

Action of *Tagetes minuta* (Asteraceae) essential oil in the control of *Rhipicephalus microplus* (Acari: ixodidae)

Renato Andreotti^{1*}, Marcos Valério Garcia², Rodrigo Casquero Cunha³, Jacqueline Cavalcante Barros⁴

Resumo

The *Rhipicephalus microplus* tick is globally regarded as the most economically important ectoparasites of livestock, and the evolution among cattle tick populations of resistance to commercial acaricide is of great concern. The essential oil derived from *Tagetes minuta* may be efficacious against cattle tick infestation, and the results of a cattle pen trial using this essential oil for the control of ticks are reported here. The chemical composition of the essential oil was determined by GC-MS and NMR spectroscopy analyses, which revealed the presence of four main components in the essential oil. These components represent more than 70% of the essential oil: limonene (6.96%), β -ocimene (5.11%), dihydrotagetone (54.10%) and tagetone (6.73%). The results of the cattle pen trial indicated significant differences among the average values of the biological parameters analyzed, including the number of ticks, the average weight of the ticks, and the average egg weight per engorged female and larval viability. In effect, treatment with *T.*

¹Animal Health Laboratory. Embrapa Beef Cattle, Avenida Radio Maia, 830 – Zona Rural, Campo Grande, MS. Phone 55 67 3368 21 73, *renato.andreotti@embrapa.br

²Pós-Doutorando, bolsista CNPq; Laboratório de Sanidade Animal, Embrapa Gado de Corte

³Doutorando, Ciência Animal da UFMS; Lab. de Sanidade Animal, Embrapa Gado de Corte

⁴Analista, Laboratório de Sanidade Animal, Embrapa Gado de Corte

minuta promoted significant effects on all biological indicators analyzed. Based on the biological indicators, the essential oil showed 99.98% efficacy compared to the control group when used at a 20% concentration. The results obtained in this study suggest that the *T. minuta* essential oil is a potential *R. microplus* tick control agent and may be used to mitigate the economic losses caused by tick infestation.

Keywords: cattle tick, *Tagetes minuta*, control, phytotherapeutic, bovines.

Acknowledgements: Embrapa Gado de Corte, CNPq, Fundect.