



## Phytodiversity of Mahe and its conservation strategies

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### Abstract

**BACKGROUND & AIM:** Mahe, a part of Puducherry administration is rich in its biodiversity as it forms a part of the Western Ghats, which in turn is the hottest of hotspots in the world. It lies on the west coast of Indian Peninsula between Kozhikode and Kannur districts of Kerala and is located between 11° 42' - 11° 43' N latitude and 75° 31' - 75° 33' E longitude. It covers an area of 9 sq. km. The present study has been carried out to document the phytodiversity of the region and its conservation.

**METHODOLOGY:** Field surveys were undertaken to collect representative samples from various localities. The collected specimens were processed based on standard herbarium techniques and identified with the help of floras and related literatures.

**RESULTS:** A total of 639 angiosperm taxa belonging to 127 families have been recorded. Of which 23 are RET species, 33 are edibles, 92 are exotics and 60 species have various medicinal properties. In addition the area supports a few species of bryophytes, pteridophytes, gymnosperms, macro fungi and lichen.

**Keywords:** Phytodiversity, Mahe, Conservation

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### 1. Introduction

India, being one of the tropical countries in the world harbours about 690,899 sq. km forest cover, which constitutes 21.02% of the total geographical cover. The current rate of loss of forest cover is estimated at near 2% annually (100,000 sq. km destroyed, another 100,000 sq. km degraded). The average rate of loss or extinction over the past 200 million years is 1 or 2 species per year, and 3 or 4 families per million years. The loss of forest cover/biota is mainly due to various anthropogenic activities. It is estimated that the tropical forests will be reduced to 10 - 25% of their original extent by late 21st century (<http://conservationbiology404.blogspot.in/>). Therefore, it is essential to conserve the existing biodiversity for the welfare of the present and future generations. The Convention on Biological Diversity made mandatory for the signatories to conserve the areas with rich biological diversity.

Mahe, Union Territory of Puducherry, occupies a unique geographical location near to the Arabian Sea. It is situated on the West Coast of the Indian Peninsula

between 11° 42' - 11° 43' N and 75° 31' - 75° 33' E, between Kozhikode and Kannur districts of Kerala State. This former small French town, covering an area of 9 sq. km, is 650 km away from its administrative Head Quarters, Puducherry. It also forms a part of the Western Ghats, one of the hottest hotspots in the world. The area enjoys tropical humid climate with summer from March to May and mild winter from December to February. The region receives Southwest Monsoon (June to September), Northeast Monsoon (October to December), winter rain (January to February) and summer rain during March to May.

Mahe is rich in biodiversity as it forms a part of the Western Ghats. The climatic condition influenced by the Western Ghats is an advantage to support a rich biodiversity. A comprehensive documentation of floristic diversity of Kerala has been published<sup>1</sup>. Floristic diversity of neighbouring two districts of Kerala namely Kannur and Kozhikode that border this region has been studied<sup>2,3</sup>. Similarly the floristic diversity of Puducherry region has been studied in recent years by many workers<sup>4,5,6</sup>. A similar work is lacking for this region. Hence, the present study has been undertaken to generate a primary database of the region.

### 2. Methodology

Field survey has been conducted in various regions of

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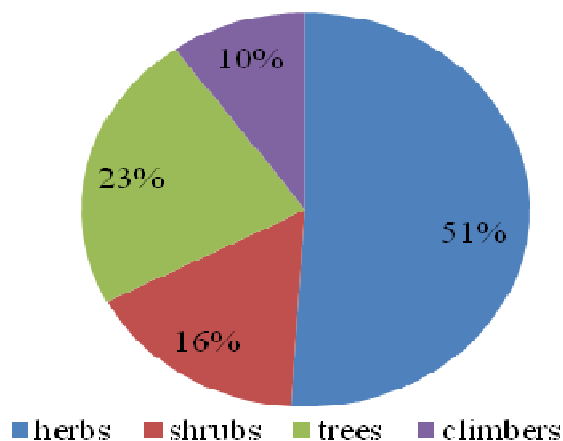
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**Table 1: Floristic Analysis**

Sl No	Group	Family	Genera	Species
1	Angiosperms	127	450	639
2	Pteridophytes	12	19	24
3	Bryophytes	5	5	5
4	Gymnosperms	4	4	4

**Table 2: Dominant Families**

Sl. No	Families	Total no. of Genera	Total no. of Species
1	Poaceae	41	58
2	Fabaceae	37	53
3	Acanthaceae	17	32
4	Euphorbiaceae	14	23
5	Araceae	16	22
5	Asteraceae	19	20
6	Rubiaceae	13	19
8	Lamiaceae	11	13
9	Apocynaceae	10	13
10	Moraceae	04	11



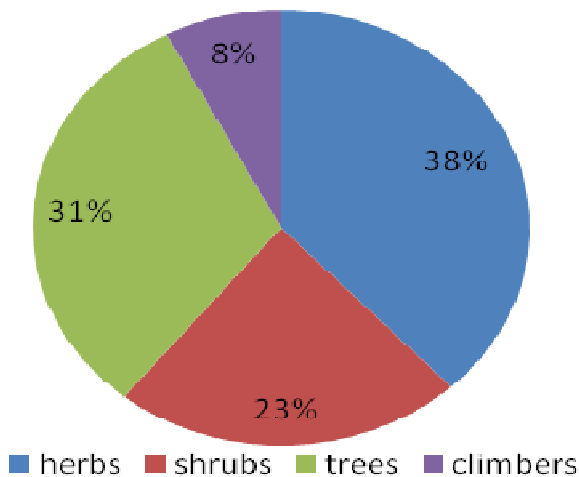
**Figure 1: Diversity of life forms (Angiosperms)**

Mahe in different seasons. The collected specimens were identified and mounted following standard herbarium techniques<sup>7</sup>. The voucher specimens are deposited at MGGA College, Mahe for reference.

