Emic and Ethnomedicinal studies on important medicinal plants in two sacred groves at Pudukottai District Tamil Nadu

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ABSTRACT

Sacred groves are the 'Paradise' for medicinal plants because this is the city of god; its important belief by humans since time immemorial. Every sacred grove carries its own legends, lore, and myths which form the integral part of the sacred grove. An inextricable link between present society and past in terms of biodiversity, culture, religious and ethnic heritage exists in sacred groves. Aim of the present study is to collect and document the detailed information of medicinal plants which is used by traditional healers since the time of their ancestor's origin. Totally 20 plants were collected and the usage were documented from the traditional healers for their ailments. In which Pergularia daemia, Gymnema sylvestre, Cyanodan dactylon, Azadirachta indica, and Rauvolfia serpentine has occupied highest amount (100%) of fidelity level (FL) by the healers. This study concluded that still the sacred groves has much more amount of medicinal resources used by our communities since long time and those medicinal plants has still consistent amount of phyto constituents against pathogens or disease spreading particles and organisms. The more care should needed by scientific communities to avoid pollution and eruption of sacred groves on in situ conservation basis.

Key words: Sacred groves, Medicinal plants, Emic, Ethnomedicine, Tamil Nadu

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INTRODUCTION

Medicinal plants are the building blocks of human beings; obviously it has role from the origin of humans in the earth. The documentation and conservation of medicinal plants are very important than any other sources. Nearly, 7000 to 10,000 plant species have been recognized for their medicinal value and are used in therapy by classical system of Ayurvedic and Siddha practitioners as well as folklore medicine. The use of herbs in treating various diseases has been prevalent in Indian society from a long time. Especially, the Atharvana Veda the authentic Indian literature known to the world since time immemorial mentioned about several medicinal plants and their utility for mankind [1 and 2]. Herbal medicines are considered as one of main safest source to cure diseases without any harmful side effects [3,4 and 5]. Medicinal plants are available in all over the world but the plants present in and around the temples called sacred groves has some special belief because of god has been there.

Around 14,000 sacred groves have been reported from all over India, which act as reservoirs of rare fauna, and more often rare flora, amid rural and even urban settings (Figure 1). Sacred groves are the repositories of rare and endemic species and can be regarded as the remnant of the primary forest left untouched by the local inhabitants and protected then due to the belief that the deities reside in these forests. These groves harbor rich biodiversity and play a significant role in the conservation of biodiversity [6]. Sacred groves are the example of *in situ* conservation. These virgin forests are the locked information sites, about secret of herbs and their medicinal uses by their forefathers as traditional medicine and how the herbs used by sorcery for removing spirit as well as ghost [7]. Sacred groves serve as a home for several birds and mammals and indirectly have symbiotic relationship with other

animal species conservation [8]. The role of sacred groves in the conservation of biodiversity as long has been recognized [9]. The present study focused to document the routinely used most important medicinal plants in the study area by traditional healers since generation by generations and to explore the emic and ethnomedicinal knowledge to the world.

