In vitro activity of 13 essential oils on the cattle tick *Rhipicephalus (Boophilus) microplus* and on the sheep nematode *Haemonchus contortus* in Brazil

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Herbal extracts have been investigated as an alternative for parasite control, aiming to slow development of resistance and obtain low-cost biodegradable parasiticides. The goal of this study was to evaluate the activity of 13 essential oils from Brazil on *Rhipicephalus (Boophilus) microplus* and *Haemonchus*...
contortus: Croton cajucara, C. sacaquinha, Curcuma longa, Lippia alba, L. gracilis, L. origanoides, L. sidoides, Mentha arvensis, M. piperita, Piper aduncum, Spilanthes acmella and Zingiber officinale. The effects on ticks were investigated by the Immersion Test with Engorged Females [1] (ITEF) and by modified Larval Packet Test [2] (LPT). On H. contortus (Embrapa 2010 isolate) the Egg Hatch Test [3] (EHT) and the Larval Development Test [4] (LDT) were carried out. The control groups were distilled water, Tween 80 (2%) and DMSO (1%). The results were analyzed by Probit, SAS. In the ITEF it was obtained the LC50 of C. longa (10.24 mg/mL), L. alba (10.78 mg/mL), S. acmella (15.41 mg/mL), M. arvensis (22.31 mg/mL), L. sidoides (27.67 mg/mL) and C. sacaquinha (29.88 mg/mL). In the LPT, the most effective oils were C. longa, L. gracilis, L. origanoides, L. alba and Z. officinale with LC50 an LC90, respectively: 0.54 and 1.80 mg/mL, 3.21 and 7.03 mg/mL, 5.85 and 11.14 mg/mL, 7.75 and 13.62 mg/mL. In the EHT were obtained good results against M. arvensis (0.10 and 0.27 mg/mL), Z. officinale (0.11 and 0.40 mg/mL), L. sidoides (0.15 and 0.34 mg/mL), L. alba (0.24 and 0.59 mg/mL), L. origanoides (0.25 and 0.70 mg/mL), C. longa (0.36 and 2.49 mg/mL) and L. gracilis (0.42 and 1.27 mg/mL). In the LDT, just Z. officinale and C. longa oils were tested (LC50 and LC90: 0.01 and 0.07 mg/mL, 0.10 and 0.17 mg/mL, respectively). The results showed significant efficacy. Further research will be focused to the isolation and elucidation of the bioactive compounds.

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Keywords: Rhipicephalus (Boophilus) microplus, Haemonchus contortus, essential oils

References:

