

Title: PHOSPHATE SOUBILIZATION AND ANTIBIOSIS ASSAY IN BACTERIA ISOLATED FROM UPLAND RICE PLANTS IN GOIÁS.

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Abstract

The association between some bacteria and plant roots can perform different functions, bringing benefits for the plants, such as, phosphorus solubilization and antibiosis against plant pathogens. These bacteria are considered plant growth promoters and can be used in the inoculant formulation for different crops, promoting a better development at low cost. The aim of this study was to evaluate 20 isolates obtained from upland rice root on their ability to solubilize inorganic phosphate and antibiosis activity against *Sclerotinia sclerotiorum* and *Rhizoctonia solani*. The ability in solubilize inorganic phosphate was performed in Petri dishes containing Pikovskaya solid medium supplemented with insoluble phosphate. The solubilization index (SI) was determined for all isolates. The antibiosis assays were performed in Petri dishes containing solid medium inoculated with the fungi. The isolates were inoculated on the culture medium to verify the presence of an inhibition line for the fungi growth. Only two isolates (S8b and S63) did not show solubilizing ability. Overall, the SI was about 1.11% with the highest value been observed for the isolates S2 and S5 (1.33%). All the isolates showed low solubilizing capacity. For the antibiosis assays, 11 isolates were able to inhibit the growth of *S. sclerotiorum* and 14 isolates inhibited the growth of *R. solani*. The results showed that 10 isolates obtained from rice roots showed solubilizing capacity and antibiosis against both fungi and can be considered efficient plant growth promoters. Those isolates must be evaluated under field conditions and, confirming the previous results they have great potential to be used on the formulation of inoculant for rice crop.

Keywords: Rhizobacteria plant growth promotion, *Oryza sativa*, solubilization index.

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