كلية الزراعة
قسم الوراثة

جامعة الفيوم

## البحث السابع

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| **Sayed Abdelaziz, Nada F. Hemeda, Eman E. Belal and A. M. Serag. (2019).** Isolation, Characterization and Genetic studies on isolates of phosphate solubilizing bacteria in Egyptian calcareous soils. Plant Biology & Soil Health, **6: 1 – 10.** | البحث السابع |

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| **Title** | **Isolation, Characterization and Genetic studies on isolates of phosphate solubilizing bacteria in Egyptian calcareous soils.** |
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## ABSTRACT

Phosphorous (P) is an essential nutrient element and plays an important role in plant growth and development, it mostly presented in form unavailable for plants. Phosphate solubilizing bacteria (PSB) can be successfully used for solubilizing such forms rendering them available for plants. Thirty-two PSB strains were isolated on a Pikovskaya (PKV) agar medium containing tricalcium phosphate (TCP) and examined for plant growth promoting effects. A high portion of isolates (68.8%) produced indole acetic acid (IAA) in contents ranging from 5 to 15 µgmL$^{-1}$and 12.5% produced salicylic acid (SA) in contents > 100 µgmL$^{-1}$while 50.0% fixed gaseous $N_2$ nitrogen in medium deprived completely of N. A portion of 28.1% produced cellulase enzyme and 15.6% produced chitinase enzyme. *In vitro* tests showed that isolates were capable in controlling some fungus plant pathogens and isolates were resistance to some adverse conditions involving pH, temperature and salinity. Use of 16s rDNA analysis and other procedures showed that the most 3 effective isolates were *Bacillus megaterium*-MH142578, *Acinetobacter lwoffii*-MH142579 and *Acinetobacter lwoffii*-MH142580. The results of cluster analysis (Similarity index) showed that were high and low similar values between the bacterial genera under studies.