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CHITOSAN AS AN ALTERNATIVE TREATMENT FOR ORAL CANDIDIASIS

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Oral candidiasis is particularly evident not only in cancer patients receiving chemotherapy, but also in elderly people with xerostomy. It is a fungal infection caused by *Candida* species such as *Candida albicans*. In general, *Candida* is an opportunistic pathogen, causing infections in immunocompromised people and in some cases when natural microbiota is altered. One of major virulence capacity of *C. albicans* is its ability to adapt to a variety of different habitats and the consequent formation of surface-attached microbial communities known as biofilms. Along with the current limited repertoire of clinically available antifungals, the drawbacks associated with them such as development of resistance in the pathogen, limited clinical efficacy and poor bioavailability, demand for the development of new antifungal agents. Chitosan, a natural derivative of chitin, is a polysaccharide that was proved to possess a broad spectrum of antimicrobial activity that encompasses fungi, yeast and bacteria. Possesses high biocompatibility and anti-inflammatory capacity and while recent studies have revealed a significant antibiofilm activity upon several microorganism, including *C. albicans*, little is known when regarding the impact of chitosan upon the adhesive process or mature biofilms. With that in mind, the purpose of this work was to evaluate, *in vitro*, the capability of chitosan to inhibit *C. albicans* growth and biofilm formation.

The results obtained showed that chitosan is capable of inhibiting *C. albicans* growth (HMW – 1mg/ml; LMW – 3 mg/ml). At sub-MIC concentrations (HMW –0.5 and 0.25 mg/ml; LMW – 1.75 and 0.75 mg/ml) they showed biofilm formation inhibition (percentages above 90%) and reduction of mature biofilms formation by *ca.* 65%. Additionally, chitosan was also capable of inhibiting *C. albicans* adhesion (ca. 95%).

These results display the potential of this molecule to be used in the oral cavity and in particular, in the treatment of oral candidiasis.