

Title

Antifungal activity of *Bacillus amyloliquefaciens* and *Serratia marcescens* against three *Candida* strains.

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Abstract

Due to the excessive use of broad-spectrum antifungal therapies, pathogen and opportunist microbial agents as *Candida* spp. cause superficial and deep infections more often in immunologically weak and immunocompromised patients for example those with HIV, cancer, other infectious, chronic and metabolic diseases. Actual treatments, which mainly consist of strong drugs such as amphotericin and nystatin have many problems, like toxicity, resistance and high cost. Our study focus in finding benefit microorganisms in plant species that present antifungal and antagonistic properties against three pathogenic strains of *Candida*: *C. albicans*, *C. glabrata* and *C. tropicalis*. Endophytes are suitable biocontrol agents, may promote plant growth and yield, tolerance to biotic and abiotic stresses, and enhance the efficacy of phytoremediation. Two endophytic bacteria strains were tested, *Bacillus amyloliquefaciens* and *Serratia marcescens*, using the agar disk diffusion method. *Candida* strains were cultured in Potato Dextrose Agar (PDA). To determine the titer of the antifungal activity, serial dilutions of the bacterial culture were performed. *B. amyloliquefaciens* presents antifungal activity against *C. glabrata* and *C. albicans*. By the way *S. marcescens* presents antifungal activity against *C. albicans* and *C. tropicalis*. These results determine that benefit endophyte bacteria could present bioactive compounds with antifungal properties against pathogen yeast as *Candida* that could improve as future antifungal therapies. This study show that *Bacillus amyloliquefaciens* and *Serratia marcescens* have potent antimicrobial activity and further analysis have to be performed to provide of more and significant data about the biomolecules responsible of the antifungal activity. Therefore, it is important to discover new antifungal agents in order to effectively combat *Candida* spp. strains that express multidrug resistance to commercial drugs.

Key words: Fungal Pathogen, Anti-*Candida* activity, Agar disk diffusion test.