



USING A SOIL-BORNE *Metarhizium* ISOLATE TO REDUCE *Rhipicephalus microplus* LARVAE OUTBREAK ON THE GRASS AND STUDY OF FUNGAL PERSISTENCE IN THE SOIL

E.S. Mesquita¹, A.R.C. Corval¹, J.P. Fiorotti¹, M.C. Freitas¹, A.F. Marciano¹, C.J. Coutinho-Rodrigues¹, K.K.V. Beneti¹, S. Quinelato², V.R.E.P. Bittencourt¹, P.S. Gôlo¹.

¹Departamento de Parasitologia Animal/IV/UFRRJ; ² Instituto Oswaldo Cruz, FIOCRUZ, Rio de Janeiro, RJ.

One of the major concerns in the Brazilian livestock is the cattle tick *Rhipicephalus microplus*. Chemical acaricides are the only method commercially available to control this ectoparasite. Despite this, the risk to animals, people, the environment and the rising of resistance drive studies to seek for suitable alternatives. *Metarhizium* spp. are pathogenic to different arthropods species, controlling their population. Besides arthropod control, some *Metarhizium* spp. may persist in the environment through plant colonization and rhizosphere competence. Accordingly, the aim of the present study was to evaluate the persistence of a *Metarhizium* sp. soil-born isolate identified as LCM S04 under semi-natural conditions and the effect on *R. microplus* larval recovery from the grass previously treated with the entomopathogenic fungi. Three groups were formed: negative control (unexposed pots), oily control (pots treated with 10% mineral oil emulsion) and LCM S04 (pots treated with fungal oil emulsion). Ten pots with grown *Bracharia decubens* were used in each group. After the soil/grass treatment using 86 mL of fungal formulation at 10^8 conidia mL⁻¹ ($1,5 \times 10^7$ conidia cm²), five engorged tick females were placed on each grass pot. Every 15 days, soil samples were collected and inoculated on CTC artificial culture media. *R. microplus* larvae was obtained from the pasture top after cutting the superior part of *B. decubens* leaves. Larvae were counted one by one. Control group had the highest larval recovery (2596 ± 1103) followed by oil group (740 ± 465), while LCM S04 had only 11 larvae. Sixty days after treatment, *Metarhizium* sp. could still be re-isolated from the soil in the grass pots. Accordingly, the use of a native soil-borne isolate formulated in oil, allowed the fungal environmental persistence even under high temperatures and UV irradiation (also measured). Additionally, the oil emulsion remarkably reduced *R. microplus* offspring. These results support previous studies presenting LCM S04 *Metarhizium* sp. as a promising isolate to be used in the field.

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