عنوان مقاله:

Fungicidal effect of Origanum vulgare essential oil against Candida glabrata and its cytotoxicity against macrophages

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خلاصه مقاله:

Introduction: Candida glabrata is a yeast fungus regularly isolated from patients with impaired immunity who receive a routine antifungal therapy. Drug-resistant strains of C. glabrata have been emerged in recent years. The aim of this study was to examine the therapeutic efficacy Origanum vulgare essential oil (OVEO) against drug-resistant strains of C. glabrata and its cytotoxic effect on macrophages.Methods: Specimens were collected from mucosal surfaces of the oral cavity of medically approved oropharyngeal candidiasis (OPC) in HIV-positive patients and volunteered healthy individuals using sterile swabs or mouthwashes. In vitro antifungal susceptibility testing was done using microdilution and disc diffusion methods. Chemical composition of OVEO was determined using gas chromatography mass spectrometry. The cytotoxic effect of essential oil on macrophages was examined using tetrazolium dye (MTT).Results: Minimum inhibitory concentration (MIC) range of OVEO in healthy individuals and OPC patients was ۱۵۰-۲۰۰ and ۱۵۰-۲۵۰ µg/mL, respectively. OVEO efficiently inhibited growth of resistant isolates. In isolates obtained from HIV patients, both MIC۵۰ and MIC۹۰ of OVEO were ۲۰۰ µg/mL while in healthy individuals were ۱۵۰ and ۲۰۰ µg/mL, respectively. Moreover, OVEO induced significant reduction in proliferation of murine RAW۲۶۴.۷ and peritoneal macrophages in concentrations higher than ۱۰۰ and ۳۰۰ µg/mL, respectively. Main constituents of OVEO were thymol (۲۷.۳%), γ-terpinene (۲۰.۷%) and carvacrol (۱۶.۱%).Conclusion: OVEO could be used as a fungicidal agent against fungal infections caused by azole-resistant C. glabrata. A combination therapy along with standard antifungals is suggested to avoid its cytotoxic effects.

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا: