STUDY ON SALT TOLERANCE MECHANISM OF HALOPHYTES

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Mangrove plants are distributed along coastal areas and esturine areas of the sub-tropical and tropicals world which include Okinawa, Japan. These called halophytes which posses peculiar physiological mechanisms for salt control. Characteristic distribution of mangrove plants is observed as conditioned by tidal regime and salinity. Rhizophora stylosa (Japanese name: Yaeymahirugi) is one of the mangrove species and distributed at strictly affected seawater to mangrove forest. In this study, Rhizophora stylosa was compared under different NaCl conditions of water culture. In-organic ions and organic acids in leaves and roots parts in each cultured plant samples was analyzed, respectively. This Rhizophora stylosa grew very well at F-20 and F-50 conditions like natural growth in the mangrove forest. Leaf size was large and leaf color also was healthy green. On the other hand, at high salinity condition (F-100, 3%NaCl) leaf size of Rhizophora stylosa small and thick. After culture, ion components of culture solution was analysed. Amount of K^+, PO_4^{3-} and NO_3^- ions in culture solution were decreased or disappeared by absorption for plant growth. These three elements are also impotant for mangrove growth. Amonut of Na^+ and Cl^- ions in the leaves and roots gradually increased with NaCl concentration increased in culture solution. Na^+ ion concentration in Leaf and root of F-100 was 52.34 meq and 78.30 meq, respectively. Futher more, leaves gradually increase succulense and finally these leaves will fallen down for excess NaCl abandonment from plant body. Highly absorbed cations were detoxicated by organic acids in the plant. Principal organic acids found in the leaves and roots were malic acid and oxalic acid.