كلية الزراعة
قسم الميكروبيولوجيا الزراعية

جامعة الفيوم

Abdalla, M. S., **Seoudi, O. A.,** Salem, A.A. and Hasan, E.A. I. **(2016).** Isolation, screening and production of extracellular protease from thermophilic bacteria. Egypt. J. Appl. Sci., 31(2):1-16.	**البحث الثانى**
مشترك مع آخرين بالتخصص– منشور- مستخلص من رسالة. ***- سبق تحكيمه مع أبحاث الدكتور/ أحمد عبدالخالق سالم بالجنة ٤٤- الدورة ١١بجلسة ٢٠/ ٨/ ٢٠١٦ (البحث السادس).**	**2**

Title	**Isolation, screening and production of extracellular protease from thermophilic bacteria.**
Participants	**Abdalla, M. S.,[1] Seoudi, O. A.,[1] Salem, A.A.[2] and Hasan, E.A. I.[1] (2016).** [1] Agriculture Microbiology Dept., Faculty of Agriculture, Fayoum University, Egypt. [2] Agriculture Botany Dept., (Microbiology), Faculty of Agriculture, Moshtohor, Benha.
Journal	**Egyptian Journal of Applied sciences, 31(2):1-16, 2016.**

ABSTRACT

The isolates were screened for their proteolytic activity on skim milk agar medium; the diameter of hydrolysis zone was the measurements from the level of proteolytic activity. The most active isolates were selected for the fermentation experiments and the determination of their productivity in the submerged culture. The seven selected isolates were used in fermentation experiments and the proteolytic activity was determined after 48 hrs. The enzyme yields obtained in the fermentation medium were corresponding to the proteolytic level recorded by the diameter of hydrolysis zone on the skim milk agar medium. That indicates a positive relationship between the amount of the enzyme and its spreading in the skim milk agar medium.

According to the results from the fermentation experiments, strains S-5, S-8 and S-9 which gave the highest enzymatic yields were chosen for studying the best environmental conditions for the enzyme production. The three isolates were identified based on morphological, biochemical and 16S rRNA gene sequencing analysis, isolates S-5 was identified as *Brevibacillus panacihumi*; isolates S-8 and S-9 were identified as *Bacillus aerius*. The environmental conditions such as pH, temperature and fermentation period were studied for the highest production of enzymatic yield. The results show that, the highest enzymatic yield was obtained in the fermentation medium at pH 7.0 for *Bacillus stearothermophilus* ATCC7953 and *Brevibacillus panacihumi* S-5 while at pH 8.0 for both *Bacillus aerius* S-8 and *Bacillus aerius* S-9. The fermentation temperatures at 40, 50 and 60 °C showed that the optimum incubation temperature for the enzyme synthesis was 50°C. However, the incubation period required for maximum accumulation of protease was 72 hrs.