

Physico-chemical factors in the *Avicennia* and *Rhizophora* mangrove habitats in Iran.

Abstract

This study investigates the physico-chemical variations of surface water and soil within mangrove habitats and their influence processes in the Hormozgan Province, south of Iran. Point sampling method within transect was used for a period of one year started from September 21th 2008. The biweekly water sampling and seasonally soil sampling were conducted in *Avicennia marina* and *Rhizophora mucronata* habitats. The comparison of mean values using t-test indicated that there is significantly differences among all variables including temperature, pH, EC, TSS and salinity ($p < 0.01$), excluding DO ($p > 0.05$). The soil tested also showed significant difference between two habitats for available potassium, organic carbon, percentage of clay and silt at depth of 0-20 cm, and organic carbon, pH, EC and percentage of sand and silt at depth of 20-40 cm ($p < 0.05$). The results showed that water and soil characteristics are the most important environmental factors directly affecting mangrove structure and productivity. The results also illustrated that the magnitude and periodicity of the coastal system forces such as complex climatic conditions (temperature), the availability of water, physico-chemical characteristics of environment such as EC, pH and other characteristics related to water and soil, may determine the floral and faunal composition in mangrove areas and the energy signature. Furthermore, the study showed that lack of perennial flow of freshwater district may be the reason for the uniformity in soil texture within mangrove forests. The sediment texture exerts strong control on other factors such as conductivity, pH, calcium carbonate, organic carbon, available phosphorus and available potassium.

Keyword: Environmental characteristics; *Avicennia marina*; *Rhizophora mucronata*; Mangrove habitats; Seasonal changes; Mangrove forest.