



Investigation of the optimum condition and antimicrobial activities of pigments from four potent pigment-producing fungal species

Neveen S. Geweely

Faculty of Science, Cairo University, Egypt

Soil samples were collected from three sites (Wadi-El-Natron, Kafr- El-sheekh and Mallahat road) located in Cairo- Alexandria agriculture road, Egypt. The total fungal counts allover the road was 755 colonies, constituting ten fungal species (*Alternaria alternata*, *Aspergillus flavus*, *Aspergillus nidulans*, *Aspergillus niger*, *Aspergillus terreus*, *Fusarium moniliforme*, *Penicillium chrysogenum*, *Penicillium purpurogenum*, *Phoma herbarum* and *Rhizopus oryzae*). The most potent fungal species producing pigments along the road were *A. nidulans*, *F. moniliforme*, *P. purpurogenum* and *P. herbarum*. Comparative sensitivity to different light wave lengths and radiation (laser, gamma and ultraviolet rays) on growth and pigment production in the four selected fungal species was estimated. Optimization of physical and nutritional factors on growth and pigment production was carried out. A steady increase in the antioxidant activities was showed in all four tested pigments producing species with raising the phenol contents. The extracellular pigment of *P. purpurogenum* was found to be more effective against some pathogenic microbes and has a potential role in pharmaceutical drug industry. The identification of the structure of unknown *P. purpurogenum* pigment was detected using UV and IR spectra, and indicated that it is an phenolic compound and has broad stretching OH, C=C and C-H groups of the aromatic ring.