

Title: *Galleria mellonella* AS A MODEL HOST TO STUDY BLACK YEAST

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Abstract

Black yeasts like fungi belong to Herpotrichiellaceae family are extremely relevant from the ecological and clinical aspects. In Brazil, chromoblastomycosis has been epidemiologically associated with traumatic infection by plants which the main etiologic agent is *Fonsecaea pedrosoi*. Non-mammalian models has been used to investigate fungal virulence and pathogenicity. Recently new models to investigate this aspects has been developed. *Galleria mellonella* larvae is inexpensive to keep, easy to manipulate and their use may reduce the use of mammalian models for pathogenicity and virulence tests, with a concomitant reduction in animal suffering. In the present study, we investigated the ability of *G. mellonella* to serve as a model host to investigate the virulence and pathogenicity of Black yeast. We evaluated the survival of the larvae when infected with some species of *Fonsecaea* genus and we verified the presence of granulomas in the tissue of the larvae by histopathology. In this study strains of *Fonsecaea pedrosoi* (ATCC 46428), *F. pedrosoi* (CBS 271.37), *F. erecta* (CBS 125763) and *F. monophora* (Fp89) were used to inoculate in model tested. *Galleria mellonella* larvae wax-moth in the final instar larval stage were selected with similar size and weight 0.10–0.15 g. Twenty larvae per group were inoculated by injecting 10 µl of inoculum containing *F. pedrosoi* (ATCC 46428 and CBS 271.37), *F. erecta* *F. monophora* into the hemocoel through the last proleg. The inoculums were prepared in sterile PBS with final concentration of 10⁶ cels/mL. Regarding to the survival tests, we found that *F. pedrosoi* (ATCC 46428 and CBS 271.37), *F. erecta*, *F. monophora* had a lower survival when compared to control groups. The infected larvae from the tested groups developed varying degrees of melanization, whereas the control (PBS: monitoring killing due to physical injury and SHAM: untreated control) group did not. In this study was possible to verify that, *G. mellonella* is potentially useful model to study and compare virulence of dimorphic fungi.

Keywords: Black yeast, *Galleria mellonella*, virulence.

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