Antifungal Activities of Some Plant Extracts Against Pathogenic Fungi

Thesis

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BY

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Approval sheet

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Dedication

I dedicate this work to

My mother

My father

My dear sisters

My brother

My husband

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List of Abbreviations

LDL	Low-Density Lipoprotein
DPPH	2,2-diphenyl-1-picrylhydrazyl
ABTS	2,2'-azinobis-3-ethylbenzothiazoline-6-sulfonic acid
UAE	ultrasound assisted extraction
MAE	microwave-assisted extraction
SFE	supercritical fluid extraction
PLE	Pressurized liquid extraction
DMSO	dimethyl sulfoxide
SDA	Sabouraud dextrose agar
GC/MS	Gas Chromatography- Mass Spectrum

ABSTRACT

Abstract

Soil samples were collected from different localities in Cairo, and were assayed for keratinophilic fungi. Five species of fungi classified in two genera were isolated from Giza zoo (animal cages and parks), hospital, public Park, local market, primary school, club and garbage dumping site. Five plants were chosen to investigate their antifungal activity against five isolated dermatophytes: *Microsporum gypseum, Microsporum boullardii, Trichophyton mentagrophytes, Trichophyton terrsetre* and *Trichophyton verrucosum*. The tested plants were *Punica granatum* (Pomegranate), *Aloe vera*, *Foeniculum vulgare* (Fennel), *Allium ampeloprasum* var. *Kurrat* (kurrat) and *Ricinus communis* (*Castor bean*). Plant extracts were prepared by three different solvents, hexane, ethyl acetate and 80% ethanol. The study shows that ethanolic extract of *Punica granatum* (Pomegranate), hexane and ethanolic extract of *Allium ampeloprasum* var. *Kurrat* (kurrat) were effective against most of the tested organisms. Ethanolic extract of pomegranate and hexane extract of kurrat were chromatographed by column chromatography. Fractions from column chromatography were tested for antifungal activity. Ethyl acetate: ethanol fraction (9:1) of pomegranate (*Punica granatum*) and hexane: ethyl acetate fraction (1:9) of kurrat (*Allium ampeloprasum var. Kurrat*) showed antifungal activity against the fungal strains. These

fractions were analyzed by Gas Chromatography- Mass Spectrum **(**GC/MS). The analysis revealed that thirty-nine compounds from pomegranate and forty compounds from kurrat were identified. Several of these compounds were responsible for the antifungal activity found in the extracts against the fungal strains. Many of compounds present in the hexane kurrat extract are of organosulfer origin while pomegranate ethanolic extract revealed many compounds of diverse chemical structure; viz. 2H-pyran-2-one, pyridine, anthraquinones, phenanthrene, benzofuran, nonan-2-one, thiophenes, phenanthrolines, cholestane, calixarenes, flavone and anthracene.

Aim of the work