Major Article

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# Relationship between antifungal susceptibility profile and virulence factors in Candida albicans isolated from nail specimens

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**Abstract**

**Introduction**: The aim of this study was to evaluate some virulence factors in Candida albicans isolates from patients with onychomycosis and determine the correlation between these factors and the antifungal resistance profile.

**Methods:** Seventy species of C. albicans were confirmed using polymerase chain reaction amplification of the HWP1 gene. According to the Clinical & Laboratory Standards Institute guidelines, the susceptibility profile of four antifungal agents was investigated, and the production of aspartyl protease, phospholipase, haemolysin, and biofilm was determined. The correlation between these profiles was also investigated.

**Results:** The isolates indicated different levels of resistance and production of virulence factors. Significant correlations were observed between the minimum inhibitory concentration (MIC) of fluconazole/itraconazole and biofilm production, between phospholipase production and fluconazole/ itraconazole MIC, and between fluconazole MIC and hemolytic activity in C. albicans isolates. The results also showed significant correlations between phospholipase activity and biofilm production.

**Conclusions:** Our findings will contribute to a better understanding of the pathogenesis of C. albicans and characterize the relationship between virulence factors and antifungal resistance, which may suggest new therapeutic strategies considering the possible involvement of the virulence mechanism in the effectiveness of treatment.

**Keywords**: Candida albicans. Virulence factors. Biofilm. Antifungal agents.