Efficiency of zinc-solubilizing bacteria for in vitro zinc solubilization and its effects on IAA rice production

ABSTRACT

Zinc solubilizing efficiency of zinc-solubilizing bacteria (ZSB) were studied for its in vitro zinc solubilization, bacterial population, pH and IAA production. Four bacterial isolates from lowland rice soils, namely TM56 (Acinetobacter sp.), TM23 (Serratia sp.), TM9 (Serratia sp.) and BM13 (Serratia sp.) were found to solubilize different forms of insoluble zinc. TM56 was found to be significantly better for zinc carbonate and zinc oxide solubilization, followed by TM23 for zinc phosphate. The highest pH decreased occurred in zinc oxide and zinc phosphate, while zinc carbonate was lowest. Growth of bacteria was also significantly affected by different insoluble zinc in the modified liquid salts medium. Under gnotobiotic condition, TM56 showed the highest IAA production with the presence of zinc source.

Keyword: Zinc-solubilizing bacteria; Rice; Population