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A PRELIMINARY STUDY ON THE STATUS OF VESICULAR ARBUSCULAR MYCORRHIZAL ASSOCIATIONS WITH MANGROVE PLANTS IN NORTH AND NORTH WESTERN PARTS OF SRI LANKA

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The symbiosis between Arbuscular Mycorrhizal Fungi (AMF) and mangrove plant species was investigated in two mangrove swamps in North and Northwestern parts of Sri Lanka. Soil samples were collected from rhizosphere area of dominant mangrove plants in Sarasaalai area in Jaffna and Kakkapalliya in Pambala, from a depth of 0-20 cm on February 2018 during low tide period. Collected soil samples were clay loam in texture, and pH values of composite samples of Jaffna and Pambala were 6.1 and 6.9 respectively. For all five composite samples AMF spores were extracted using wet sieving and decanting method. Seven most common mangrove plants species were identified, and their underground growing root tips were extracted to assess the colonization percentage of AMF. The results were compared using a one-way ANOVA in Minitab 16.0. AMF were mostly found in the form of hyphae and were commonly associated with most of the mangrove species investigated. AMF species belonging to *Glomus* (4 morphotypes), *Gigaspora* (2 morphotypes), *Scutellospora* (1 morphotype) and *Acaulospora* (1 morphotype) were identified in both areas. Root colonization was observed in all species. In Jaffna the maximum root colonization was recorded in *Excoecaria agallocha* (22%) and minimum colonization in *Acanthus ilicifolius* (3.2%). Moreover, in Pambala the maximum root colonization was found in *Bruguiera gymnorrhiza* (16.2%) and the minimum colonization in *Rhizophora apiculata* (2.6 %). AM fungal root colonization varied by plant species and site. *Lumnitzera racemosa* was common to both areas and the colonization potential was high in Jaffna compared to that of Pambala but was not significant (at $p < 0.554$). Furthermore, colonizing AMF species can be identified and recommended for inoculating mangrove seedlings in deforested areas for better growth and development of sustainable mangrove ecosystem.

Keywords*: Arbuscular mycorrhizae, Mangrove plants, root colonization;*

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