World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:8, No:05, 2014

Magnesium Foliar Application and Phosphorien Soil Inoculation Positively Affect Pisum sativum L. Plants Grown on Sandy Calcareous Soil

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Abstract : The effects of soil inoculation with phosphorien-containing Phosphate-Dissolving Bacteria (PDB) and/or magnesium (Mg) foliar application at the rates of 0, 0.5 and 1mM on growth, green pod and seed yields, and chemical constituents of Pisum sativum L. grown on a sandy calcareous soil were investigated. Results indicated that PDB and/or Mg significantly increased shoot length, number of branches plant–1, total leaf area plant–1 and canopy dry weight plant–1, leaf contents of pigments, soluble sugars, free proline, nitrogen, phosphorus, potassium, magnesium, and calcium, and Ca/Na ratio, while leaf Na content was reduced. PDB and/or Mg also increased green pod and seed yields. We concluded that PDB and Mg have pronounced positive effects on Pisum sativum L. plants grown on sandy calcareous soil. PDB and Mg, therefore, have the potential to be applied for various crops to overcome the adverse effects of the newly-reclaimed sandy calcareous soils.

Keywords : bio-p-fertilizer, mg foliar application, newly-reclaimed soils, Pisum sativum L.
Conference Title : ICABBBE 2014 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering
Conference Location : Montreal, Canada
Conference Dates : May 12-13, 2014