Study of soil mycobiota diversity in some new reclaimed areas, Egypt

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Abstract:

The objective of this survey was to study the diversity of soil fungi, as they play an important role in knowing the soil quality and increase plant productivity. In this work, the chemical composition of soil samples in newly reclaimed localities at Assiut Governorate was studied; mycobiota of those areas were studied reporting some medically important substances produced by three fungal species, namely Aspergillus terreus, Emericella nidulans, and Penicillium chrysogenum, which recorded the highest occurrence all over the year in different studied areas. Soil samples were collected monthly for a whole year from the four selected reclaimed regions at Assiut Governorate, namely Protectorate of Assiut (PR), El-Ghorayeb (GH), El-Wady El-Assiuty (WA), and Petroleum's Farm (PF), and samples were identified using the morphological and microscopic features according to many references and confirmed by Assiut University Mycological Center (AUMC) followed by physiochemical analysis of soil, including measuring total soluble salts and determining the organic matter content, maximum and minimum temperatures, relative humidity, and soil texture. The highest numbers of fungal genera and species were recorded in PR followed by WA and PF, whereas the lowest numbers were recorded in GH. E. nidulans var. acristata and Penicillium funiculosum were isolated with moderate frequency from GH; Aspergillus aegyptiacus and Aspergillus ustus were isolated with moderate frequency from WA; A. aegyptiacus, Eurotium amstelodami, and Fusarium solani were isolated with moderate frequency from PF; Eurotium repens was isolated only from GH; Arthrinium sacchari, Cochliobolus sativus, and Fusarium xylarioides were isolated only from WA; Aspergillus defl ectorus, Penicillium expansum, and Rhizopus arrhizus were isolated only from PF; Aspergillus niger, Fusarilla indica, Fusarium semitectum, and Trimmatostroma eriodictyonis were isolated only from PR. There are no adequate mycological studies carried out to describe the fungal flora of these areas. Hence, any information on the endemic mycobiota is of great significance.

Keywords:

fungal isolates, identification, isolation, reclaimed soil

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