

Title: DETECTION OF PHOSPHOLIPASE AND HEMOLYTIC ACTIVITY OF NON-CRYPTOCOCCUS SPECIES OBTAINED FROM PIGEON DROPPINGS OF URBAN AREAS PUBLIC ON NATAL-RN CITY, BRAZIL.

Authors: Pinto, L.M.¹. Medeiros, M.A.P.¹. Chaves, G.M.¹

Institution: ¹Natal city, Rio Grande do Norte state, Brazil; Department of Clinical and Toxicological Analysis, Federal University of Rio Grande do Norte.

Abstract: Pigeons have been considered the main birds' reservoir of pathogenic yeasts, being *Cryptococcus neoformans* the main species isolated, as demonstrated in several studies. However, there is an increased interest for the isolation of Non-*Cryptococcus* species including the genus *Candida* obtained from pigeon droppings recently. *Candida* species may cause infirmities ranging from superficial to severe systemic infections, mainly in immunosuppressed patients, reinforcing its opportunistic character. This study aimed to investigate phospholipase and hemolytic activity of 60 *Candida* strains isolated from pigeon droppings collected in public urban areas of Natal city, Brazil. We collected 19 samples of pigeon droppings from external areas of an university hospital between April 2012 and March 2014. Yeasts were identified with classical taxonomy. Hemolytic activity was determined in Sabouraud dextrose agar plates containing 3% glucose added 7% sheep red cells. Culture media containing egg yolk was used to determine phospholipase activities. Enzymes activities were determined by measuring the diameter of the colony divided by the diameter of the colony plus precipitation zone (phospholipase) or hemolysis halo (hemolysin). Among all *Candida* spp., only two strains belonging to the *Candida parapsilosis* species complex (3.3%) showed no hemolytic activity. The hemolysin index (IH) ranged from 0.33±0.00 to 0.66±0.02 (mean of 0.4 ± 0.02) for *Candida tropicalis*, 0.38±0.02 to 0.61±0.01 (mean of 0.5 ± 0.02) for *Candida krusei*, 0.33±0.03 to 0.38±0.02 (mean of 0.36 ± 0.02) for *Candida glabrata*, 0.34±0.01 to 0.60±0.04 (mean of 0.45 ± 0.02) for *Candida parapsilosis* species complex and 0.48 for *Candida rugosa* species complex. Regarding to phospholipase activity, 2 isolates of *C. tropicalis* (3.3%) and a single isolate of *Candida rugosa* species complex (1.7%) did not show enzyme activity. The phospholipase activity (PZ) ranged from 0.58±0.01 to 0.75±0.01 (mean of 0.67±0.03) for *Candida tropicalis*, 0.37±0.01 to 0.78±0.04 (mean of 0.45 ± 0.03) for *Candida krusei*, 0.32±0.02 to 0.35±0.00 (mean of 0.38 ± 0.02) for *Candida glabrata* and 0.53±0.00 to 0.88±0.00 mean of (0.7 ± 0.03) for the *Candida parapsilosis* complex. Our results demonstrate that yeasts others than *Cryptococcus* isolated from pigeon droppings are able to secrete important enzymes related to virulence, reinforcing their potential ability to cause infections.

Keywords: Virulence, phospholipase, hemolytic activity, pathogenic yeasts

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