Antifungal Activity of PvD1 Defensin Against Different Candida albicans Mutant and Wild Type Strains

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During the last 20 years, the incidence of invasive fungal infections has increased considerably; Candida bloodstream infections have steadily increased since the 1980s and account for 8–15% of all bloodstream infections. A number of surveys have revealed that, in the 1980s, more than 75% of Candida infections were caused by C. albicans. Recently, a new defensin from Phaseolus vulgaris (L.) seeds, named PvD1, was isolated and characterized. PvD1 purified showed high activity against several pathogenic yeasts such as C. albicans, C. parapsilosis, C. tropicalis, C. guilliermondii. In this work antifungal activity of PvD1 was tested against different C. albicans mutant strains (ΔGCS1, TUP1, EFG1, RIM101) at a concentration of 100 µg.mL⁻¹ and 200 µg.mL⁻¹. C. albicans wild type strain was used as control. After growth assay C. albicans mutant and wild type strain cells were processed for optical and electron scanning microscopy. PvD1 was able in inhibit the growth of all Candida strains except the mutant ΔGCS1. C. albicans mutant and wild type strain cells showed different morphological alterations when treated with PvD1. PvD1 is also able to inhibit glucose-stimulated acidification of the medium by C. albicans wild type cells.

Keys Words: antifungal activity, antimicrobial peptides, Candida albicans, Phaseolus vulgaris, plant defensin

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