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76. *IN VITRO* AND *IN VIVO* ASSESSMENT OF MONOTERPENE DERIVATIVES FOR CONTROLLING CATTLE TICK *RHIPICEPHALUS (BOOPHILUS) MICROPLUS*

Victoria Miró¹, Macarena Sarli², Victoria Rossner³, Jorgelina Torrents², Norma Cabaña², Lautaro Segovia³, Viviana Gomez³, Guillermo Virkel¹, Santiago Nava², **Adrian Lifschitz**¹

¹Centro de Investigación Veterinaria de Tandil (CIVETAN)(CONICET-CICPBA-UNCPBA), Facultad de Ciencias Veterinarias, Universidad Nacional del Centro, Tandil, Argentina. ²Instituto de Investigación de la Cadena Lactea (IdICaL) (INTA-CONICET), Estación Experimental Agropecuaria Rafaela (INTA EEA Rafaela), Rafaela, Santa Fe, Argentina. ³Instituto Nacional de Tecnología Agropecuaria (INTA), Estación Experimental Agropecuaria Colonia Benítez, Chaco.

Ticks are ectoparasites that significantly impact livestock health and productivity. Phytochemicals, natural compounds derived from plants, have gained attention as potential alternatives in the face of widespread resistance to synthetic acaricides. This study evaluated the *in vitro* and *in vivo* acaricidal activity of geraniol (GNL) and thymol (TML). Additionally, GNL exposure in ticks was measured using HPLC. *In vitro* GNL activity was assessed using the Adult Immersion Test (AIT) with a 1% GNL solution (1% acetone-0.02% Triton X) and an immersion time of 2 minutes. *In vivo* activity of GNL was evaluated in six calves experimentally infested with *Rhipicephalus (Boophilus) microplus*. Calves were treated with 1% GNL alone, cypermethrin 20 % alone, or a combination of both. Ticks exposed to GNL *in vitro* and *in vivo* (1-3 days post-treatment) were collected for HPLC measurement of GNL concentrations. *In vitro* TML activity was evaluated using the Larval Immersion Test (LIT) with concentrations ranging from 0.001% to 0.1% TML solution (1% acetone-0.02% Triton X). No significant differences were observed in the oviposition of engorged females after immersion in GNL (efficacy 31%). Similarly, no reduction in tick counts was observed after *in vivo* treatment with GNL in calves. Although ticks were exposed to similar concentrations of GNL (1%), exposure was significantly higher ($P < 0.05$) in the *in vitro* trial. GNL concentrations ranged from 0.96 to 2.60 $\mu\text{g/g}$ in the *in vivo* trial and from 23.3 to 61.7 $\mu\text{g/g}$ in the *in vitro* trial. TML showed high larvicidal activity with an LD50 of 0.01% (95% CI: 0.007-0.012) and an LD99 of 0.053% (95% CI: 0.031-0.251). While GNL did not exhibit significant acaricidal activity *in vivo* or *in vitro*, TML's effectiveness against tick larvae is promising. Further *in vivo* trials are necessary to confirm the efficacy of TML against *R. microplus*.