TITLE: *CANDIDA ALBICANS* CELL MEMBRANE ALTERATIONS AND OXIDATIVE STRESS INDUCED BY A *MORINGA OLEIFERA* CHITIN-BINDING PROTEIN

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ABSTRACT

Candida albicans is an opportunist yeast associated with skin and mucosal infections, mainly in immunocompromised patients. Treating *C. albicans* infections can be difficult due to few available antifungal drugs and the emergence of resistant strains. This stimulates the constant search for new antifungal drugs. In this context, bioactive molecules from plants may be highlighted about their antifungal properties. *Mo*-CBP_2, a chitin-binding protein isolated from *Moringa oleifera* seeds exhibited antifungal activity against *Candida* spp. by increasing cell membrane permeability and ROS production. In this work, it was evaluated how to occur *Mo*-CBP_2 antifungal activity on *C. albicans* (ATCC 10231). To this, the yeast cells treatment was performed by *Mo*-CBP_2 (18.9 µM) and 10 mM ascorbic acid or (800 ug/mL) ergosterol. FITC-dextrans (10 e 40 kDa) were used to evaluate pore size in the yeast cytoplasm membrane. It was also assessed lipid peroxidation, protein and DNA releasing by spectrophotometry. As result, it was observed that yeast treated with *Mo*-CBP_2 was not permeable only for FD40 (radius = 4.5 nm), but the cell membrane damage allowed intracellular material releasing showed by protein and DNA quantification in the external medium. In addition, exogenous ergosterol decreased the antifungal effect of both Nystatin (11.11 µM) and *Mo*-CBP_2. AA did not alter the antifungal effect of *Mo*-CBP_2, however, it reduced the lipid peroxidation process. In conclusion, *Mo*-CBP_2 can interact with cell membrane resulting in intracellular content releasing, besides ROS production induction and consequently membrane lipid peroxidation.