	Clum	-	+	-	Diarrhea, reduce stomach acidity, and

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
		(Retz.) Willd.						blood pressure
31	Iluppai	<i>Bassia longifolia</i> J.Koenig.	Sapotaceae	Tree	+	+	-	Colic, conjunctivitis, stomach ache and snake bite
32	Mantharai	<i>Bauhinia purpurea</i> L.	Caesalpinaceae	Tree	-	+	-	Skin, fevers, nausea, vomiting, and diarrhea
33	Camel-foot-tree	<i>Bauhinia variegata</i> L.	Caesalpinaceae	Tree	-	+	-	Concerns, tomach ulcers, toothache, and parasitic infections
34	Nethirapoondu	<i>Blepharis maderaspatensis</i> (L.) Heyne ex Roth	Acantheceae	shrub	-	+	+	Diabetes, fevers, and decreased sperm count,
35	Mookirattai	<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	Herb	-	+	+	Haemorrhoids and vomiting
36	Silk cotton tree	<i>Bombax ceiba</i> L.	Malvaceae	Tree	+	-	-	Diaphoretic, diuretic, and sudorific
37	Palm Tree	<i>Borassus flabellifer</i> L.	Arecaceae	Tree	+	+	+	Tumours, blood pressure, dyspepsia, and stimulate
38	Paper flower	<i>Bougainvillea glabra</i> L.	Nyctaginaceae	Shrub	-	-	+	Skin diseases, diabetic ulcer, stomach pain, and skin conditions,
39	Viluthi	<i>Cadaba indica</i> Lam.	Capparidaceae	Shrub	-	+	-	Skin conditions, including ringworm and scabies
40	Neela erukku	<i>Calotropis gigantea</i> R.Br.	Asclepiadaceae	Shrub	+	+	+	Eye infections, liver disease, and urinary
41	Vellerukku	<i>Calotropis procera</i> W.T.Aiton	Asclepiadaceae	Shrub	+	+	-	ulcers and wounds
42	Mullukaarai	<i>Canthium parviflorum</i> Lam	Rubiaceae	Shrub	-	+	-	Cholagogue, and diuretic
43	Aatondai	<i>Capparis zeylanica</i> Linn.	Capparidaceae	Shrub	-	+	-	Stomach-ache and pneumonia
44	Mudakkathan	<i>Cardiospermum</i>	Sapindaceae	Climber	-	+	+	Curing diarrhoea and curing hot rheum

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		<i>halicacabum L.</i>						
45	Papaya	<i>Carica papaya L.</i>	Caricaceae	Tree	+	-	-	Rheumatism and cholagogue
46	Kalaakkai	<i>Carrisa carandas L.</i>	Apocynaceae	Shrub	-	+	-	Fever, pain and wound healing
47	Vandukolli	<i>Cassia alata L.</i>	Caesalpiaceae	Shrub	-	-	+	Blood pressure and scabies impetigo
48	Aavaram poo	<i>Cassia auriculata L.</i>	Caesalpiaceae	Shrub	-	+	-	Wound-healing and rheumatism, cancer
49	Sarakondrai	<i>Cassia fistula L.</i>	Caesalpiaceae	Tree	-	+	-	Rheumatism and joint pains
50	Nila aavaarai	<i>Cassia obtusa Roxb.</i>	Caesalpiaceae	Herb	-	+	-	Swelling and snakebite
51	Ponnaavaarai	<i>Cassia occidentalis L.</i>	Caesalpiaceae	Shrub	-	+	+	Drunk for abdominal pains
52	Nithyakalyani	<i>Catharanthus roseus (L.) G.Dun</i>	Apocynaceae	Herb	-	-	+	Diabetes, pneumonia, and malaria
53	kattuppirantai	<i>Cayratia trifolia (L.) Domin.</i>	Vitaceae	Shrub	-	+	-	Urinary disorders
54	Vallarai	<i>Centella asiatica (L.) Urb.</i>	Apiaceae	Herb	-	-	+	Stomach disorders
55	Columnar cactus	<i>Cereus pterogonus Lam</i>	Cactaceae	Shrub	-	+	-	Fever, colds, ulcers, and diarrhoea
56	Purple top chloris	<i>Chloris barbata Sw.</i>	Poaceae	Herb	+	+	+	Skin disorders
57	Pirandai	<i>Cissus quadrangularis L.</i>	Vitaceae	Climber	+	+	+	Skin tumours
58	Aatruthummatti	<i>Citrullus colocynthis (L.) Schrader.</i>	Cucurbitaceae	Climber	-	+	+	Cancer, dysentery, and asthma,
59	Pamplemousse	<i>Citrus grandis (L.) Osbeck.</i>	Rutaceae	Tree	+	-	-	Cancer, asthma, eyelid styes, asthma, and kidney stones
60	Nalvelai	<i>Cleome gynandra L.</i>	Capparidaceae	Herb	+	+	+	Asthma
61	Naaikaduhu	<i>Cleome viscosa L.</i>	Capparidaceae	Herb	-	+	+	Diarrhea and bilious attacks
62	Peechangu	<i>Clerodendrum inerme Gaertn.</i>	Verbanaceae	Shrub	+	+	-	Abdominal pain and decrease labour pain during pregnancy.

