



the **19**<sup>th</sup> INTERNATIONAL CONFERENCE  
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# BOOK OF ABSTRACTS

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## **IMPRESSUM**

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# **IMPRESSUM**

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## ANTIPARASITIC EFFECT OF SOME ACTIVE COMPONENTS OF ESSENTIAL OILS

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**Introduction:** Modern antiparasitic pharmacotherapy faces several important challenges. An increasing number of reports refer to the resistance of parasitic nematodes to conventional antiparasitic drugs, while dose increasing manifests their toxicity. Particularly important for veterinary medicine is the fact that most antiparasitic drugs require a long withdrawal period after application in animals whose tissues are intended for human consumption.

**Aims:** To examine the potential antinematodic effect of selected monoterpenoid and diterpenoid active principles of essential vegetable oils and determine the mechanism by which they achieve antiparasitic effects.

**Materials and Methods:** Investigation of the interaction of active principles of essential vegetable oils with cholinergic and GABA-ergic nematode receptors on neuromuscular preparation *Ascaris suum* and *Caenorhabditis elegans* culture.

**Results:** The terpenoids alpha-pinene, p-cymene, carveol, carnosol and cinnamaldehyde do not show any pharmacological effects on the contractions of the neuromuscular preparation *A. suum*. The monoterpenoid carvacrol exhibits the properties of the competitive / non-competitive nicotinic acetylcholine receptor (nAChR) antagonist *A. suum* and effectively and significantly inhibits neuromuscular contractions caused by increasing acetylcholine concentrations. - carvacrol does not alter the EC50 value of acetylcholine The tested active principles of essential oils in our tests showed a specific and unique mechanism of action that potentially enables them high efficacy, even in nematodes resistant to classical anthelmintics.

**Conclusion:** Based on our results, carvacrol, carveol, menthol and thymol are very serious candidates for independent use in antinematode therapy or use in combination with drugs agonists of GABA receptor nematodes.

**Keywords:** *Ascaris suum*, *Caenorhabditis elegans*, GABA