

Study of Pseudomonas as Biofertiliser in Salt-Affected Soils of the Northwestern Algeria: Solubilisation of Calcium Phosphate and Growth Promoting of Broad Bean (*Vicia faba*)

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Abstract : Our study focuses on the study of a bacteria belonging to *Pseudomonas* solubilizing tricalcium phosphate. They were isolated from rhizosphere of a variety of broad bean grown in salt-affected soils (electrical conductivity between 4 and 8 mmhos/cm) of the irrigated perimeter of Mina in northwestern Algeria. Isolates which have advantageous results in the calcium phosphate solubilization index test were subjected to identification using API20 then used to re-inoculate the same soil in pots experimentation to assess the effects of inoculation on the growth of the broad bean (*Vicia faba*). Based on the results obtained from the in-vitro tests, two isolates P5 and P8 showed a significant effect on the solubilization of tricalcium phosphate with an index I estimated at 314% and 283% sequentially. According to the results of in-vivo tests, the inoculation of the soil with P5 and P8 were significantly and positively influencing the growth in biometric parameters of the broad bean. Inoculation with strain P5 has promoted the growth of the broad bean in stem height, stem fresh weight and stem dry weight of 108.59%, 115.28%, 104.33%, respectively. Inoculation with strain P8 has fostered the growth of the broad bean stem fresh weight of 112.47%. The effect of *Pseudomonas* on the development of *Vicia faba* is considered as an interesting process by which PGPR can increase biological production and crop protection.

Keywords : *Pseudomonas*, *Vicia faba*, promoting of plant growth, solubilization tricalcium phosphate

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