RESUMO SIMPLES - ECTOPARASITOS: SISTEMÁTICA, EPIDEMIOLOGIA E CONTROLE

METARHIZIUM ANISOPLIAE AGAINST DIFFERENT POPULATIONS OF RHIPICEPHALUS MICROPLUS LARVAE

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The tick Rhipicephalus microplus causes diseases and losses in Brazilian livestock farming. Current control methods, based on chemical acaricides, have led to the selection of resistant populations. A promising alternative is biological control, especially using entomopathogenic fungi. Despite proven efficacy, there is little research on the variation in susceptibility to the fungus among different tick populations. This study aimed to characterize the virulence of two Metarhizium anisopliae isolates native to the Rio de Janeiro state against five

populations of R. microplus (from Bahia, Rio de Janeiro, and Espírito Santo) using the larval packet test. For statistical comparison, the Kruskal-Wallis test was performed followed by Dunn's test for mean grouping, considering $P < 0.05$. The groups were treated with 0.01% Tween 80 (CTR–) (Sigma®), Amitraz (CTR+) (Triatox®), and two M. anisopliae isolates (LCM S04 and S31) at a concentration of 10^9 conidia/mL. The CTR+ group showed the highest mortality rate among all farms analyzed, followed by isolates LCM S31, LCM S04, and finally the CTR– group, which had the lowest mean mortality values. In Farm 1, CTR+ had the highest mortality rate (100%), and all farms differed statistically from one another, with emphasis on the high mortality of isolate LCM S31 (75.36% ± 6.92). In Farm 2, CTR+ also showed a high mortality rate (98.15% ± 0.67), but did not differ statistically only from isolate LCM S31 (94.28% ± 3.2; $p = 0.5398$), while all other groups differed from each other. In Farm 3, fungal isolates LCM S04 (64.09% ± 14.31) and LCM S31 (69.47% ± 5.08) showed statistical similarity ($p = 0.6359$), and all other groups differed from one another, with the CTR+ group once again presenting the highest means (94.29% ± 2.02). In Farm 4, CTR+ had the highest mortality rate (79.12% ± 6.25) and was statistically similar to isolate LCM S04 (71.10% ± 14.63; $p = 0.4368$), while all other groups differed. Finally, in Farm 5, CTR+ (83.74% ± 3.24) was statistically similar to isolate LCM S31 (66.97% ± 18.91; $p = 0.0941$), but all other groups differed from each other. By achieving statistical similarity to the synthetic acaricide (CTR+) in two of the five farms analyzed (Farms 2 and 5), and exhibiting the highest mean mortality caused by the fungus in four of the five farms (Farms 1, 2, 3, and 5), LCM S31 was considered more virulent than LCM S04. The mean mortality rates of the LCM S31 were 75.36% ± 6.92 (Farm 1), 94.28% ± 3.2 (Farm 2), 69.47% ± 5.08 (Farm 3), 54.13% ± 8.38 (Farm 4), and 66.97% ± 18.91 (Farm 5). The fungal virulence test proved to be effective when compared to the synthetic acaricide. The use of entomopathogenic fungi for the control of R. microplus is a strategy that may represent a breakthrough compared to the chemical control methods commonly used.

Palavras-chave: biological control; ticks; entomopathogenic fungi.