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
63	Thaluthaalai	<i>Clerodendrum phlomidis</i> var. <i>rubrum</i>	Verbanaceae	Shrub	-	+	-	skin diseases, and infectious diseases
64	Sangupoo	<i>Clitoria ternatea</i> Linn.	Fabaceae	Climber	-	+	+	Diabetes and blood sugar
65	Covai	<i>Coccinia indica</i> W&A.	Cucurbitaceae	Climber	-	+	+	Skin yaws, ulcers, and impetigo.
66	Moonseed	<i>Cocculus trilobus</i> (Thunb.) DC.	Menispermaceae	Climber	+	+	-	Skin diseases, and urinary diseases
67	Coconut tree	<i>Cocos nucifera</i> L.	Arecaceae	Tree	-	-	+	Carbuncles, mumps, and fever
68	Seruppadai	<i>Coldenia procumbens</i> L.	Boraginaceae	Herb	-	-	+	High blood pressure, and liver diseases
69	Garden commelina	<i>Commelina benghalensis</i> L.	Commelinaceae	Herb	-	-	+	Uterus infections and skin diseases
70	Kiluvai	<i>Commiphora caudata</i> (Wight & Arn.) Engl.	Burseraceae	Tree	+	+	+	Skin disorders and tumours
71	Field bind weed	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Climber	-	+	-	Asthma, ulcers, and skin diseases
72	Perum pinnaku keerai	<i>Corchorus aestuans</i> L.	Malvaceae	Herb	-	+	+	Jaundice, urinary and urinary problems
73	kudaippanai	<i>Corypha umbraculifera</i> L.	Arecaceae	Tree	-	-	+	Antidote, snake bites, and ulcer
74	Mavilangam	<i>Crateva religiosa</i> G.Forst.	Capparidaceae	Tree	-	+	+	Antiamoebic, and astringent
75	Fire cracker flower	<i>Crossandra infundibuliformis</i> (L.) Nees	Acanthaceae	Shrub	-	-	+	Jaundice, and fevers
76	Rattle Box	<i>Crotalaria sagittalis</i> L.	Fabaceae	Herb	+	+	-	wounds, and ulcers,
77	Rail poondu	<i>Croton sparsiflorus</i> Morong.	Euphorbiaceae	Herb	+	+	+	Chest disease, fever, and asthma
78	Creeping Cradle	<i>Cyanotis axillaris</i> (L.)	Commelinaceae	Herb	-	+	+	Dysentery, anaemia, asthma, and piles.

