TITLE: Proteinase and DNAse production in *Candida parapsilosis* isolated from the health professionals's hands

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The factors related to yeast, called pathogenicity or virulence factors, influence how the infection is presented and its severity. Among the major virulence factor functions that assist in the evasion of host defenses and in the installation and maintenance of infection are: adhesion of the yeasts and colonization of mucous membranes and organs, genotypic and phenotypic variation, growth at temperatures of 39°C and 42°C and exoenzymes production. This study aims to evaluate the activity of proteinases and DNAse of *Candida parapsilosis* isolated from the health professionals's hands of a Neonatal Intensive Care Unit (NICU). The samples were collected from March to August ~~of~~ 2018 after the workers sign the informed consent form. They simulated hand washing in a sterile polypropylene bag containing 30 mL of Brain Heart Infusion. The material was placed in 15 mL sterile falcon tubes and incubated at 35±2ºC for 24 hours. The samples were plated on Sabouraud Dextrose Agar (SDA) with the addition of chloramphenicol (100 mg/L) and chromogenic agar and incubated at 30 °C for 72 h. The colonies were identified by classical methodology: germ tube formation, microculture agar on tween-80 cornmeal. Experimental tests were performed from fresh culture (24–48 h incubation in SDA). A suspension was performed of each isolate in saline solution (0.9%) with a turbidity equivalent to the McFarland tube 2 scale ($1x10^8$ to $5x10^8$ CFU/mL). Aliquots of 5 mL of each suspension were placed at equidistant points on petri dishes containing the respective culture media: agar proteinase and agar DNAse. The plates were incubated at 30°C for 7 days. The tests were performed in duplicate. Proteinase activity was characterized by the presence of a whitening halo around the colony on agar albumin resulting from protein degradation. The results for the DNase activity were expressed as positive or negative depending on the presence or absence of a clear halo around the colony. From 64 *Candida parapsilosis* samples, 52 (81.3%) were proteinase negative and 12 (18.7%) were strong proteinase producers. Regarding to DNAse, 33 (51.6%) samples were negative and 31 (48.4%) positive. These enzymes are considered important factors of virulence and facilitators to the establishment of infections mainly in opportunistic fungi. The study demonstrated that almost 50% of *Candida parapsilosis* samples in the health professionals's hands of a NICU showed strong DNAse production and more than 10% for proteinase.

Keywords: Exoenzymes, *Candida*, Neonatal Intensive Care Unit.