**3. Results & Conclusion**

The floristic survey revealed the occurrence of 639 species belonging to 450 genera and 127 families (Table 1). Of the total species, 478 are dicotyledons and 162 are monocotyledons. Majority of the species are herbs (326) followed by trees (146), shrubs (104) and climbers (63). The diversity of life forms is depicted in Figure 1.

The area is dominated by ten angiosperm families (Table 2). The area also supports 23 species which are endemic to the Western Ghats (Table 3). Further analysis revealed that about 33 species are edible belonging to 29 genera and 24 families<sup>8</sup>, about 60 species are medicinal<sup>9</sup> and 92 species are recorded as exotics<sup>10</sup>. Habitat-wise distribution of exotic species shows a preponderance of herbs with 35 species followed by 29 species of trees, 21 shrubs and 7 climbers (Figure 2). Of the total, 7 species are found exclusively in the sacred groves<sup>11</sup>. They include *Butea monosperma*, *Glochidion zeylanica*, *Hydnocarpus pentandrus*, *Sarcostigma kleinii*, *Sterculia foetida*, *S. guttata* and *Vateria indica*. In addition 24 species of Pteridophytes<sup>12</sup>, 5 species of Bryophytes namely *Anthoceros*, *Cyathodium cavernarum*, *Octoblepharum albidum*, *Porella* and *Riccia* sp., 4 species of gymnosperms namely *Araucaria*, *Cupressus*, *Cycas circinalis*, and *Podocarpus* sp., macrofungi like



**Figure 2: Habitat-wise distribution of exotics**

*Agaricus*, *Polyporus* and crustose and foliose lichens have also been recorded.

The area is facing threats of various kinds. This is mainly due to destruction of natural habitats. Invasion of alien species is a potential threat to the native flora. Biodiversity depletion is also due to climate change, increase in population and modification of land for developmental and infrastructural projects. Every step should be taken to inventorise and to document the diverse floral wealth for sustainable development. The Convention on Biological Diversity held at the Rio de Janerio in 1992 has emphasized the importance of conservation of the biological diversity and its sustainable utilization. The importance of Biodiversity conservation came into effect after the Biodiversity Act 2002. The practice of nature conservation is a very ancient tradition in India that dates back to hunting gathering stage of the society.

The presences of sacred groves in the area helps in *in situ* conservation of not only RET species of flora but also fauna. In order to address these issues, the diversity of

**Table 3: List of Endemic species**

Sl. No.	Scientific Name	Family
1	<i>Artocarpus hirsutus</i> Lam.	Moraceae
2	<i>Arundinella purpurea</i> Hochst. ex Steud.	Poaceae
3	<i>Curcuma oligantha</i> Trimen var. <i>lutea</i> (R. Ansari et al.) Bhat	Zingiberaceae
4	<i>Dalbergia horrida</i> (Dennst.) Mabb.	Fabaceae
5	<i>Dimeria ornithopoda</i> Trin.	Poaceae
6	<i>Garcinia gummi-gutta</i> (L.) N. Robson	Clusiaceae
7	<i>Holigarna arnottiana</i> Hook.f.	Anacardiaceae
8	<i>Hydnocarpus pentandrus</i> (Buch.-Ham.) Oken	Flacourtiaceae
9	<i>Impatiens minor</i> (DC.) Bennett	Balsaminaceae
10	<i>Ischaemum kannanorensis</i> Sreek., V.J. Nair & N.C. Nair	Poaceae
11	<i>Ixora malabarica</i> (Dennst.) Mabb.	Rubiaceae
12	<i>Jasminum malabaricum</i> Wight	Oleaceae
13	<i>Justicia nagpurensis</i> V.A.W. Graham	Acanthaceae
14	<i>Kametia caryophyllata</i> (Roxb.) Nicolson & Suresh	Apocynaceae
15	<i>Lagenandra toxicaria</i> Dalzell	Araceae
16	<i>Mussaenda frondosa</i> L.	Rubiaceae
17	<i>Naregamia alata</i> Wight & Arn.	Meliaceae
18	<i>Osbeckia muralis</i> Naudin	Melastomataceae
19	<i>Salacia fruticosa</i> Heyne ex Lawson	Hippocrateaceae
20	<i>Sonerila rheedei</i> Wall. ex Wight & Arn.	Melastomataceae
21	<i>Tabernaemontana alternifolia</i> L.	Apocynaceae
22	<i>Torenia bicolor</i> Dalzell	Scrophulariaceae
23	<i>Vateria indica</i> L.	Dipterocarpaceae

the area needs conservation. The conservation of the species can be done through people's participation. Regular monitoring of the diversity is required to evaluate the change in the pattern of vegetation and floristic composition.

#### Conflict of interest

The author's declares none.

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