Title: VIRULENCE FACTORS AND RESISTANCE TO OSMOTIC STRESS OF *Candida tropicalis* ISOLATES FROM COASTAL ENVIRONMENT IN NORTHEASTERN BRAZIL

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Summary:

Several studies have been developed regarding to human health risks associated with the recreational use of beaches contaminated with domestic sewage. Wastes contain various micro-organisms, including *Candida tropicalis,* an etiologic agent of both superficial and systemic infections, as well as an indicator of fecal contamination of the environment. Therefore, the objective of this study was to characterize *C. tropicalis* isolates from the sandy beach of Ponta Negra, Natal, Rio Grande do Norte, Brazil, regarding to the expression of *in vitro* virulence factors and adaptation to osmotic stress. We analyzed 62 environmental isolates of *C. tropicalis* and observed a great variation among them for the various virulence factors evaluated. In general, environmental isolates were more adherent to Human buccal epithelial cells (HBEC) than *C. tropicalis* ATCC13803 reference strain (147.5 $\pm$ 8.7 versus 96.0 $\pm$ 10,0, respectively), besides the fact they were also highly biofilm producers (1.45 $\pm$ 0.023 versus 0.21 $\pm$ 0.006). In relation to morphogenesis, most isolates presented wrinkled phenotype in Spider medium (34 isolates, 54.8 %). When lytic enzyme activity was evaluated, most isolates had higher proteinase production than *C. tropicalis* ATCC13803 reference strain (0.077 $\pm$ 0.003 versus 0.057 $\pm$ 0.005). In addition, 35 isolates (56.4 %) had high hemolytic activity (hemolysis index > 55). Finally, with regard to *C. tropicalis* resistance to osmotic stress, 85.4% of the isolates were able to grow in a liquid medium containing 15% sodium chloride, corroborating to high survival capacity described for this yeast at marine environment, while *Candida albicans* ATCC90028 was able to grow in a medium containing 3.75% sodium chloride. Therefore, our results demonstrate that *C. tropicalis* isolated from the sand of northeast of Brazil can fully express virulence attributes and showed a high persistence capacity on the coastal environment. This constitutes a potential health risk to visitors of this environment, especially immunocompromised individuals and those with extreme age range.

Keywords: *Candida tropicalis*, coastal environment, virulence factors

Financial support: CAPES