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
	Plant	D.Don ex Sweet						
79	Nabhali	<i>Cyanotis cristata</i> (L.) D.Don	Commelinaceae	Herb	-	-	+	Burns, skin and tuberculosis
80	Arugampul	<i>Cynodon dactylon</i> Pers.	Poaceae	Grass	-	-	+	Dysentery, and snake bites
81	Keya bon	<i>Cyperus brevifolius</i> (Rottb.) Hassk.	Cyperaceae	Sedge	-	-	+	Snakebites
82	Koraipul	<i>Cyperus haspan</i> L.	Cyperaceae	Sedge	-	-	+	Piles, diarrhea and gonorrhoea
83	Iria flat sedge	<i>Cyperus iria</i> L.	Cyperaceae	Sedge	-	+	-	Diarrhoea and fever
84	Purple nut sedge	<i>Cyperus rotundus</i> L.	Cyperaceae	Sedge	-	+	+	Fever, and jaundice
85	Slender spiked sedge	<i>Cyperus tenuispica</i> Steudel.	Cyperaceae	Sedge	-	-	+	Malaria, joint pains, and wounds
86	Crow foot grass	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Poaceae	Grass	-	+	+	Stomach worms, fever and dysentery
87	Velipparuthi	<i>Daemia extensa</i> R.Br.	Asclepiadaceae	Climber	-	+	-	Cancer, gastric ulcer and heart diseases
88	Indian rose wood	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	Tree	-	+	-	Asthma and high blood pressure.
89	Oomathai	<i>Datura metel</i> L.	Solanaceae	Shrub	-	+	+	Asthma, cancer, and malaria,
90	Vaadamudakki	<i>Delonix elata</i> (L.) Gamble, Fl.	Caesalpiniaceae	Tree	+	+	+	Kidney Stones and Fever
91	Flame tree	<i>Delonix regia</i> (Hook.) Raf. Fl.	Caesalpiniaceae	Tree	-	+	-	Snake bites and skin infection
92	False Amaranth	<i>Digera arvensis</i> Forsk.	Amaranthaceae	Herb	-	+	+	Colds, fevers, and parasitic
93	Ebony tree	<i>Diospyros ebenum</i> J.Koenig ex Retz	Ebenaceae	Tree	+	-	-	Asthma, malaria, dysentery and skin diseases
94	Virali	<i>Dodonaea viscosa</i> (L.) Jacq.	Sapindaceae	Shrub	-	+	-	Heart diseases, ulcer, and skin infection

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
95	Jungle rice	<i>Echinochloa colona</i> (L.) Link	Poaceae	Grass	-	+	+	Jaundice, asthma, fever, and snake bite.
96	Karisilaanganni	<i>Eclipta prostrata</i> (L.) L. Mant.Pl.	Asteraceae	Herb	-	+	+	Urinary infection and snake bite
97	Vellarugu	<i>Enicostemma littorale</i> Bl.	Gentianaceae	Herb	-	+	-	Jaundice, and urinary diseases
98	Money plant	<i>Epipremnum aureum</i> G.S.Bunting	Araceae	Climber	-	-	+	Fever, vomiting, and diarrhoea
99	Karayanpullu	<i>Eragrostis unioides</i> Nees ex Steud.	Poaceae	Herb	-	-	+	Ulcers, fevers, and wounds
100	Mul murungai	<i>Erythrina indica</i> Lam.	Fabaceae	Tree	-	-	+	Asthma, bronchitis, and fever
101	Nathyavattai	<i>Ervatamia coronaria</i> Stapf.	Apocynaceae	Tree	-	-	+	Malaria, and venereal diseases
102	Paalperukki	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Herb	-	-	+	Respiratory diseases and fever
103	Amman pacharisi	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herb	-	+	+	Liver, diuretic, and diaphoretic
104	Nani-Dudheli	<i>Euphorbia microphylla</i> Lam.	Euphorbiaceae	herb	-	-	+	Skin ulcers, sores, and swelling,
105	Vishnukiranthi	<i>Evolvulus alisinoides</i> L.	Convolvulaceae	Herb	-	+	+	Fever and Skin ulcers
106	Round leaf bind weed	<i>Evolvulus nummularius</i> L.	Convolvulaceae	Herb	-	+	-	Skin diseases and tumorous growth
107	Yellow barked fig	<i>Ficus amplissima</i> Sm.	Moraceae	Tree	-	+	-	Antidote and snakebite
108	Banyan tree	<i>Ficus benghalensis</i> L.	Moraceae	Tree	-	+	+	Piles, skin diseases, and ulcers
109	Peepul Tree	<i>Ficus religiosa</i> L.	Moraceae	Tree	-	-	+	Cold, obstinate and fevers,
110	Manalikkeerai	<i>Gisekia pharnaceoides</i> L.	Aizoaceae	Herb	-	+	-	Dysentery, and skin diseases
111	Siruseruppada	<i>Glinus lotoides</i> Roefl.	Aizoaceae	Herb	-	+	+	Cold, dysentery, and Asthma

