Assessment of Genetic Diversity in 31 Species of Mangroves and their Associates through RAPD and AFLP Markers

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Random amplified polymorphic DNA (RAPD) and amplified fragment length polymorphism (AFLP) markers were used to assess the genetic diversity in 31 species of mangroves and mangrove associates. Four AFLP primer combinations resulted in the amplification of 840 bands with an average of 210 bands per primer combination and 11 RAPD primers yielded 319 bands with an average of 29 bands per primer. The percentage of polymorphism detected was too high indicating the high degree of genetic variability in mangrove taxa both at inter- and intra-generic levels. In the dendrogram, species belonging to a particular family/genus, taxa inhabiting similar habitats or having similar adaptations tended to be together. There were exceptions too; as many unrelated species of mangroves form clusters. The intra-familial classification and inter-relationships of genera in the family Rhizophoraceae could be confirmed by molecular analysis. Both the markers RAPD and AFLP were found equally informative and useful for a better understanding of the genetic variability and genome relationships among mangroves and their associated species.

Key words: Mangroves, Molecular Characterization, Genetic Diversity