



**Fayoum University**

**Faculty of Agriculture**

**STUDIES ON BIOAGENTS PRODUCTION FROM BACTERIA  
ISOLATED FROM SOIL**

By

**Laila Ramadan Abdel Halim Bayomi**

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## ABSTRACT

A survey was undertaken for bacterial isolates capable of producing bioagents from different Egyptian soils. These isolates were tested against various species of microorganisms (G+, G-, spore formers, yeast and fungi) using inhibition zone determination technique.

One or more of the pathogenic bacterial strains used as tested organisms were affected by antimicrobial substances produced by bacterial isolates as indicated by inhibition zones formation. Effect of temperature and heating time, proteolytic enzymes on cell-free supernatants viability of *Bacillus* isolates were determined. The effect of antimicrobial substances produced by bacterial isolates were compared with the effect of 11 antibiotic disks as reference. The effect of medium composition, incubation temperature, and incubation period were investigated the results showed that the best production with nutrient broth at 30-37 °C for 24 – 48 hrs. The most effective isolates against the tested organisms were identified by API 50 CHB system and 16s rRNA, which indicate that these isolates were *Bacillus licheniformis*, *Bacillus amyloliquefaciens*, and *Bacillus subtilis*. Mutual antagonistic effect of *Bacillus* strains was investigated.

*Bacillus* strains used as a producer for antitumor secondary metabolites in plant. Determination of minimum inhibition concentration (MIC) of the antimicrobial substances produced by the chosen five bacterial isolates against a number of microorganisms were determined.

Whole sediment produced by the five bacterial strains were found to be safe when using as ration for albino rats.

**Key words:** Antimicrobial - Isolation and Identification - Biological assay experiment - *Bacillus*