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
112	Sengathal malar	<i>Gloriosa superba</i> L.	Liliaceae	Climber	-	+	-	Cardiotonic, tonic and rheumatism
113	Prostrate Gomphrena	<i>Gomphrena decumbens</i> Jacq.	Amaranthaceae	Herb	-	+	+	Blood purifier
114	Sirukurunja	<i>Gymnema sylvestre</i> R.Br.	Asclepiadaceae	Climber	-	+	-	Skin disorders, and dysentery,
115	Siruthelkodukku	<i>Heliotropium indicum</i> L.	Boraginaceae	Herb	-	+	+	Diuretic, febrifuge, and tonic
116	Nannaari	<i>Hemidesmus indicus</i> R.Sr.	Asclepiadaceae	Climber	-	+	+	Urinary disease
117	Semparuthi	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Shrub	-	+	+	Patients with diabetes mellitus
118	Sempulichai	<i>Hibiscus sabdariffa</i> L.	Malvaceae	Shrub	+	-	-	Dysentery, fever, and malaria
119	Pignut	<i>Hyptis suaveolens</i> L.	Lamiaceae	Shrub	-	-	+	Piles, leucoderma and dysentery
120	Sivanarvembu	<i>Indigofera aspalathoides</i> Vahl ex DC.	Fabaceae	Shrub	-	+	-	Ulcers, liver, heart, and blood.
121	Common indigo	<i>Indigofera tinctoria</i> L.	Fabaceae	Shrub	+	+	-	Dysmenorrhoea
122	Orithal thamarai	<i>Ionidium suffruticosum</i> (L.) Ging.ex DC	Violaceae	Herb	-	+	+	Skin diseases
123	Water Morning Glory	<i>Ipomoea aquatica</i> Frossk.	Convolvulaceae	Creeper	-	-	+	Cancers, fever, and syphilis,
124	Neivelikattamani	<i>Ipomoea carnea</i> D.F.Austin	Convolvulaceae	Shrub	-	-	+	Lung diseases and rheumatism
125	Bindweed	<i>Ipomoea pes-tigridis</i> (L.) Spreng	Convolvulaceae	Climber	-	+	-	Analgesic, and wound healing
126	Elikathilai	<i>Ipomoea reniformis</i> Chois.	Convolvulaceae	Herb	-	+	+	Blood disease, and anemia
127	White idlipoo	<i>Ixora finlaysoniana</i> Wall. ex G.Don	Rutaceae	Shrub	-	+	-	Urinary discharge
128	Mullai	<i>Jasminum multiflorum</i> (Burm. f.) Andrews	Oliaceae	Climber	-	+	+	Thermogenic, and ophthalmic,

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
129	Malligai	<i>Jasminum sambac</i> (L.) Aiton,Hort.Kew.	Oliaceae	Climber	-	-	+	Wound healing
130	Physic nut	<i>Jatropha curcas</i> L.	Euphorbiaceae	Shrub	+	+	+	Asthma and dermatitis.
131	Black physicnut	<i>Jatropha gossypifolia</i> Standl.	Euphorbiaceae	Shrub	-	+	+	Skin-diseases
132	Thavasi murungai	<i>Justicia tranquebariensis</i> L.	Acanthaceae	Herb	-	+	-	Cooling and astringent properties
133	Broad bean	<i>Lablab purpureus</i> (L.)Sweet	Fabaceae	Climber	-	-	+	Snakebites and chest pain
134	Lantana	<i>Lantana camara</i> L.	Verbenaceae	Shrub	-	+	+	Angina, colds, and difficulties
135	Thumbai	<i>Leucas aspera</i> L.	Lamiaceae	Herb	+	-	+	Malaria, and diseased kidneys
136	Poduthalai	<i>Lippia nodiflora</i> L.	Verbanaceae	Herb	-	-	+	Preventing liver and stress ulcers
137	Maruthani	<i>Lowsonia inermis</i> Linn.	Lythraceae	Tree	-	-	+	Healing wounds and stomachache
138	Mango	<i>Mangifera indica</i> L.	Anacardiaceae	Tree	-	-	+	Diarrhea, dysentery, anaemia, and asthma
139	Tiger's claw	<i>Martynia annua</i> L.	Martyniaceae	Shrub	-	-	+	Burns, itching, skin affections and tuberculosis
140	Pinnakkukeerai	<i>Melochia corchorifolia</i> L.	Malvaceae	Herb	+	-	+	Dysentery, abdominal swellings and snake bites
141	Muthiyarkoonthal	<i>Merrimia tridentata</i> Hallier.	Convolvulaceae	Creeper	-	+	-	Swellings, rheumatic affections and urinary infections
142	Usilai	<i>Mimosa amara</i> Roxb.	Mimosaceae	Tree	-	+	-	Skin diseases and poisonous bites
143	Sapota	<i>Manilkara zapota</i> (L.) P.Royen	Sapotaceae	Tree	-	-	+	Cure diarrhoea and fever
144	Parpadagam	<i>Mollugo cerviana</i> Ser.	Aizoaceae	Herb	-	+	+	Fever, stomach ache, jaundice, gout and rheumatism