Figure 1: map showing the details of sacred groves in India (Source: Forest – Envis)
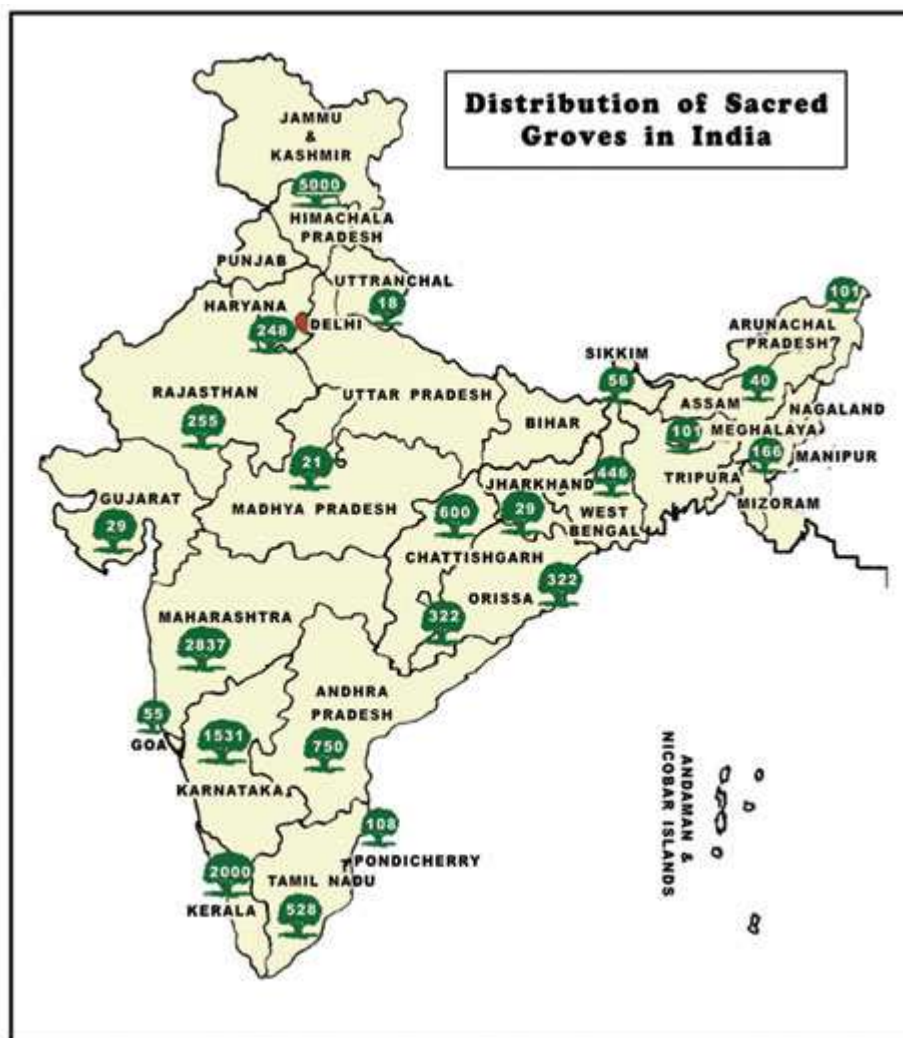
MATERIALS AND METHODS

Sacred groves (Study Area):
The study area Aaththimaram kaali amman sacred grove and PorpanaiKottai sacred grove (Figure 2) is located at Pudukottai district approximately covered an area of about 4 hectares. Geographically, it is lying between 10°23'00'' N latitude and 78º52'00" E longitude. Temperature is moderately high and the average temperature during summer is 34°C and fewer less in winter. The average humidity ranged from 31 to 33 % during November to December.

Data Collection
The survey was undertaken to identify medicinal plant species using structured questionnaire. The structured questionnaire was used to collect in formations on locality, scientific and vernacular names, part(s) of the plant used, method(s) of preparation for use, with/without additive(s), disease(s) for which plant is used. In addition, the traditional healers were interviewed using semistructure questionnaires and open-ended conversations. An interview was conducted with five local healers in local languages and then translated in to English. No further attempt was made to influence those traditional practitioners who completely refused to provide information. Plants recorded in the results were mentioned by at least two traditional healers as treating the same disease in order to confirm its use. Finally, data were compiled for further analysis.

Figure 2: Photos of sacred groves with local tradition healer

Statistical analysis:
The data was accessed on Microsoft Excel work sheets to summarize the various proportions like plant families, habit, plant parts used, frequency of citation and disease category for medicinal plants used in the study area.

Fidelity level (FL):
The fidelity level (FL), the percentage of informants claiming the use of a certain plant for the same major purpose, was calculated for the most frequently reported diseases or ailments as follows:

$$FL(\%) = Np/N \times 100$$

125

Where Np is the number of informants that claim a use of a plant species to treat a particular disease, and N is the number of informants that use the plants as a medicine to treat any given disease[10–12]. Before calculating FL, reported ailments were grouped into major disease categories following the approach of Heinrich [13]. Generally plants which are used in a repetitive manner are more likely to be biologically active [14].

