

Title: Phospholipase, proteinase and biofilm production by *Candida albicans* and *Candida tropicalis* bloodstream isolated from patients with candidemia in Manaus, Amazonas, Brazil

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Abstract:

Candida is the most important etiological agent of fungemia. The main species is *Candida albicans* but *Candida tropicalis* is emerging as the second most important species in candidemias in the state of Amazonas. This study evaluated 34 isolates of *Candida albicans* and 30 isolates of *Candida tropicalis* to produce proteinase, phospholipase and biofilm formation. These isolates are from 11 Hospitals of Manaus, isolated in 2013 and stored in the Laboratório de Biodiversidade em Saúde – Instituto Leônidas e Maria Deane/IOCRUZ Amazônia. The *Candida albicans* were previously characterized as the DST (Diploid Sequence Type) in 23 different genotypes, but the main DST was the DST90 where 9 isolates belong to this genotype and 5 isolated are from the DST90 complex. For evaluation of the production of phospholipase, proteinase and biofilm it followed the method of Price et al. (1982), Ruchel et al. (1982) and Christensen et al. (1982), respectively. From the isolates of *Candida albicans* 97.1% (n = 33) showed phospholipase production while only 3.33% (n = 1) of *C. tropicalis* isolates showed production of this enzyme. For the production of proteinase 73.52% (n = 25) of isolates of *C. albicans* and 33.33% (n = 10) of *C. tropicalis* were positive. For the production of biofilm only 11.8% (n = 4) isolates of *C. albicans* were producers, while 70% (n = 21) of isolates of *C. tropicalis* were positive. Considering the *C. albicans* isolates belonging to genotype DST90, it was found that these yeasts do not produce biofilm, but most are proteinase producer and strongly producing phospholipase. In conclusion, the production of enzymes (phospholipase and proteinase) were higher in isolates of *C. albicans* than *C. tropicalis* isolates, moreover biofilm formation was higher in isolates of the *C. tropicalis*.

Keywords: hydrolytic enzyme, biofilm, virulence, *Candida*, candidemia

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