

TITLE: An analysis of virulence of *Candida* spp strains from different clinical diseases

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ABSTRACT:

Candida species have a great pathogenic potential, which can be manifested as a result of an imbalance of the parasite-host binomial, causing multiple diseases in healthy individuals and presenting resistance to existing antifungal agents. Expression of virulence factors, such as the production of phospholipases, proteases and hemolysins confer *Candida* spp. greater pathogenicity, which may vary according to species and strain. Several diseases are caused by yeasts of the genus *Candida* and the success of the treatment is the sum of factors such as: sensitivity of the strain to the drug used; immunological status of the patient; and virulence of the fungus that will have an effect on the former. This study aims to evaluate pathogenicity characteristics through the hemolytic activity of *Candida* species isolated from different clinical settings. Fourteen clinical strains have been used, divided among *Candida albicans* species (n= 7); *Candida parapsilosis* (n= 2); *Candida glabrata* (n= 2) and *Candida tropicalis* (n= 3) and ATCC strain (90028); and the hemolytic activity of the same evaluated through modified blood agar. The latter has been measured as follows: activity absent from where no halo is visible around the colony; weak $\leq 1\text{mm}$; moderate: 1.1 to 1.49mm; and strong: $\geq 1,5\text{mm}$. This study main findings shows that all strains presents a strong activity for hemolysin production, with halos varying from 2 to 4 mm. According to the literature, *C. albicans* would be a major producer of proteolytic enzymes, however, no difference was observed among tested species. It can be conclude that clinical strains of the genus *Candida* have a strong hemolytic activity, which is independent from the species. Furthermore, it is worth noting that the knowledge of the biology of the microorganisms facilitates the understanding of the mechanisms in the diseases and the efficacy of their treatments.

Keywords: *Candida*, hemolytic activity, pathogenicity