

Title	:	Managing Critical Ecosystems: Tree Improvement and Biotechnological interventions capture Genetic and Adaptive variations in Rhizophora to mitigate climate changes. (IFGTB-NFRP-176/2018-2021)
Principal Investigator	:	Dr. B. Nagarajan
Co-Investigators	:	Dr.R.Yasodha, Dr.A.Shanthi
Duration	:	April 2018-2021(Extended until March 2022)
Objectives	:	<ol style="list-style-type: none"> 1. To comprehend reproduction, breeding system recruitment patterns in a changing climatic era 2. To document the morphology of the putative hybrids and their levels of productivity in comparison with pure species 3. To ascertain haplotype variations by deploying appropriate DNA markers.
Funding Agency	:	ICFRE

Summary

The project was carried out in three study sites (one in each of the mangrove form) such as Pitchavaram (Deltaic), Ernakulam (Non-deltaic) and Andaman Nicobar (Island). About 73 putative hybrids of Rhizophora were tagged and subjected to phenotyping and genotyping. Phenotypic data suggested that the hybrids were comparatively more productive than either of their parents. Reproductive biological studies reveals that, both the species of Rhizophora are dichogamous and protandrous. Floral life is over 15 days, and it attracts a spectrum of flower visitors. Studies on the floristic composition along the Rhizophora zone revealed that, *R. mucronata* had the maximum basal area and Important Value Index (IVI). The basal area in *R. apiculata* varied from 294.2 to 916.6 m² / ha, 1952.2 to 3000.2 m² / ha in *R. mucronata* and 197.6 to 462.6 m² / ha in *R. x annamalayana*. Phylogenetic studies based on the SSR marker clearly distinguished the pure species from the putative hybrids. Ten individuals within the putative hybrids were clustered with *R. mucronata* whereas the other remaining five individuals clustered with the *R. apiculata*. This pattern confirms sharing of alleles with both the parental species and explains the mixed mating system of the species.