

EFFECT OF INOCULATION ON RICE SEEDLINGS WITH A DIAZOTROPH

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A number of plant species belonging to the family Gramineae are capable of root associated nitrogen fixation, among which are certain varieties of wetland rice. We have earlier reported on the isolation of such associative bacteria from some local varieties of rice (Kulasooriya et.al., 1988). Besides di-nitrogen fixation, such bacteria have been shown to stimulate root growth of maize (Fallik et.al., 1988 and the growth and the mineral uptake of rice seedlings (Murty et. al., 1988).

The present study was conducted to determine the effect of inoculation of rice seedlings with a locally isolated diazotroph. Rice seedlings were grown in 200ml tubes in a nitrogen free nutrient medium, in an artificial environmental chamber. They were inoculated with the diazotroph at 3 inoculum densities and compared against an uninoculated control. The plants were harvested after one month and their root surface area, were measured (Carley & Watson, 1966). The fresh and dry weights of their roots and shoots were recorded separately and the total N was determined by Kjeldhal analysis. The results showed that all the measured parameters, except the total N, increased with the increase of the inoculum density. Although total nitrogen increased over the control as a result of inoculation, no significant differences were observed among plants subjected to different inoculum densities.