

PLANT DIVERSITY OF KERALA STATE – AN OVERVIEW

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Kerala is the southernmost state along the Western Coast of Peninsular India. It lies between 8°18'–12°48' N and 74°52'–77°22' E. The state has a total area of 38,863 km², which constitute 1.8% of the total geographical area of India. Situated in the south-west region of Indian Peninsula, the state is bounded on the north and northeast by Karnataka, east (Western Ghats) and south by Tamil Nadu, and west by the Arabian Sea. The state has about 590 km of coastal belt.

Based on physiography, the state can be divided into three climatically distinct regions, viz. lowlands or coastal zone (below 20–300 m), midlands (300–600 m) and highlands (above 600 m). However, administratively, the state is divided into 14 districts, namely, Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha, Kottayam, Idukki, Ernakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Wayanad, Kannur and Kasaragod. The state forms part of the Western Ghats, one of the 34 globally recognized biodiversity hotspot regions (Mittermeier & al., 2004). Western Ghats covers 72.08% (28008 km²) of the total geographical area of the state (Sudha, 2011). Anaimudi, the tallest peak in southern India (2,695 m) is situated in the Anamalai high ranges of Western Ghats in Idukki district.

Kerala has a warm-humid tropical climate. The mean daily temperature ranges from 19.8° to 37°C. However, at higher altitudes the temperature often drops to 7°C during winter. The average annual rainfall of the state ranges from 101.6 to 362 cm. The state receives maximum rainfall (around 65%) during southwest monsoon from June to August, and the rest from September to December during northeast monsoon. The atmospheric relative humidity varies from 70–90%. Kerala has many lakes and rivers. There are 44 main rivers that originate from the Western Ghats, and empty themselves into the Arabian Sea, and 21 major lakes and many backwater canals in the state.

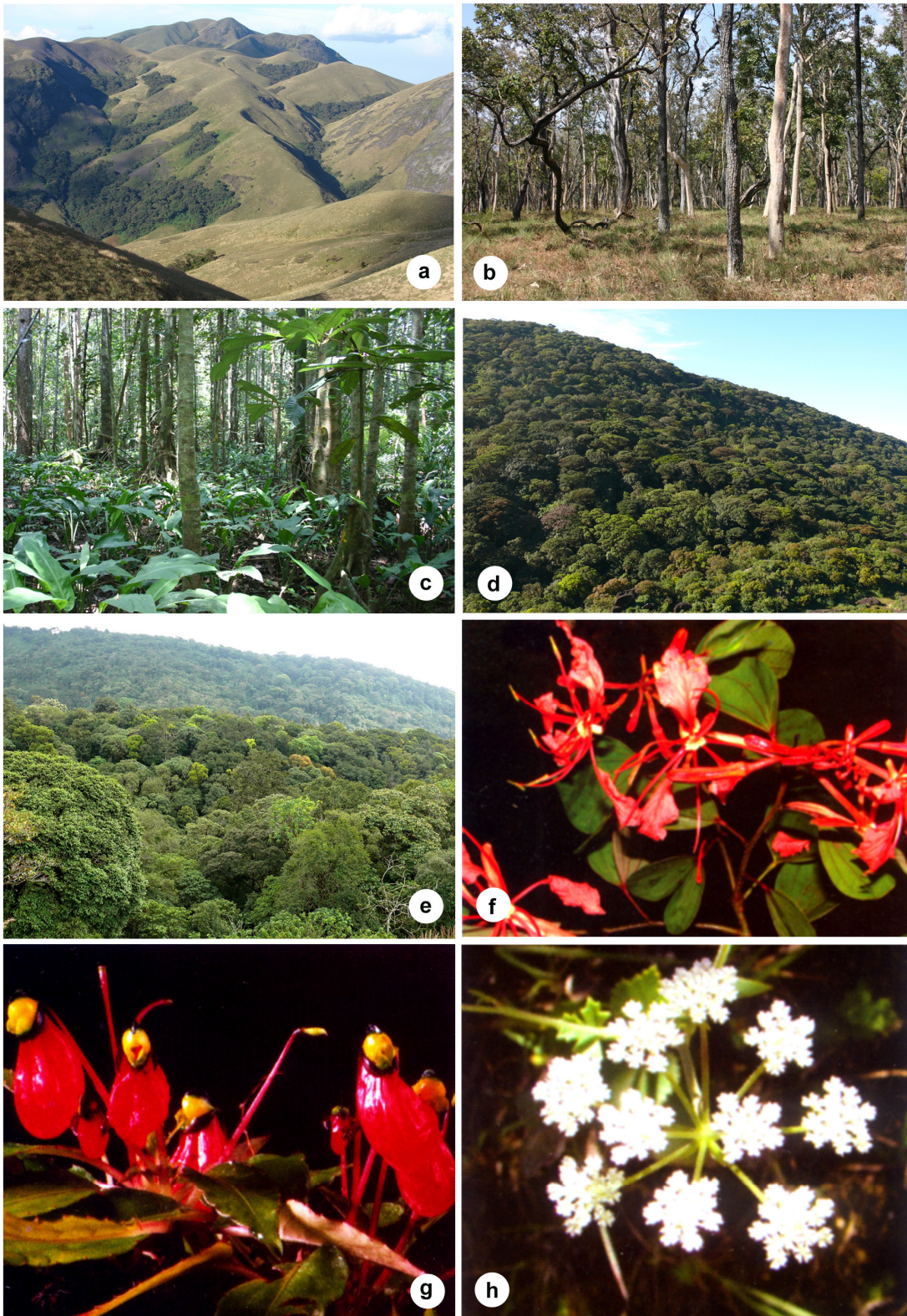
A warm-humid climate with perennial water resource and nutrient rich soil has attributed to diverse vegetation with enormous species diversity in the state. The high ranges and foot hills of Western Ghats, and upland region (100–300 m) harbour the major forest cover of Kerala. At present, the state has an area of 11125.5 km², which constitute 28.63% of the total geographical area. The predominant forest types of Kerala are: Wet evergreen, Moist deciduous, Semi evergreen, Moist deciduous, Dry deciduous and Shola-grassland complex (Champion & Seth, 1968). Besides, the state has scattered patches of mangroves along the coastal line (Anupama & Sivadasan, 2004), and *Myristica* swamps, a rare and unique type of evergreen vegetation, in Achenkoil and Kulathupuzha valleys of Kollam district, and adjacent Kottur range of Thiruvananthapuram district (Nayar, 1995; Mohanan & Daniel, 2005). There are 2 Biosphere Reserves, 3 National Parks, 13 Wildlife Sanctuaries, 2 Tiger Reserves and 4 Elephant Reserves in Kerala. The state has a total of 3213.24 km² forest area under Protected Areas Network.