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
145	Therupoondu	<i>Mollugo oppositifolia</i> L.	Aizoaceae	Herb	+	+	+	Malaria, joint pains
146	Bitter gourd	<i>Momordica charantia</i> L.	Cucurbitaceae	Climber	-	-	+	Fight cancer, diabetes and many infectious diseases
147	Nunaa	<i>Morinda tinctoria</i> Roxb.	Rubiaceae	Tree	+	+	+	Astringent, deobstruent, and to relieve pain
148	Murungai	<i>Moringa oleifera</i> Lam.	Moringaceae	Tree	+	-	-	Antitumor, and antipyretic
149	Musumusukkai	<i>Mukia maderaspatana</i> (L)M.Roemer	Cucurbitaceae	Climber	+	+	+	Malaria, ringworm epilepsy,, indigestion,
150	Arali	<i>Nerium oleander</i> L.	Apocynaceae	Shrub	-	+	+	Asthma, cancer, and venereal disease
151	Karunthulasi	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Shrub	-	-	+	Kidney Stones, Headaches, and Relives Fever
152	Thiruneetru pachilai	<i>Ocimum basilicum</i> L.	Lamiaceae	Shrub	+	-	+	Snake bites and skin infections
153	Naaithulasi	<i>Ocimum canum</i> Sims	Lamiaceae	Herb	-	+	+	Colds, fevers, parasitic Infestations
154	Thulasi	<i>Ocimum sanctum</i> L.	Lamiaceae	Shrub	-	+	+	Asthma, malaria, diarrhea, dysentery, skin diseases
155	Udiramaram	<i>Odina wodier</i> Roxb.	Anacardiaceae	Tree	-	+	+	Heart diseases, elephantiasis, ulcer, skin infection
156	Slender Oldenlandia	<i>Oldenlandia herbacea</i> (L.) Roxb.	Rubiaceae	Herb	-	+	-	Fever, verminosis, inflammations, asthma, bronchitis and ulcers
157	Inbura	<i>Oldenlandia corymbosa</i> L.	Rubiaceae	Herb	+	+	+	Urinary infection, and snake bite
158	Sappthi kalli	<i>Opuntia dillenii</i> Haw.	Cactaceae	Shrub	-	+	-	Diabetes
159	Panic grass	<i>Panicum sellowii</i> Nees	Poaceae	Herb	+	+	-	Heartburn and tympanitis
160	Carrot grass	<i>Parthenium hysterophorus</i> L.	Asteraceae	Herb	-	-	+	Fever, diarrhoea, urinary tract infections, dysentery,
161	Dallis grass	<i>Paspalum dilatatum</i> Poir.	Poaceae	Grass	+	-	-	Fever and malaria

