Summary

This work was aimed to study the isolation and identification of some dermatophytes that cause human Dermatomycosis in Sharkia governorate. In addition, clinical isolates of actinomycetes were screened for the production of antifungal substances acting against dermatophytes isolates.

(1) A total of 220 specimens of skin scrapings and hair were collected through 4 seasons and examined. The results of the mycological studies revealed that the most prevalent fungus was *Trichophyton* which was the most common genus represented by 7 species, followed by *Microsporum* which was the second in rank, represented by 2 species.

(2) A collection of 192 actinomycete isolates were recovered and selected from 10 soil samples from different governorates in Egypt. They were classified into 3 groups according to the morphological and biochemical characteristics. The identification of these actinomycete isolates was carried out.

(3) The antagonistic abilities of the actinomycete isolates named; *N. halotolerans, S. cineropurpucrus* and *S. diastaticus* were proved to exhibit potential antagonism to dermatophyte isolates. The obtained Results had shown that the three actinomycete isolates were effectively inhibited the growth of dermatophyte isolates on agar and in liquid media, applying different methods.

N. halotolerans was more effective against dermatophytes when cultivated on Starch nitrate agar medium and Soy bean liquid medium, while *S. cineropurpucrus* gave a higher antifungal potential on Glycerol asparagine agar medium and Soy bean meal liquid medium.

S. diastaticus possessed a higher antifungal potential on Yeast malt extract agar medium and Soy bean liquid medium.

The antagonistic abilities of the three actinomycete isolates were influenced by the type of media and cultural conditions.

(4) Different media had antagonistic effects. Data revealed that starch nitrate agar medium was more favorable for all actinomycete isolates.

- Starch was the most favorable carbon source for all actinomycete isolates.
- Potassium nitrate was the most favorable nitrogen source for antagonism.
- The optimum temperature for the production of antifungal substances ranged between 28º-30ºC.
- The production of antifungal metabolites was affected by increasing the pH, where *N. halotolerans* produced antifungal substances at a pH range from 6 to 10 and the best production at pH 8.5 to 9. While the pH values for production of antifungal substances for *S. cineropurpucrus* and *S. diastaticus* ranged from 6 to 7.5.
- The minimum inhibitory concentrations of the tested actinomycetes ranged from 84 to 128 mg/mL for *N. halotolerans*, from 120 to 180 mg/mL for *S. cineropurpucrus* and from 128 to 140 mg/mL for *S. diastaticus*.