The ability of rhizobacteria to solubilize phosphate and synthesize of indoleacetic acid in cowpea [

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text (article)

Analítica

The Cerrado comprises a vast ecoregion in central Brazil where plants show both growth and nitrogen fixation deficiencies due to low soil fertility. Farmers may overcome such problem using species of microorganisms capable of improving soil fertility such as the Rhizobia bacteria. This work aimed to assess the ability of phosphate solubilization and synthesis of indoleacetic acid (IAA) of Rhizobium isolates obtained from Cerrado soils in the state of Tocantins, Brazil, evaluating their symbiotic efficiency in cowpea (Vigna unguiculata L. Walp.) plants. We used a total of 32 isolates (or strains) of Rhizobium and a reference species of Bradyrhizobium. The capacity of phosphate solubilization and synthesis of IAA was evaluated in vitro, while the symbiotic function of rhizobia isolates and the effect on cowpea biomass was assessed in a greenhouse. Only eight strains were able to solubilize calcium phosphate, while all isolates produced IAA. The rhizobia inoculation caused a significant increase in biomass and nodulation of cowpea. The isolates UFT R122 and UFT R124 stood out with the highest values for the studied parameters, showing rises above 33% of relative efficiency in comparison to the treatment with nitrogen fertilization. By associating the results of phosphate solubilization capacity, IAA synthesis, symbiotic ability, and nodulation, we conclude that the isolates that showed good performance are potential inoculants for cowpea in Cerrado soils
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