Based on floristic composition the state of Kerala comes under the Malabar phytogeographical province (Takhtajan, 1986). The state harbours 5094 taxa under 1537 genera and 221 families of flowering plants (Sasidharan, 2012). A total of 1709 taxa that are endemic to Peninsular India are found in Kerala; of which 237 species distributed in 47 families are exclusively endemic to the present political boundary of the state (Nayar & al., 2008). There are about 1170 species with established medicinal properties. The flowering plants of Kerala include 858 exotics that have been introduced as agriculture, forestry as well as accidentally entered species (Sasidharan, 2012); of which around 200 species have become naturalised in the state. Gymnosperms are represented by just 5 species belonging to 3 genera. The state also harbours 337 species of pteridophytes (Easa, 2003), and 465 taxa of bryophytes (Manju & al., 2008).

The magnificent 12-volume monumental treatise, “*Hortus Indicus Malabaricus*” by the Dutch explorer, Hendrik Adriaan van Rheedee tot Draakestein (1678–1703), was the first authentic account on the plants of Kerala. Since then, numerous publications dealing with the flora of various plant groups have been published. Some of the recent important publications pertaining to the Flora of Kerala State are ‘Biodiversity Documentation for Kerala: Flowering Plants’ (Sasidharan, 2004), ‘The Flora of Kerala’ Volume 1 (Daniel, 2005), ‘Flowering Plants of Kerala – A Handbook’ (Nayar & al., 2006) and a DVD of ‘Flowering Plants of Kerala’ (Sasidharan, 2012).

Nowadays, due to population growth there is a huge pressure on land, forest and biodiversity of Kerala; anthropogenic activities, such as urbanization (conversion of land from rural to urban), encroachment (of water bodies, forest and agricultural fields), plantations, hydel projects, imbalance in shifting cultivation, transportation and tourism pose considerable degree of threat to the biodiversity. These activities disturb the ecological balance and ultimately resulting in massive destruction of flora and fauna. The Kerala state forest department and other competent authorities of the state should enforce strictly the environmental and biodiversity acts/laws to protect the existing biodiversity of the state. Efforts should also be taken to create awareness among the people about the importance of conserving forests and environment and sustainable utilization of biological resources for the sustenance and make them involve in conservation activities.

The ENVIS Centre on Floral Diversity has published the “[Bibliography and Abstracts of Papers on Flora of Kerala](#)” (Lakshminarasimhan & al., 2013), which is a comprehensive compilation of 1373 references with abstract published on flora, forestry, phytogeography, endemism, ecology, conservation, and economic and ethnobotany of Kerala state, which would help those who are interested in biodiversity and conservation.



a. Shola-Grassland Complex; b. Moist Deciduous Forest; c. Myristica Swamp Forest; d. Southern Hilltop Tropical Evergreen Forest; e. West Coast Evergreen Forest; f. *Bauhinia phoenicea* Wight & Arn.; g. *Impatiens parasitica* Bedd.; h. *Pimpinella pulneyensis* Gamble

Photo courtesy – a, h: N. Sasidharan; f, g: K.A. Sujana

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