Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 5209 - 5223
Received 25 April 2021; Accepted 08 May 2021.

Screening of Some Iraqi Plants for Fungal Species Producing Paclitaxel Anti-Cancer Drug

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Abstract

Researchers exploring the eukaryotic fungi because of their production of various plant related secondary metabolites with an extensive diversity of biological actions, such as paclitaxel, which produced at the beginning from yew bark**.** Sixty wild and cultivated plant samples collected from Basrah**.** The pure isolates screened for paclitaxel production, among thirty-two fungal endophytic species isolated from mature leaves, stems, flowers and fruits of different Iraqi plants, two important strains named *Alternaria alternata* (HKB1) and *Chaetomium globosum* (HKB2) are capable for paclitaxel production. The pure isolates of fungi screened for paclitaxel production by thin layer chromatography (TLC) using paclitaxel- standard, UV spectroscopic analysis and infrared (IR) spectrum investigated using FT-IR. Genomic DNA of the two strains HKB1 and HKB2 extracted, rRNA amplified by PCR, the amplicons sequenced, and the retrieved sequence of HKB1 and HKB2 strains deposited in GenBank with accession numbers LC621226 and LC621227, respectively. The mcf 7-cell line used to estimate the anti-tumor activity of isolated paclitaxel and the cytotoxic results showed that paclitaxel produced from *Alternaria alternata* was the best and most effective against MCF-7 cell line compared with the efficacy of Paclitaxel produced from *Chaetomium globosum*, which showed less efficacy but comparable to standard.

Key words: Iraqi plants, eukaryotic fungi Paclitaxel, *Alternaria alternata*, *Chaetomium globosum*

Introduction

Fungi are ubiquitous, eukaryotic microorganisms, which found in many different environments wherever organic material is available. They are found in a wide range of environments due to their capacity to utilize a variety of substrates and to their relative tolerance to low pH, low water activity and low temperature [1]. Pharmaceutical together with agricultural productions are exploring the eukaryotic fungi because of their production of a various plant related secondary metabolites with an extensive diversity of biological actions [2]. Amongst the plant-resulting