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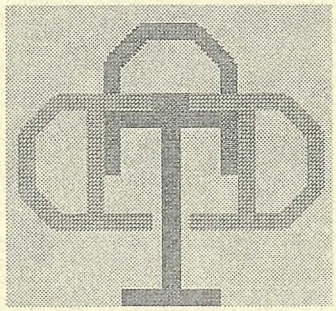

Because fungi are the only group of pathogens found (isolated) infecting grasshoppers so far, they are being studied with respect to correct identification, molecular characterization, production, formulation, interaction, physiology, and infection process. The isolates considered most promising are being tested in the laboratory and field. The efficacy of a mycoinsecticide based on the isolate CG 423 of *Metarhizium anisopliae* var. *acridum* formulated in vegetable oil has been tested against *R. schistocercoides* several times since 1995.

The implementation of entomopathogenic fungi as bioinsecticides against grasshoppers in Brazil is greatly limited by the lack of a consistent production system, short shelf-life, and their slow action in killing the host. Emphasis is being given to optimize the production system for *M. anisopliae* var. *acridum* and to increase its storage life at room temperature. The slow action in killing the host is mitigated by the apparent reduction in mobility and food consumption of the infected insects, and by the fact that young nymphs of *R. schistocercoides* usually occur in natural vegetation instead of cultivated areas. Moreover, the isolate CG 423 of *M. anisopliae* var. *acridum* is highly virulent against the grasshoppers *R. schistocercoides* and *Styphra robusta*, which makes it a good candidate as mycoinsecticide in Brazil. Nevertheless, searching for new isolates of *M. anisopliae* var. *acridum*, other species of pathogenic fungi and natural enemies associated with grasshoppers in Brazil must continue.

Field Trial with Entomopathogenic Fungus in Brazil Yields Promising Results

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In 1998, a set of experiments was conducted in the Chapada dos Parecis region, a permanent zone of grasshopper outbreaks in Mato Grosso state. Experiments were performed in zones of natural vegetation, against bands in third nymphal instar. Three nymphal bands were treated with the mycoinsecticide formulation based on conidia of the entomopathogenic fungus *M. anisopliae* var. *acridum*, strain CG 423. Three non-treated bands were used as controls. The application was made with the aid of a hand-held ULV sprayer adjusted to deliver 2 l of formulated material per ha, with each liter containing 1 x 10^{13} conidia. Treatments were limited to the surface and immediate borders of grasshopper bands (5 to 10 m). The efficacy was evaluated through band survival after treatment (grasshopper numbers, surface, density, behavior and daily movement of the band), allowing the insects to move freely in their natural environment. Insects were regularly surveyed and maintained in the laboratory to estimate the infection rate as well. Results from field and laboratory assays showed a clear effect of the product 10 days after treatment. At 14 days post-spraying, mortality caused by the mycoinsecticide in the field was *ca.* 88%.