RESULTS AND DISCUSSION

Medicinal plant documentation:
The continuous survey has been carried out in this study on regular interval in the year June 2015 to August 2015. The traditional healers in and around the temple taken for this study; we observed that they have much more amount of beliefs, myth and believeness in the plants sacred groves. Routinely used important medicinal plants only documented in this study. Totally 20 medicinal plants which are used from since many generations were documented; uses, mode of administration and the respective parts have been recorded. All the plants were documented here has immense amount of medicinal usage against many harmful diseases and disorders like jaundice, diabetes, diarrhea and etc. The whole information regarding this 20 medicinal plants were tabulated (Table 1). The documented medicinal plants should be very useful for scientific communities on conservation and drug preparation basis. Similarly there are many reports have been supported our studies by the usage of documented medicinal plants [2-5].

Table 1: Detail of medicinal plants and their respective information's

S.No	Botanical Name	Vernacular Name	Part of plant used	Mode of Administration	Major Uses
1	*Pergularia daemia*	Veliparuthi	Leaves	Decoction/Infusion	Fever
2	*Ficus benghalensis*	Aalam	Leaves/Roots/Bark	Paste form	Tooth Ache
3	*Ficus glomerata*	Aththi	Latex	Paste form	Fractures
4	*Cyanodan dactylon*	Arugampul	Whole plant	Decoction	Cold/Fever/Cough
5	*Randia dumetorum*	Marukalam mullu	Leaves	Paste form	Wounds
6	*Albizia amara*	Usulai	Bark	Decoction	Poison reliever
7	*Phyllanthus* Sps.		Bark	Decoction	Allergic problems
8	*Vitex negundo*	Notchi	Leaves	Infusion	Fever
9	*Azadirachta indica*	Veppam	Leaves	Paste	Small pox
10	*Commiphora caudata*	Kiluvai maram	Leaves	Latex/Paste form	Rheumatism
11	*Euphorbia antiquoram*	Sathurakkalli	Leaves	Infusion	Fever
12	*Terminalia arjuna*	Marutham	Leaves	Decoction	Menstrual issue/jaundice/ear ache
13	*Gymnema sylvestre*	Sirukurinjan	Leaves	Decoction	Diabetes
14	*Tragia involucrate*	senthatti	Leaves	Decoction	Jaundice/Diarrhea
15	*Gloriosa superba*	Kalappai kilangu	Leaves/Tuber	Paste form	Skin disease/Abortion
16	*Rauwolfia serpentina*	Sarpagandha	Root/Tuber	Paste form	Poison reliever(Snake bites)
17	*Andrographis paniculata*	Nilavembu	Whole plant	Decoction	Diabetes
18	*Plumbago zeylanica*	Chitiramoolam	Root	Paste form	Piles
19	*Terminalia bellerica*	Thanri kaai	Seed	Fresh powder mixed with water (Decoction)	Dysentery
20	*Cissus quadrangularis*	Perandai	Leaf	Paste form	Bone fracture

Table 2 - Fidelity level (FL) values for common medicinal plants used by traditional healers by ailment category

Ailment Category	Most preferred species with specific ailment	FL %
Dental care	*Ficus benghalencis* (Tooth ache)	45.00
Dermatological infections/ diseases	*Gloriosa superba* (Skin diseases), *Randia dumetorum* (Wound)	65.00 65.50
Ear, Nose, Throat problems	*Terminalia arjuna* (Ear ache)	45.50
Endocrinal disorders	*Gymnema sylvestre* (Diabe.), *Andrographis paniculata* (Diabe.)	100.00 70.00
Fever/Cold	*Pergularia daemia* (Fever), *Cyanodan dactylon* (Fever, Cold) *Vitex negundo* (fever, cough)	100.00 100.00 75.00
Liver Problems (Jaundice)	*Tragia involucrate,* *Phyllanthus* sps.	75.00 100.00
Poisonous bites	*Rauwolfia serpentina* (Snake bite)	100.00
Skeleto-muscular system disorders	*Commiphora caudate* (Rheumatism), *Ficus glomerata* (Fractures)	55.50 70.00

