

Isolation and Characterization of Plant Growth Promoting Rhizobacteria from Ipomoea sp. Rhizospheres Growing in Iron Sand Soil

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Abstract	<p>Iron sand field, is mostly found along the Indonesia coast. It has low organic matter, contains 38-59% iron (Fe) and sand particles. These characteristics can be called as extreme environments, however there are bacteria capable of growing and surviving in such habitats. Several genera are known as PGPR agents such as Rhizobium, Azospirillum, Azotobacter and Pseudomonas. The research objectives were to measure total population of bacteria from rhizosphere of Ipomoea sp. in iron sand soils, to investigate the ability of bacterial isolates capable of fixing nitrogen, solubilizing phosphate, and producing plant growth hormone such as IAA, and to identify plant growth promoting rhizobacteria isolated from plant rhizospheres candidates growing in iron sand soils. Isolation on NA medium showed that the population were ranged from 1.59×10^5 to 5.2×10^5 CFU.g⁻¹. There were 22 bacterial isolates originated from the media of Ashby, Caceres, and Pikovskaya. Six isolates (A4, A10, C10, P2, P3, and P4) showed high ability to fix nitrogen, solubilize phosphate, and produce IAA. Isolate P4 grew in nitrogen fixing and phosphate solubilizing assay as well as IAA producing. It showed high value of phosphate index (275 mm). Bacterial identification indicated that four isolates (C10, P2, P3, P4) were species members of genus Bacillus and two isolates (A4, A10) were identified as species members of Actinomycetes.</p>
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