FACTA UNIVERSITATIS
Series: **Physics, Chemistry and Technology** Vol. 16, Nº 1, Special Issue, 2018, p. 141
49th International Symposium on Essential Oils (ISEO2018) • Book of Abstracts

49th ISEO

PP77. The activity of laurel essential oil (crude and fractions) in the control of adult bovine ticks and larvae‡

Carla M. M. Fernandez[1]*, Maurício F. Rosa[1], Ana Claudia A. M. Fernandez[1], Wanessa C. Bortolucci[2], Giani A. Colauto[2], Nelson B. Colauto[2], Márcia R. Simões[1], Fabiana B. P. Ferreira[3], Viviane S. Lobo[4], Zilda C. Gazim[2]

Keywords: *Laurus nobilis*, α-terpineol, linalool, sabinene, *Rhipicephalus (Boophilus) microplus*

Ectoparasites cause direct and indirect losses to farmers, affecting the production of meat and milk and increasing the production costs due to the acquisition of acaricides to maintain cattle health. The financial losses caused by *Rhipicephalus* (*Boophilus*) *microplus*, which is the main livestock ectoparasite in Brazil, reach approximately US$ 3 billion annually. The aim of this study was to evaluate the acaricidal effect of the crude essential oil (EO) and EO's fractions (FR) obtained from *Laurus nobilis* L. (Lauraceae) leaves on *Rhipicephalus* (*Boophilus*) *microplus*. Eight fractions were obtained, wherein five major compounds were identified (sabinene, α-terpinyl acetate, 1,8-cineole, linalool, and α-terpineol). The acaricidal activity of these FR was tested by the larval packet test. The EO was tested by the adult immersion test, and, at concentrations of 200, 100 and 50 µL/mL, the oil caused mortality of engorged females, egg mass reduction, and hatching inhibition. The fractions with α-terpineol and sabinene, as the major compounds, were the most active larvicides (LC_{50}=0.13 µL/mL, LC_{99}=0.51 µL/mL; and LC_{50}=0.20 µL/mL, LC_{99}=0.56 µL/mL, respectively). This assessment also indicated that fractionation was important since most of the fractions obtained were more active than the EO. Furthermore, this is the first report of laurel EO and its fractions employed in the control of cattle ticks. Thereby, new prospects for the use of this essential oil or its chromatographic fractions in products applied for cattle tick control can be opened up. However, studies in other stages of development of cattle ticks for the active fractions, and studies under field conditions, the effect on non-target organisms and residual effect on the environment are still needed to evaluate the acaricidal activity of EO and its active fractions.

Acknowledgments: The authors thank the financial support of *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (*CAPES*).

---

[1]Postgraduate Program in Pharmaceutical Sciences, State University of Western Parana; Cascavel, Parana, Brazil; [2]Postgraduate Program in Biotechnology Applied to the Agriculture, Paranaense University, Umuarama, Parana, Brazil; [3]Postgraduate Program in Health Sciences, State University of Maringa, Maringa, Paraná, Brazil; [4]Postgraduate Program in Chemical Technologies and Biochemical Processes, Federal Technological University of Parana, Toledo, Parana, Brazil.

‡The full version of this work was submitted for publication to Natural Products Research.

**Corresponding author*: carla.mfernandez@hotmail.com