

TITLE: A cell wall stressor congo red alters the interaction of *Candida tropicalis* with murine peritoneal exudate cells.

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Candida tropicalis is a current clinically relevant species especially in tropical regions. The pathogenicity of *C. tropicalis* is related to several virulence traits, including morphogenesis, a transition from blastoconidia to filamentous forms. This ability is associated with the process of tissue invasion, by promoting successful colonization and evasion of the immune system. The cell wall is a structure of first contact with the host's environment, therefore it promotes protection against environmental changes and immunological recognition. Congo red (CR) dye is a cell wall stressor due to its affinity to chitin present in cell wall. Changes in this structure can promote changes in the recognition of *C. tropicalis* by phagocytic cells. The aim of this study was to evaluate the response of the clinical isolate 49.07 (*Is49.07*) after exposure to CR and its effect on the interaction with murine peritoneal exudate cells (PECs). *Is49.07* was incubated (5×10^7 cells/ml) in absence (control) and presence of CR (100 µg/ml) at 37 °C for 1h. Post-exposure cell viability was assessed by colony forming units (CFU). The PECs were obtained according to the National Council for the Control of Animal Experiments. Hemocytes were obtained from *Galleria mellonella* larvae. Co-cultivation of PECs or hemocytes with *Is49.07* (ratio 5:1 – MOI coefficient) were carried out at 37 °C for 2 h. After cells fixation and staining, the percentage of phagocytosis and morphogenesis of *Is49.07* were determined. The CR promoted reduction of 33% in the viability of *Is49.07* ($p=0.0023$) in comparison to the control. Exposure to CR promoted a 19% increase in phagocytosis of *Is49.07* by PECs ($p<0.0001$). Differently, there was no significant difference in phagocytosis by hemocytes after exposure to CR. Morphogenesis in *C. tropicalis* was also affected by CR exposure. Increased percentage of filamentous forms during co-cultivation ($p=0.0230$) was observed compared to the control. We conclude that cell wall disturbing (binding of CR to chitin layer) may cause an increase in the recognition of *C. tropicalis* by PECs, and on morphogenesis, that may have effect on evasion and escape mechanism from phagocytosis.

Keywords: Morphogenesis, *Candida tropicalis*, immune system, Congo red.

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