Title: Evaluation of antifungal activity for *Galleria mellonella* after induced infection *Candida albicans* (ATCC 18804).

Authors:

Jorjão A.L., de Oliveira F.E., Jorge A.O.C., Junqueira J.C., de Oliveira L.D.

Institution:

Instituto de Ciências e Tecnologia,Univ Estadual Paulista/ UNESP, Departamento de Biociências, Laboratorio de Microbiologia e Imunologia, São José dos Campos, SãoPaulo, Brasil. E-mail: adeline.jorjao@ict.unesp.br; adelj@ig.com.br

Abstract: Model for *in vivo* infection using insects, *Galleria mellonella*, has been utilized because it show many advantages, among them possess innate immune response similar to mammals, such as phagocytic cells and production of antimicrobial peptides. This study evaluated the antimicrobial activity of the constituents of hemolymph *G. mellonella* after immune response induced by inoculation of *Candida albicans*. Worm in last larval stage were inoculated 10 uL suspension (10^7 CFU/ ml) of *C. albicans* (ATCC 18804). Inoculated insects during infection were maintained at 37 °C for 24 h or 48 h. Then hemolymph of the worm was extracted by cutting the ventral portion of the insect body and diluted in sterile distilled water. After filtration with 0.22 uM membranes, antifungal activity was evaluated by adding 100 uL in 96 well plate (n = 8) containing *C. albicans* suspension (10^5 CFU / ml). The exposure time was 4 h at 37 °C. Then, 100 uL of the contents of the wells were added to Sabouraud agar and after 24 h incubation (37 °C) was performed counting colony forming units (CFU/ mL). As a control PBS inoculation was performed. The results showed a decrease significant ($p < 0,05$) on the count of CFU/ mL, of 68,95% with 24 h of infection and 61,02% with 48 h, realtive to the control. The group inoculated with PBS, the reduction was smaller (40,29%), but also significant ($p < 0,05$). That the exhibition of worm to a prior infection by *C. albicans* increased the antimicrobial activity of hemolymph. Results show that *G. mellonella* was able to produce antifungal compounds after infection by *C. albicans*.

Key-word: *Galleria mellonella*, antimicrobial activity, *Candida albicans*