



REGULAR ARTICLE

# COMPARISON OF FLORAL DIVERSITY IN FRESH WATER AND SALT WATER WETLAND SACRED GROVES OF KANNUR DISTRICT

P.C. Deepamol and K.M. Khaleel

Department of P G studies & Research in Botany, Sir Syed College, Talipramba- 670142., Kerala, India

## SUMMARY

Kannur District of Kerala is having 352 major sacred groves. Some of the sacred groves are found in the salt water and fresh water wetlands. Present paper compares the floral diversity in two sample sacred groves of which one is present in fresh water wetland and the other in salt water wetland. The methodology adapted for the study was the frequent field visit and identification of flora with the help of authentic books and experts in the field. Pungot Kavu is a fresh water wetland having *Myristica* swamp where *Hopea parviflora*, *Myristica malabarica*, *Knema attenuata* etc are abundant. *Myristica malabarica* is the dominant species. ThazheKavu is a salt water wetland with mangrove ecosystem. The dominant species are *Bruguiera cylindrica*, *Avicennia officinalis*, *Rhizophora apiculata* etc. Two entirely different type of vegetation is found in these sacred groves which is dependent on the nature of water available to plants. Some of the plants are found in both the type of sacred groves. Sacred groves played an important role in conserving water resources.

**Keywords:** Floral Diversity, Fresh Water, Salt Water, Wetland, Sacred Groves.

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\*Corresponding Author, Email: khaleelchovva@yahoo.co.in

## 1. Introduction

Sacred groves are small patches of forest left untouched by the local inhabitants to be protected by local village folk deities. They are the home of local flora, fauna, gene pool and a mini biosphere reserve. Within this groves are locked ancient secrets of herbs and traditional medicine, primitive practices of sorcery and magic. The first documented study of sacred groves in North Kerala recorded 57 groves in Kannur district of Kerala state (Unnikrishnan, 1990). There are 352 groves in Kannur district of Kerala state according to Jayarajan (2004). Many

sacred groves contain water resources. The present study compares the floral diversity of two different sacred groves found in fresh water and salt water wetlands.

## 2. Materials and methods

Pungottu Kavu near Mattanur of Kannur District is selected as the sacred grove in fresh water swamp and Thazhekkavu, a small island near Madakkara on the bank of Valapatanam river as the sacred grove situated in a salt marsh.

Survey of flora was made in the groves by inventory method. All the plant species present in the sacred groves were collected in either flowering or fruiting stage. The collected specimens were poisoned, dried and stitched on herbarium sheets (Jain and Rao, 1976). The plants were identified with the help of authentic book like "Flora of Presidency of Madras" (Gamble J.S, 1935) and in consultation with the experts.

### 3. Result and Discussion

Pungottu kavu is a fresh water wetland sacred grove where *Myristica* swamp is present. The dominant plants found here are *Myristica malabarica*, *Myristica beddomi*, *Knema attenuate*, *Lagenandra ovata*, *Carallia integerrima*, *Caryota urens*, *Stenochlaena palustris* etc. (Table 1). Thazhekkavu is having mangrove ecosystem with the dominant plants like *Aegiceras corniculatum*, *Avicennia officinalis*, *Excoecaria agallocha*, *Calamus hookerianus*, *Rhizophora apiculata*, *Caryota urens*, *Bruguiera cylindrical*, *Acrostichum aureum*, *Premna cerratifolia* (Table 1).

Many sacred groves contain water resources such as ponds, streams and the vegetative mass that covers the floor of a grove can absorb water during raining season and releases it during the time of draught. These are last resorts in many of the animals and birds for the water requirement especially summer. The well and tanks are seen with in the sacred groves satisfying the need of water nearby community and also help of traditional irrigation system. Sacred groves helped in reducing water runoff and in maintaining soil moisture. A number of streams and reverse originated from sacred groves. The river water from sacred groves brings minerals and fertilizers in which quantity.

According to Rajendraprasad (1995) sacred groves with the complex array of interaction

influence the flora and fauna of the region as well as microclimate of that locality. The thick litter cover and channel created by soil macrofona together enhanced the water retention sacred groves regulate the flow of water and sediment to the settlement and agricultural down slope. Local people protect the water resources in the sacred groves on the basis of spiritual believes.

The Pungotu Kavu with 35 acres of land have its own microclimate and as a result small fresh water perennial streams are originated inside the groves. This is due to the presences of huge floristic structure of these sacred groves. The other sacred groves which have lesser area and less floristic wealth does not have any perennial water stream. Thazhe Kavu is a costal sacred groves with 18 acres of land area. Three sides of this kavu is having salt water and one side Paddy field. The vegetation present at here are mangroves, its associates and some of angiosperms. A stream originated from Pungotu Kavu reaches finally to Valapattanam river. Paddy fields near the Pungotu Kavu get sufficient water from nearby groves. The streams are also helpful to local people for fishing.

The general phytosociology of sacred groves is extremely complex. In fresh water sacred groves woody plants are dominant species. In the interior part of the groves, only sciophytes are found. *Myristica* swamp is an endangered fresh water swamp ecosystem. Tropical evergreen forest trees with various root adaptation such as knee roots and breathing roots are presents. The most dominant family is Myristicaceae. Some species of in this groves shows cauliflory and buttress root. A number of medicinal plants are found here. In salt water sacred groves mangroves are dominant species, because only the mangroves can survive in the salt water wetland. Vivipary and pneumatophores are the characteristics features of plants which are growing in this region.

Table 1. List of Major Plant Species Found in Wetland and Freshwater Sacred Groves

	Fresh water	Salt water
<i>Anaphyllum wightii</i>	+	
<i>Antiaris toxicaria</i>	+	
<i>Carallia integerrima</i>	+	
<i>Caryota urens</i>	+	+
<i>Connarus monocarpus</i>	+	
<i>Elaeocarpus tuberculatus</i>	+	
<i>Gnetum edule</i>	+	
<i>Gymnacranthera furcariiana</i>	+	
<i>Holigarna arnotiana</i>	+	+
<i>Hopea parviflora</i>	+	
<i>Knema attenuata</i>	+	
<i>Lagenandra ovata</i>	+	
<i>Lophopetalum Wightianum</i>	+	
<i>Memecylon renderianum</i>	+	
<i>Myristica malabarica</i>	+	
<i>Myristica beddomi</i>	+	
<i>Pandanus thwaitesii</i>	+	+
<i>Pogostemon paniculatus</i>	+	
<i>Stachyphrynium spicatum</i>	+	
<i>Stenochlaena palustris</i>	+	+
<i>Macranga peltata</i>		+
<i>Morinda citrifolia</i>		+
<i>Clerodendron inerme</i>		+
<i>Leea wightii</i>		+
<i>Acanthus ilicifolius</i>		+
<i>Pongamia glabra</i>		+
<i>Aegiceras corniculatum</i>		+
<i>Avicennia officinalis</i>		+
<i>Excoecaria agallocha</i>		+
<i>Calamus hookerianus</i>		+
<i>Rhizophora apiculata</i>		+
<i>Caryota urens</i>		+
<i>Bruguiera cylindrica</i>		+
<i>Acrostichum aureum</i>		+
<i>Premna cerratifolia</i>		+
<i>Cinnamomum zeylanicum</i>		+
<i>Cerbera odollum</i>		+

## Conclusion

Sacred groves are the seat of rare and endangered species of plants. The present study establishes the role of the nature of water which

determining the floral diversity in different sacred groves. We must protect these type of sacred groves because they are the water reservoir and gene pool. Sacred groves might be lost forever if any further degradation is allowed to these fragile ecosystem.

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