MANGROVE SPECIES DIVERSITY AND ZONATION PATTERNS IN THE ELATHUR ESTUARY, KOZHIKODE, INDIA

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ABSTRACT

Mangrove forest habitats are important for biodiversity, coastal erosion control, and providing sheltered nursery breeding places for marine life. They act as vegetation between land and sea, stratifying components from both laterally and horizontally between both the treetops and subsurface earth. The current study is an attempt to collect potential environmental data by conducting field investigations utilizing biological methods at the Elathur Estuary on Kerala's Kozhikode coast. The foliage interplay and morphological maturation of mangroves were studied using the quadrat method. Floristic research found 11 mangrove species from 7 families, including the critically endangered species *Sonneratia griffithii*. The most significant species were *Avicennia marina*, *Excoecaria agallocha*, *Avicennia officinalis*, and *Avicennia alba*, according to the Importance Value Index. Higher diversity indices (Shannon index, 3.1-1.9; Pielou's index, 0.98-0.92) were found in the estuarine area, indicating increased species variety and equalised distribution of mangroves. The majority of vegetation metrics (density, species diversity index, diversity) and a few edaphic parameters (pH, grain size, total carbon) were found to be healthier; nonetheless, salinity had substantial negative relationships with vegetation features. The study discovered a genetically diverse assemblage with intermediary structural development in the Elathur region, indicating an expanding forest. The findings of the study will be crucial in site-specific mangrove conservation and sustainable efforts.

Keywords: Mangrove; Elathur estuary; *Sonneratia griffithii;* Shannon index; *Avicennia alba*