



INSECTICIDAL ACTIVITY OF EXTRACTS CRUDE OF *Beauveria bassiana* OBTAINED BY SOLID-STATE FERMENTATION IN WHITE GRUB (*Phyllophaga* sp.)

Erika Chávez Ibañez¹, Silvia Rodríguez Navarro¹, Lluvia de Carolina Sánchez Pérez¹, Aida Hamdan Partida² y Juan Esteban Barranco Florido². ¹Dpto de Producción Agrícola y Animal. ²Dpto de Sistemas Biológicos. Universidad Autónoma Metropolitana-Xochimilco. Calzada del Hueso 1100, Col. Villa Quietud, Del. Coyoacán. C. P. 04960 México, D. F. chaver2011@hotmail.com

Key words: *Beauveria bassiana*, *Phyllophaga* sp, Solid-state fermentation

Introduction. The sugar cane production has had significant losses between 36 and 42 % by white grub (*Phyllophaga* sp.) in Mexico (Aragón-García et al., 2012). Also, agrochemicals used by farmers to pest control have caused damage to the environment and human health. So that, the entomopathogenic fungi *Beauveria bassiana* of broad-spectrum can be used to pest control (Poprawski y Yule, 1991). Solid-state fermentation has been used to mass and metabolites production of entomopathogenic fungi (Barranco-Florido et al., 2009). Furthermore, this system can be used for metabolites production with insecticidal activity.

This work proposes evaluate the use of crude extracts of solid state fermentation to pest control of white grub (*Phyllophaga* sp.).

Methods. The *B. bassiana* was maintain on PDA; the solid culture consisted of shrimp shell and mineral salts and inoculated with 1×10^8 spores ml^{-1} (Barranco et al., 2009); the extract crude was obtain after 10 days of fermentation. The determination of the insecticidal activity to larvae *Phyllophaga* sp was inject with 10 μl of organic extract, larvae were plac in plastic cups containing sterile soil and soilless, held with carrot diet. Was design the following treatments (T1 control + soil; T2 extract + soil and T3 without soil extract) with eight repetitions. Observations were made every 24 hours for 11 days (Wang et al., 2011). Statistical analysis performed a nonparametric Wilcoxon test in JMP program.

Results. In Figure 1 showed insecticidal activity that causes insect death (Xu et al., 2008). Initially in the T3, the mortality was since fourth day (37.5%), however to T2 the mortality begins at fifth (12.5%), while to T1 mortality was until 11 days (50%). To T2 and T3, mortality was 100% at 11 days, as shown in Figure 1. These results showed were different ($p < 0.05$).

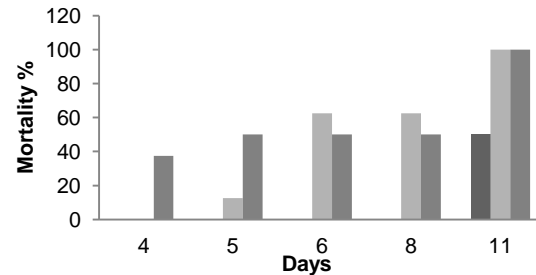


Fig.1 Mortality of white grub (*Phyllophaga* sp) (T1), (T2), (T3).

These results suggest that crude extracts produced by *B. bassiana* obtained by solid fermentation cause insect death and can be used as new bioinsecticides.

Conclusions. The insecticidal activity of the organic extract obtained by fermentation of *B. bassiana* start the 4th day and at day 11 showed 100% mortality of larvae of *Phyllophaga* sp.

Acknowledgements. This work was supported by a scholarship 466930 from CONACYT Maestría en Ciencias Agropecuarias and the University Autónoma Metropolitana Xochimilco.

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