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MEETING ABSTRACT

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LC-MS analysis of phenolic compounds and antioxidant activity of dietary supplement formulations based on edible mushrooms

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Background: There is an increasing number of food supplements with perceived and real health benefits on the market. As food supplements are one of the most easily accessible complementary and integrative therapies, they are widely used in modern diets. Thus, the aim of the present work was to determine the antioxidant potential of methanol extracts made from commercial preparations of *Cordyceps sinensis* (Berk.) Sacc., *Ganoderma lucidum* (Curtis) P. Karst. and *Coprinus comatus* (O. F. Müll.) Pers. mushrooms.

Methods: Antioxidant properties were determined using four different test systems, namely 2,2-diphenyl-1-picrylhydrazyl (DPPH), hydroxyl (HO) and nitric oxide (NO) radical scavenging assays and ferric-reducing antioxidant power assay (FRAP), in addition to the determination of their total phenolic contents and LC-MS analysis of the concentration of the main phenolic compounds found in mushroom species.

Results: All the assessed extracts were able to reduce DPPH in a dose-dependent manner with IC_{50} values ranging from 172 to 483 µg/ml. In two other tests for measuring the antioxidant activity, the methanolic extract of *C. sinensis* showed the best properties. The assay of reducing power showed that the most active mushroom is *C. sinensis* again with an absorbance value of 1.392 ± 0.009. The same was seen for the analysis of selected phenolic compounds; *C. sinensis* was found to have the highest content.

Discussion: The commercial preparations of *C. sinensis* and *C. comatus* can be considered to be suitable food supplements included in well-balanced diets as a rich source of antioxidants. On the other hand, the commercial preparation of *G. lucidum* needs to be studied further. It can be concluded that other dietary supplements, not only plants, can reduce the amount of free radicals and be potent and safe antioxidants.

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