

**STUDY ON VEGETATION STRUCTURE, SPECIES  
DIVERSITY AND POLLUTION OF  
KALUWAMODARA TRIBUTARY MANGROVE  
ECOSYSTEM**



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by

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## Abstract

Kaluwamodara mangrove ecosystem is estuarine ecosystem, and the area is slightly urbanized, so carbon emission is high. The area has significant population, but organizations did not pay attention. Six sites were selected based on a preliminary survey and sites one and two were close to the urban area with high human contribution and site six was farthest away. Mangrove vegetation was sampled using transect lines of 15 m in length laid perpendicular to the shoreline. Counted all the individuals as trees, saplings, and seedlings. Height and GBH were recorded along the transect line and species were identified. Recorded the distance to all the plants along the transect line, considering the shoreline as zero. Seven true mangrove species belonging to five families and four associated species were recorded. Diversity was obtained using diversity indices and vegetation structure was obtained by IVI and Complexity index. Site six records highest Shannon (0.9434), Simpson (0.5336), Pielou's (1) diversity values and Complexity Index value (0.1401). Site one has highest Margalef value. Site two records lowest values for Shannon, Simpson, Pielou's and Margalef indexes but site one records lowest Complexity index value. So we can predict that the site six has highest diversity and site two has low diversity as well as site six has complex vegetation structure and site one has least vegetation structure. *Rhizophora apiculata* has highest Importance Value Index (195.545), so its distribution is more extensive than other species. The highest density of litter (0.5) obtained for site one and lowest density of litter (0.0156) obtained for site six. When consider the CCI, the highest value (10) obtained for site one and lowest value (0.3111) obtained for site six. The highest polluted site was site one and lowest polluted site was site six. The category with highest litter volume is plastic, and the plastic mass of each site was the highest. We can say that the plastic released by humans, floats in the high tide and stays between the roots and this has a high impact on site one and minimal impact on site six. The diversity and vegetation structure of sites above the river is greater than that near the mouth, indicating that a good ecosystem can be maintained by minimizing human activity.

**Keywords:** - Diversity, Mangrove ecosystem, *Rhizophora apiculata*, Kaluwamodara, CCI