

MORTALITY CAUSED BY *METARHIZIUM*
AND *BEAUVERIA SPP.* ISOLATES
IN COSTA RICAN *PHYLLOPHAGA SPP.*
(COL. : *MELOLONTHIDAE*)
AND INTRASPECIES SUSCEPTIBILITY
IN *P. MENETRIESI* (BLANCHARD)

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Phyllophaga white grubs are important soil dwelling pests of food crops and nurseries throughout most of the Americas. They damage crops by eating the roots, often killing seedlings and transplants. Exotic and locally collected *Beauveria spp.* (20 isolates) and *Metarhizium spp.* (160 isolates) were screened against larvae of three of the most important Central American species : second and third instar *P. menetriesi* (Blanchard) and *P. vicina* (Moser), and third instar *P. obsoleta* (Blanchard). Most isolates were tested against most species/instar combinations by rolling larvae in conidia produced on rice. After 14 days the majority of isolates caused no mortality, only 14 (one of which was *B. bassiana*) causing 50% or more mortality in at least one species/instar. After 28 days, these high levels of mortality, with subsequent fungal sporulation on the cadaver, occurred with only 15 isolates (all *M. anisopliae*). Sporulation was often limited to small areas of the legs or mouth parts. The *M. anisopliae* isolates, ARE-1, ARE-2 and TEP-4, caused these levels of mortality in two or more species, and produced abundant sporulation over the whole larval cadaver. All three were originally isolated from soil samples taken in Costa Rican pastures. These and some other isolates were applied by dipping larvae of the same species/instars cited above in 2.5×10^6 and 2.5×10^8 conidia/ml suspensions in SDW with Tween20 (0.05% v/v) in a completely randomized design. Few statistically significant differences in LT_{50} between treated and control larvae were found, in part due to generally high levels of control mortality.

Laboratory-reared larvae obtained from adults collected at three different sites in Costa-Rica were treated, using the same

methodology, with four *M. anisopliae* isolates at 2.5×10^8 conidia/ml in a complete factorial design. Mean LT_{50} s for the San Isidro larvae were consistently lower than for the Turrialba or Cervantes populations but no significant interaction between isolate and larval population was found. It is concluded that no evidence of intraspecies variation in susceptibility to *M. anisopliae* has been found.