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# Serbian Biochemical Society

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***“Amazing Biochemistry”***

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## Chemical composition of sage (*Salvia officinalis* L.) essential oil and its anthelmintic properties against sheep gastrointestinal nematodes

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The development and spread of anthelmintic resistance to commercial drugs represent a major problem in veterinary medicine, which justifies the search for alternatives. Within that context, sage (*Salvia officinalis* L.) is a well-known medicinal plant that has been cultivated for centuries due to its healing properties. The aim of this study was to determine the chemical composition of the sage essential oil and to evaluate its anthelmintic properties against sheep gastrointestinal nematodes. Chemical characterization was done by GC-MS analyses, and the anthelmintic potential of tested samples was evaluated by *in vitro* egg hatch test in a concentration range of 0.0125-50 mg/mL. The most represented identified compounds were  $\alpha$ -thujone (38.76%), camphor (19.75%) and 1,8-cineole (8.40%), camphene (5.36%) and  $\alpha$ -humulene (4.15%) out of a total of 27 identified compounds. The ovicidal activity of sage essential oil, reflected in the inhibition of egg hatchability of the eggs of sheep gastrointestinal nematodes, varied from 15.0-89.0% depending on the used concentration, with a calculated IC<sub>50</sub> value of 0.53 mg/mL. The obtained results indicate that the compounds from sage essential oil possess high anthelmintic properties and should be tested in further *in vivo* studies. Sage essential oil could find application in veterinary medicine in the context of the development of new natural anthelmintic agents for the control of sheep gastrointestinal nematodes, which could have high significance from economic point of view.

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