

# Abstract book



**JOINT COMBAR WG MEETING**  
ANTHELMINTIC RESISTANCE IN RUMINANTS: FROM RESEARCH TO RECOMMENDATIONS

9-10 DECEMBER 2020 · ONLINE

  

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*4<sup>th</sup> Joint COMBAR WG meetings: “Anthelmintic Resistance in Ruminants: from Research to Recommendations”*

### Local organiser:

Dr. Smaro Sotiraki, HAO Demeter, Greece

### With support from:

Dr. Johannes Charlier, Kreavet, Belgium

Dr. Hannah Rose-Vineer, University of Liverpool, UK



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*4<sup>th</sup> Joint COMBAR WG meetings: “Anthelmintic Resistance in Ruminants: from Research to Recommendations”*

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## Ovicidal potential of essential oils of *Juniperus communis* and *Achillea millefolium* to control gastrointestinal nematodes in sheep

*Filip Štrbac*<sup>1</sup>, *Antonio Bosco*<sup>2</sup>, *Alessandra Amadesi*<sup>2</sup>, *Laura Rinaldi*<sup>2</sup>, *Maria Paola Maurelli*<sup>2</sup>, *Dragica Stojanović*<sup>1</sup>, *Nataša Simin*<sup>3</sup>, *Dejan Orčić*<sup>3</sup>, *Ivan Pušić*<sup>4</sup>, *Slobodan Krnjajić*<sup>5</sup>, *Radomir Ratajac*<sup>4</sup>

Corresponding author: [strbac.filip@gmail.com](mailto:strbac.filip@gmail.com)

The worldwide increased difficulty to contrast gastrointestinal nematode (GIN) infections in sheep, due to growing anthelmintic resistance, has led to find alternative helminth control strategies. This study aimed to evaluate the *in vitro* ovicidal activity of essential oils (EOs) of *Juniperus communis* and *Achillea millefolium* (two chemotypes) against GINs of sheep. For this purpose, the nematode eggs were collected from naturally infected sheep by GINs in two farms located in Southern Italy. The egg hatch test (EHT) was performed at six different concentrations (50, 12.5, 3.125, 0.781, 0.195 and 0.049 mg/mL) for each EO and compared to the positive control (thiabendazole, 0.025 mg/mL) and the negative control (Tween 80 3%, v/v). In both farms, coprocultures revealed the presence of four genera of GINs: *Haemonchus*, *Trichostrongylus*, *Teladorsagia* and *Chabertia*. The inhibitory effect on GIN eggs' hatchability varied from 81% to 96.75% for *J. communis* EO. When using *A. millefolium* EO, the ovicidal activity against GIN was 46.5-99.5% (type 1) and 69.6-97.25% (type 2). Furthermore, the effect of tested EOs was very high at concentrations of 50 mg/mL (96.75%), 12.5 mg/mL (95.5%) and 3.125 mg/mL (94.75%) of *J. communis* EO, whilst for *A. millefolium* EO at concentrations of 50 mg/mL (99.5%), 12.5 mg/mL (98.0%) and 3.125 (95.25%) (type 1), and 50 mg/mL (97.25%) and 12.5 mg/mL (90.0%) (type 2), showing a similar effect ( $p > 0.05$ ) to the positive control (98%). Therefore, the findings of this study showed the anthelmintic potential of the tested EOs and highlight the importance of ethnopharmacology to control GIN infection in sheep.

<sup>1</sup> Department of Veterinary Medicine, Faculty of Agriculture, University of Novi Sad, Serbia

<sup>2</sup> Department of Veterinary Medicine and Animal Production, University of Naples Federico II, CREMOPAR, Naples, Italy

<sup>3</sup> Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences, University of Novi Sad, Serbia

<sup>4</sup> Scientific Veterinary Institute Novi Sad, Novi Sad, Serbia

<sup>5</sup> Institute for Multidisciplinary Research, University of Belgrade, Serbia

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