

STUDY ON SALT TOLERANCE MECHANISM OF HALOPHYTES

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Mangrove plants are one of the typical halophytes and distributed at the mouth of rivers and canals and along muddy shores of well protected estuaries in the tropical and sub-tropical areas. Distribution of these mangrove plants were reported by H. Barth ¹⁾. Kandelia candel (mehirugi) is one of the mangrove species and distributed at not directly affected sea water of mangrove forest. In this study, Kandelia candel was compared under difference water culture conditions. About in-organic ions (anions and cations) and organic acids in leaves, rhizophores and roots parts in each cultured sample was analyzed, respectively. Kandelia candel grew very well at F-20 condition (0.6%NaCl) like a natural growth. Leaf size was large and also thin. In contrary, at high salinity condition (F-80) leaf of Kandelia candel was small and thick. These thick leaves contained high amount of Na and Cl ions. After culturing, ion components of culture solution was also analyzed. The data showed that K^+ , PO_4^{---} and NO_3^- ions in culture solution were decreased or disappeared by absorption for plant growth. These three elements are also important for mangrove growth. Na and Cl ions were also absorbed and translocated to upper parts, then these ion were stored in the leaves. Further more, leaves gradually increase succulences and finally these leaves will fallen down for NaCl excretion. Production of organic acids depends on salinity condition. All leaves, rhizophores and roots contained high amount oxalic acid and malic acid. These dicarboxylic acids are very important for osmotic regulation of halophytes.