

## WHAT IS THE BEST WAY TO ISOLATE ENTOMOPATHOGENIC FUNGI FROM SOIL SAMPLES?

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The soil is a rich habitat for fungi, including entomopathogenic fungi. As well know, these fungi act naturally regulating arthropods population. The genera *Metarhizium* and *Beauveria* show great potential in the biological control of arthropods including *Rhiphicephalus microplus* that significantly affect Brazil and other countries' economy. Isolation of new fungal colonies from soil samples is the first step to select entomopathogenic fungi isolates that are more tolerant to abiotic unfavorable conditions. In addition, fungi isolated from the soil tend to be very well adapted to growing in that environment and thus are likely to have high field persistence, which is an important characteristic of successful entomopathogenic fungi. The main goal here was to isolate fungi of the genus *Metarhizium* and *Beuveria* from different soil samples and compare the success of different isolation methods regarding the number of entomopathogenic fungal colonies obtained. A total of 520 soil samples were collected from different sites in the State of Rio de Janeiro. Isolation of the fungal colonies was performed according to two different methods: using an artificial selective medium with chloramphenicol, thiabendazole, and cyclohexemide (named CTC) and using mealworms *Tenebrio molitor* as bait. 20 samples were bait with three mealworms each. 500 samples were screened using CTC. After isolation, the macromorphology and micromorphology were examined for the fungal characteristics according to what is described in the literature confirming the identity of entomopathogenic fungal isolates. Using CTC, 15 isolates (9 *Metarhizium* and 6 *Beuveria*) were obtained. When the insect bait was used (even testing 25 times fewer samples), 17 fungal isolates were obtained (15 *Metarhizium* and 2 *Beuveria*). The two isolating methods showed a low incidence of *Beuveria* spp. colonies. Our results suggested that the insect bait is as a more sensitive method than the use of CTC artificial medium, however, the insect bait method requires a large amount of soil and space. CTC, on the other hand, is very competent dodine-free medium that can be conveniently used in the laboratory. Entomopathogenic fungi isolated locally may have likely histories of infecting local tick populations because of their geographical or time congruence increasing the chances of successfully control this ectoparasite.

Keywords: biological control, fungal ecology, biodiversity, *Metarhizium* spp., *Beuveria* spp.

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