

Title: EVALUATION OF HEMOLYTIC AND PHOSPHOLIPASE ACTIVITY OF *Candida* spp. OBTAINED FROM BLOODSTREAM INFECTIONS IN TERTIARY HOSPITALS OF NATAL-RN

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Summary

Yeasts of the genus *Candida* are one of the most common causes of bloodstream infection and associated with high rates of morbidity and mortality, mainly affecting immunocompromised patients. This study aimed to evaluate hemolytic and phospholipase activity of clinical isolates of *Candida* spp. obtained from blood cultures of patients with candidemia attended at tertiary hospitals in Natal city, RN. We analyzed 69 isolates of *Candida* spp. obtained from blood cultures between April 2012 and March 2015. Yeasts were identified by CHROMagar Candida®, microculture on cornmeal agar added tween 80 and classical methods (assimilation and fermentation of carbohydrates). The hemolysis index (HI) was determined by the ratio between the diameter of the colony and the diameter of the colony plus hemolysis zone, while the precipitation zone (Pz) was determined by the ratio between the diameter of the colony and the diameter of the colony plus halo of precipitation. We obtained isolates of the following species: *Candida albicans* (24), *Candida parapsilosis* species complex (18), *Candida tropicalis* (17), *Candida glabrata* (7) and a single isolate each of *Candida lusitanae* and *Candida ciferri*, besides one isolate of *Candida* sp. that was not identified at species level. All isolates presented hemolytic activity, ranging from 0.72 ± 0.04 to 0.25 ± 0.03 . It was observed that *C. glabrata* strains showed higher hemolytic activity (0.32 ± 0.05), followed by *C. tropicalis* (0.36 ± 0.06), *C. parapsilosis* species complex (0.43 ± 0.11) and *C. albicans* (0.49 ± 0.09). Phospholipase production was detected in 84% of the isolates, ranging from 0.75 ± 0 to 0.39 ± 0 . Of note, all *C. albicans* isolates were able to produce phospholipase (mean of 0.53 ± 0.08), while only 94% of *C. tropicalis* isolates (mean of 0.53 ± 0.15), 86% of *C. glabrata* isolates (mean of 0.47 ± 0.21) and 50% of *C. parapsilosis* species complex isolates (mean of 0.62 ± 0.07) produced phospholipase. Our data suggest that, despite *C. albicans* is considered the most virulent species of the genus *Candida*, non-*Candida albicans* *Candida* species showed to be able to produce hemolysins and phospholipases, which are molecules that play an important role in infections caused by these fungi.

Keywords: Candidemia, hemolysins, phospholipase *Candida albicans*, non-*Candida albicans* *Candida* species

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