ABSTRACT

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15 species of mushrooms from the family *Cortinariaceae* were tested for their biological activity. The extracts of the individual mushroom species were tested for the alkaloid content by a thin-layer chromatography (TLC) method, which was carried out in an ascending mode in the chromatographic chamber. The alkaloids were detected only in the case of *Cortinarius infractus,* which has already been presented in the literature.

A screening of the antioxidant activity was performed for all of the tested species by the $ABTS^{\bullet+}$ test with sequential injection analysis (SIA), which enabled monitoring and evaluation of the antioxidant activity simultaneously for many samples. The highest antioxidant activity was observed in the case of *Cortinarius bolaris* (0.219 TE mM).

To compare the antioxidant activity of the studied species with their total amount of the phenolic compound, each mushroom extract was tested by the Folin-Ciocalteu method. This amount of the phenolic compound was compared to the standard gallic acid, and then presented as an equivalent amount of the gallic acid per 1 mg of the extract (GAE/mg). *Cortinarius bolaris* contained also the highest amount of phenolic compunds (38.33 ± 2.36 μgGA/mg ± SD). This could be a proof of the relation of the antioxidant activity and content of phenolic compounds.

Besides that, all of the studied species were tested for the cholinesterase inhibition activity by the Ellman´s spectrophotometric method using the 5,5'-dithiobis-2-nitrobenzoic acid modified by Bajgar. This approach is very specific, sensitive and simple to use. The highest cholinesterase inhibition activity was

observed in the case of *Cortinarius infractus* (IC_{50} AChE = 7.9 µg/ml, IC_{50} BuChE = 482.6 µg/ml). The activity of extracts was compared withstandard inhibitors galanthamine (IC_{50} HuAChE = 2.59 ± 0.15 µg/ml, HuBuChE = 58.02 ± 2.34 µg/ml), and huperzine A (IC_{50} HuAChE = 0.061 ± 0.01 µg/ml, HuBuChE >500 µg/ml). The species *C. infractus* can be considered as suitable source of the cholinesterase inhibitors.