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
162	Stinking passion flower	<i>Passiflora foetida</i> L.	Passifloraceae	Creeper	-	+	-	Worms, and for coughs and colds
163	Paavattai	<i>Pavetta indica</i> L.	Rubiaceae	Tree	-	+	-	Jaundice, headache, urinary diseases and dropsy
164	Peramutti	<i>Pavonia odorata</i> Wall.	Malvaceae	Herb	+	+	-	Fever, giddiness, vomiting, diarrhoea
165	Yanai nerunji	<i>Pedaliium murex</i> L.	Pedaliaceae	Herb	-	+	-	Diuretic and tonic, and dysuria
166	Uppilankodi	<i>Pentatropis microphylla</i> W&A.	Asclepiadaceae	Climber	-	+	-	Urinary diseases
167	Uthamani	<i>Pergularia daemia</i> (Forsskal) Chiov.	Asclepiadaceae	Climber	-	+	+	Legs, malaria, appendicitis, amenorrhoea, venereal diseases
168	Date tree	<i>Phoenix dactylifera</i> L.	Arecaceae	Tree	-	+	+	Respiratory diseases and fevers
169	Madras leaf-flower	<i>Phyllanthus madraspatensis</i> L.	Euphorbiaceae	Herb	-	-	+	Skin ulcers, sores, swelling, and itchiness
170	Keelanelli	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Herb	+	+	+	Skin ulcers, sores, swelling, and itchiness.
171	Sodaku thakkali	<i>Physalis minima</i> L.	Solanaceae	Herb	-	+	+	Fever
172	Kodiveli	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Shrub	-	+	-	Skin diseases and tumorous
173	Sadachi	<i>Polycarpaea corymbosa</i> Lam.	Caryophyllaceae	Herb	-	+	-	Cancer, boils, eye problems and bleeding
174	Pungan	<i>Pongamia glabra</i> Vent.	Fabaceae	Tree	-	+	+	Skin disease
175	Munnai	<i>Premna integrifolia</i> L.	Verbanaceae	Tree	-	+	-	Cold, obstinate fevers, flatulence, urticaria, rheumatism
176	Eluthanipoondu	<i>Prenanthes sarmentosus</i> Wt.	Asteraceae	Herb	-	+	-	Joint pain, head lice, eye conditions and venereal disease
177	Vanni	<i>Prosopis cineraria</i> L.	Mimosaceae	Tree	-	-	+	Dysentery, Bronchitis, Asthma, Leucoderma, piles and Tremors

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
178	Seemaikaruvel	<i>Prosopis juliflora</i> (Sc.) Dc	Mimosaceae	Tree	+	+	+	skin lesions
179	Marakkarai	<i>Randia dumetorum</i> Lam.	Rubiaceae	Tree	-	+	-	Vomiting and pain
180	Kiranthinayagam	<i>Ruellia patula</i> Jacc.	Acanthaceae	Herb	+	+	+	Eye sore, wounds, scalds, and kidney stones
181	Pottakanchi	<i>Ruellia prostrata</i> Poir.	Acanthaceae	Herb	-	+	+	Stomach cancer
182	Wild sugarcane	<i>Saccharum spontaneum</i> L.	Poaceae	Shrub	-	+	-	Dyspepsia, piles, sexual weakness
183	Marul	<i>Sansevieria roxburghiana</i> Schult.f	Asparagaceae	Shrub	-	+	+	Cancer
184	Poovanthikottai	<i>Sapindus emarginatus</i>	Sapindaceae	Tree	+	-	+	Blood purifier, antipruritic, paralysis of limbs
185	Sarkaraivembu	<i>Scoparia dulcis</i> L.	Plantaginaceae	Herb	-	-	+	Fever, skin disorders, dysentery, anemia, and diabetes,
186	Green fox tail	<i>Setaria viridis</i> (L.) P.Beauv.	Poaceae	Grass	-	-	+	Bruises
187	Horn bean leaved sida	<i>Sida acuta</i> Burm.F.	Malvaceae	Herb	+	+	+	Urinary diseases and liver and nervous diseases
188	palampaasi	<i>Sida cordifolia</i> L.	Malvaceae	Herb	-	+	+	Sinus problems, allergy, throat diseases, and asthma
189	Kandagathri	<i>Solanum surattense</i> Burm.f.	Solanaceae	Shrub	+	+	+	Skin diseases, hypertension, fever, cough, asthma, bronchitis, hiccough
190	Thuthuvelai	<i>Solanum trilobatum</i> L.	Solanaceae	Climber	+	+	+	Respiratory diseases like bronchial asthma
191	Tropical soda apple	<i>Solanum viarum</i> Dunal	Solanaceae	Shrub	+	-	-	cardiotonic
192	Karimulli	<i>Solanum xanthocarpum</i>	Solanaceae	Shrub	-	-	+	Fever, cough, asthma, bronchitis,

