

Evaluation of Biofilm Formation, Hydrolytic Enzymes and Antifungal Susceptibility of Planktonic Cells of *Candida Albicans* Species Isolated from Different Clinical Samples

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Original Article

Abstract

Background: *Candida* species are common organisms in human and animal mucosa that cause a wide range of *Candida* infections in immunocompromised patients. This study investigated the ability to produce proteinase, phospholipase and hemolysin as well as biofilm formation in different clinical isolates of *Candida albicans*.

Methods: In this study, ninety-four *C. albicans* were identified using phenotypic tests and amplification of the hyphal wall protein (HWP1) gene, and the proteinase, phospholipase and hemolysin production in specific mediums, as well as the ability to biofilm formation using the crystal violet method were evaluated. Then, the antifungal susceptibility of planktonic cells was tested on the basis of the CLSI- M27-A3/S protocol.

Findings: In this study, the proteinase, phospholipase and hemolysin activities of *C. albicans* isolated from different body sites were 82%, 75.5%, and 68%, respectively. Additionally, 74.5% of the isolates had the ability to biofilm formation. Among the isolates being studied, the strains isolated from the oral cavity showed the highest activity of proteinase, hemolysin and biofilm formation, and the strains isolated from vaginal secretions showed the highest level of phospholipase activity. The susceptibility pattern of *C. albicans* species to antifungals showed that all isolates were sensitive to AMB and VRC, and resistance to FLC and ITC was reported as 5.4% and 2.2%, respectively.

Conclusion: The results show the importance of molecular epidemiology studies and understanding the role of hydrolytic enzymes and biofilm production in *C. albicans* strains.

Keywords: *Candida albicans*; Antifungal agents; Disease susceptibility; Virulence; Biofilms

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