Fidelity value (FL):

The FL of a plant species for a specific disease in the study area varied between 35.50% for skeleton muscular treatment and 100% for fever as shown in Table 2. The maximum FL of 100% expressed by *Pergularia daemia*, *Gymnema sylvestre, Phyllanthus Sps., Cyanodan daactylon* and *Rauvolfia serpentina* were used to treat fever, cold, cough, Jaundice, Poisonous bites and so on. The result indicated that *Pergularia daemia, Gymnema sylvestre, Phyllanthus Sps., Cyanodan dactylon* and *Rauvolfia serpentina* is the choice of most healers or plant practitioners for treating such diseases. Similarly 100% FL was reported in *P. amarus* for jaundice among the herbal healers in Shimoga district of Karnataka [15] and Malasar tribals in Velliangiri hills of Tamil Nadu, India [16].

CONCLUSION

In conclusion the local peoples in and around the studied sacred groves, has much knowledge of using plants as a medicine throughout their lifespan as well as passed their knowledge to generations. Up to date they still were following their customs and beliefs. This kind of research studies may helpful to explore the knowledge and utilization of medicinal plants without affecting the plant. The peoples belong to the study area still rely on the medicinal plants and using those medicinal plants in their daily beliefs. And there is an urgent need to document all information's about the uses of medicinal plants from the traditional healers for future research.

REFERENCES

[1] Ramesh D, Anbazhagan M, Arumugam. *International journal of research in plant science* **2014.** 4(1): 13-21

[2] Vaidyanathan D, Salai senthilkumar MS, Sisubalan N, Ghouse Basha M. *Adv. In Appl. Sci. Res.,* **2014**. 5(1):244-253.

[3] Sisubalan N, Velmurugan S, Malayaman V, Thirupathy S, Ghouse Basha M, Ravi kumar R. *Spatula dd.* **2014.** 4(1):41-47.

[4]   Pradeepkumar R, Sisubalan N, Ghouse Basha M, Anwardeen I. *Spatula dd*. **2015.** 5(1):27-34.

[5] Salai Senthilkumar MS, Vaidyanathan D, Sisubalan N, Ghouse Basha M. *Adv. in Appl. Sci. Res.* **2014.** 5(2):292-304.

[6] Francis Xavier T, Auxilia A, Suresh M, Kannan, Arun Bastin A. *Int.j.Bio.Pha.Alli.Sci.* **2013**. 2(4): 968-973.

[7] Ganesan S, Ponnusamy N, Kesavan L, Selvaraj A. *Indian j. Trad. Knowledge*. **2007**. 8: 154-162.

[8] Islam AK, Islam MN, Hoque AE. UNESCO and Oxford–IBH publishing, New Delhi, **1998**. 163- 165.

[9] Khan ML, Khumbongmayum AD,Tripathi RS. *Inter. J. Ecol. Environ. Sci.* **2008.** 34, 277- 291.

[10] Giday M, Asfaw Z, Woldu Z, Teklehaymanot T. *Journal of Ethnobiology and Ethnomedicine*. **2009**. **5**:34.

[11] Alexiades MN, Sheldon JW. *Advances in Economic Botany.* Bronx, New York, The New York Botanical Garden. **1996**. 10**.**

[12] Teklehaymanot T. *Journal of Ethnopharmacology.***2009.** 124:69–78.

[13] Heinrich M, Ankli A, Frei B, Weimann C, Sticher O. *Social Science and Medicine.* **1998. 47**:1859–71.

[14] Trotter RT, Logan MH. Informants Consensus: A New Approach for Identifying Potentially Effective Medicinal Plants. Plants in Indigenous Medicine and Diet, edited by N L Etkin, Bedford Hill, NY: Redgrave Publishing Company. **1989.** 1–112.

[15] Rajakumar N, Shivanna MB. *Journal of Ethnopharmacology.***2009.** 126:64–73.

[16] Ragupathy S, Steven NG, Maruthakkutti M, Velusamy B, Ul-Huda MM. *Journal of Ethnobiology and Ethnomedicine.***2008. 4**(8).