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
		S&W.						
193	Kottai karanthai	<i>Sphaeranthus indicus</i> L.	Asteraceae	Herb	-	-	+	Mental illness, jaundice, diabetes, fever, and skin diseases
194	Black plum	<i>Syzygium jambolanum</i> (Lam.) DC.	Myrtaceae	Tree	-	+	-	Patients with diabetes mellitus
195	Tamarind tree	<i>Tamarindus indica</i> L.	Caesalpinaceae	Tree	-	+	+	Abdominal pain, diarrhea, dysentery, fever, and malaria
196	Teak wood	<i>Tectona grandis</i> L.f.	Verbanaceae	Tree	-	-	+	Piles, leucoderma and dysentery
197	Kolinji	<i>Tephrosia purpurea</i> L.	Fabaceae	Herb	+	+	+	Ulcers, asthma, and tumors, spleen, heart and blood.
198	Red grass	<i>Themeda triandra</i> Forssk.	Poaceae	Grass	-	-	+	Dysmenorrhoea
199	Poovarasu	<i>Thespesia populnea</i> Car.	Malvaceae	Tree	-	+	+	Skin diseases, dysentery and haemorrhoids
200	Seenthil kodi	<i>Tinospora cordifolia</i> Miers.	Menispermaceae	Climber	-	+	-	Diabetes, high cholesterol, upset stomach, lymphoma and cancers
201	Milaharanai	<i>Toddalia asatica</i> Lam.	Rutaceae	Shrub	-	+	-	Lung diseases and rheumatism
202	Kaanchori	<i>Tragia involucrata</i> L.	Euphorbiaceae	Climber	-	+	+	Wounds, eczema, scabies and skin infections
203	Saruvelai	<i>Trianthema portulacastrum</i> L.	Aizoaceae	Herb	+	-	-	Blood disease, anemia, and night blindness
204	Nerunchil	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Herb	-	-	+	Kidney problems and asthma
205	Kavil Thumbai	<i>Tricodesma indicum</i> R.Br.	Boraginaceae	Herb	-	+	-	Dyspepsia, dysentery, and skin diseases
206	Kinarupaasaan	<i>Tridax procumbens</i> L.	Asteraceae	Herb	+	+	+	Dysentery, and diarrhoea
207	Nancharuppan	<i>Tylopora asthmatica</i>	Asclepiadaceae	Climber	-	+	+	Asthma, bronchitis, allergies,

S. No	Common name	Botanical Name	Family	Habit	SG 1	SG 2	SG 3	Medicinal Uses
		W&A						rheumatism and dermatitis
208	Seethevi senkaluneer	<i>Vernonia cinerea</i> Less.	Asteraceae	Herb	+	-	-	Dysuria, leucoderma, psoriasis and other chronic skin-diseases
209	Black Gram	<i>Vigna mungo</i> (L.) Hepper	Fabaceae	Herb	+	-	-	Skin smooth and soft
210	Thattapayaru	<i>Vigna unguiculata</i> L.	Fabaceae	Climber	-	-	+	Skin infections and snakebites
211	Nochi	<i>Vitex negundo</i> L.	Verbanaceae	Tree	+	+	+	Muscular pain and Skin disease
212	Burweed	<i>Xanthium strumarium</i> L.	Asteraceae	Herb	-	+	-	Diaphoretic, diuretic, emollient, laxative and sedative
213	Ilanthai	<i>Ziziphus jujuba</i> Miller	Rhamnaceae	Tree	+	-	-	Liver and bladder diseases and stress ulcers
214	Sooraimullu	<i>Ziziphus oenoplia</i> L.	Rhamnaceae	Shrub	+	+	-	Dressing for wounds and dysentery

Conclusion

Tamil Nadu, has many number of sacred groves in various districts. They are an excellent place for sustain different plant species with unique traditional way and various mythus and religious beliefs associated with it. Some of the plant species of these groves are endemic, threatened and endangered also majority of the plants are economically and medicinally important were identified during this study. It can be concluded that the diversity to distinguish between the immediate effects of species richness on ecosystem and relationship of plant diversity.

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REFERENCES

- Anthwal, A., Sharma, R.C. and Sharma A. 2006. Sacred groves Traditional way of conserving plant diversity in Garhwal Himalaya, Uttaranchal. *American journal of science* **2**: 35-38.
- Anuradha, G. and Muruganandam. A., 2016. Plant Diversity of poyyur Ayyanar sacred Grove at Ariyalur District *Int. J. Modn. Res. Revs.* **4** (8):1213-1220.
- Chandrashekara, U.M. and Sankar, S. 1998. Ecology and management of sacred groves in Kerala, India. *Forest Ecol. Manage.*; **112**: 165-177.
- Ejtehadi, H., Amini, T. and Zare, H. 2005. Importance of vegetation studies in conservation of wild life: A case study in miankaleh wildlife refuge, Mazandaran Province, Iran. *Environ. Sci.vol.* **9**: 53-58.
- Gadgi, M. and Vartak V.D. 1976. The sacred groves of western Ghats in India. *Econ. Bot.* **30** (2): 152–160.
- Gadgil, M. and Vartak, V.D. 1975. Sacred groves of India: a plea for continued conservation *J. Bombay Natl. Hist. Soc.* **72**: 314-320.
- Gamble, J.S. and Fischer, C.E.C. 1936. Flora of the Presidency of Madras.. 1-3 Adlard and Sons Ltd., London.
- Haridasan, K. and Rao, R.R. 1985. *Forest Flora of Meghalaya*, Bishen Singh and Mahendrapal Singh, Dehra Dun. **1**.

