

TITLE: SILVER NANOPARTICLES STABILIZED WITH PROPOLIS FOR THE TREATMENT OF CANDIDIASIS: SUSCEPTIBILITY, CYTOTOXICITY AND MUTAGENICITY.

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ABSTRACT: Fungal infections have been reported more frequently due to difficulty of treatment and the high rate of recurrences of the disease. Thus, several scientific studies have been developed in order to seek new alternatives of active ingredients for effective combat of the fungal infections. Vulvovaginal candidiasis (VVC) is considered the most common cause of fungal infection and is caused by increased amount of *Candida* spp. present in the vaginal microbiota, causing symptoms of irritation, genital pruritus and discharge. A current approach to treatment of these infections is the development of nanoparticles (NPs). The present study aims to synthesize and investigate the combined properties of silver and propolis for the development of NPs with antifungal potential against species of the genus *Candida*. The NPs were obtained by biosynthesis using propolis glycolic extract (PGE) as reducing agent and stabilizer of silver ions (Ag^{+1}). After obtaining the NPs, these and PGE were evaluated for antifungal activity, following the broth microdilution method to determine the minimum inhibitory concentration (MIC) and plating to determine the minimum fungicidal concentration (CFM). Isolates of *C. albicans* ATCC 90028; *C. tropicalis* were used. Cytotoxicity was evaluated by the MTT reduction method in Vero cells and mutagenicity by the AMES test using *Salmonella* sorovar Typhimurium TA98 and TA100. CIM and CFM for EPG were observed for *C. parapsilosis* and *C. tropicalis* at 212 µg/mL, and for all other strains at 106 µg/mL. In contrast, NPs completely inhibited growth at much lower concentrations, observed for *C. krusei* at 1.35 µg/mL, and for all other strains at 5.4 µg/mL. Cytotoxicity was observed at 22 µg/mL, above the MIC. The NPs showed no mutagenic potential. In this way, we can conclude that the silver NPs obtained using PGE have a increased fungicidal effect, being of interest in the development of new nanotechnological products for the treatment of candidiasis.

Keywords: nanotechnology, biosynthesis, *Candida*.

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