- Henry, A.N., Kumari, G.R. and Chithra, V. 1987. Flora of Tamil Nadu. Series. 1. Vol. 2. Botanical Survey of India, Coimbatore.
- Islam, A.K.M.N., Islam, M.A. and Hoque, A.E. 1998. Species composition of sacred groves, *their diversity and conservation in Bangladesh*. 163 -165.
- Jain, S.K. and Rao R.R. 1976. A Hand Book of field and Herbarium Methods. Today and Tomorrows Publishers.
- Jayakumar, S., Kim, S. and Heo, J. 2011. Floristic inventory and diversity assessment – A critical review. *Proc. Inter. Acad. Ecol. Environ. Sci.* **1**: 151-168.
- John Britto, S., Balaguru, B., Soosairaj, S. and Arockiasamy, D.I. 2001a. Diversity of plants in a sacred grove of Pudukottai District in Tamil Nadu. *J. Econ. Tax. Bot.* **25**: 58-62.
- John Britto, S., Balaguru, B., Soosairaj, S. and Arockiasamy, D.I. 2001b. Floristic analysis of a sacred grove at vamban in Pudukottai District of Tamil Nadu. South India. *J. Econ. Tax. Bot.* **25**: 81-90.
- Karthikeyan, S. and Tangavelou, A.C. 2011. Journey through Sacred groves. Bio-Science Research Foundation, Pondicherry.
- Khan, M.L., Khumbongmayum, A.D. and Tripathi, R.S. 2008. Sacred groves and their significance in conserving biodiversity: An overview. *Inter. J. Ecol. Environ. Sci.* **34**:277-291.
- Khan, M.L., Menon, S. and Bawa, K.S. 1997. Effectiveness of the protected area network in bio-diversity conservation: a case study of Meghalaya state. *Biodiver. Conserv.* **6**: 853–868.
- Khullar, P. 1992. Conservation of biodiversity in natural forest through preservation plots- A historical perspective. *Indian Forester.* 118(5): 37-337.
- Kosambi, D.D. 1962. *Myth and Reality* (Studies in the formation of Indian culture) Popular Press, Bombay, India.
- Mani, S. and Parthasarathy, N. 2006. Tree diversity and stand structure in inland and coastal tropical dry evergreen forests of Peninsular India. *Curr. Sci.*; **90**: 1238-1246.
- Matthew, K.M. 1982. Flora of the Tamil Nadu Carnatic. Vol 1-3, Rapinat Herbarium, Tiruchirappalli.
- Nair, N.C. and Henry, A.N. 1983. Flora of Tamil Nadu. Ser. 1. Vol. 1. Botanical Survey of India, Coimbatore.

- Ramakrishnan, P.S., Saxena, K.G. and Chandrashekara, U.M. Conserving the Sacred for Biodiversity Management. UNESCO and Oxford-IBH Publishing, New Delhi.
- Sridhar Reddy, M. and Parthasarathy, N. 2006. Liana diversity and distribution on host trees in four inland tropical dry evergreen forests of Peninsular India. *Trop. Ecol.* **47**: 109 - 123.
- Tangavelou A.C. 2013. Vascular plant diversity in Neiveli Vadavadhi karuppar sacred grove at Thanjavur district, Tamil Nadu. *Asian j.Plant Sci.Res.*, **3**(6): 9-13.
- Unnikrishnan, V. 1995. Sacred groves of North Kerala: an Ecofolklore study (in Malayalam). Jeevarekha, Thrissur. **4**(3): 1355 – 2320.
- Vijai Malik, 2015. Addition of the sacred grove of India. *J. Global BioSci.* **4**(7):2699-2702.
- Vijaimalik, J. 2015 Additin to the sacred grove of India. *Journal of Global Biosciences.* 2320-1355: **4**(7): 2699-2702.