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BOOK OF ABSTRACTS

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MEDICINAL MUSHROOMS:
THE BET FOR THE FUTURE OF HUMANITY

The 12th International Medicinal Mushrooms Book of Abstracts

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EP_07 Comparative chemical analysis and bioactive properties of aqueous and glucan-rich extract *Cyclocybe aegerita* (V. Brig.) Vizzini

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Cyclocybe aegerita (syn. *Agrocybe aegerita*) is a popular edible mushroom and one of the tastiest mushrooms. It grows in temperate climates, mostly on poplar and willow wood, and develops fruiting bodies from spring to autumn. This mushroom has a unique flavor and possesses good nutritive and medicinal values. In Serbia, findings of this species are common. Commercial production of *C. aegerita* is developing rapidly in different countries around the world. This mushroom has potential as an antioxidant, antimicrobial, antibiofilm, anti-inflammatory, and wound-healing agent.

Herein, we describe the biological potential of water and polysaccharide extracts from fruit bodies and present their detailed phenolic, polysaccharide, and protein profiles, along with their various biological activities.

The water extract (WE) was prepared according to a procedure previously published by Vamanu and Nita [1], with some modifications. The polysaccharide extract (PE) was prepared using a modified method from Song et al.[2]. *C. aegerita* showed a rather high share of polysaccharides in both WE (44.28%) and PE (25.47%). The phenolic profile of the mushroom extract was prepared using UHPLC-QToF MS/MS analysis. The total phenolic content in the WE of *C. aegerita* was 23.72 g GAE/100 g dw. In the PE extract of *C. aegerita*, phenolic content was not detected.

The molecular weight of detected polypeptide bands where evaluated using a molecular weight standard, as previously described by Pešić et al. [3]. The *C. aegerita* extract contained five major bands with molecular weights of 19.7, 18.9, 17.9, 16.5, and approximately 14.4 kDa. The presence of proteins in mushroom extracts is quite important due to their potential contribution to bioactive properties.

The antibacterial assay was carried out using a modified microdilution method on six different Gram-positive and Gram-negative bacteria. This bacterial inhibition was achieved with the *C. aegerita* WE. The antibacterial activity assay showed that the development of the skin infection-causing agent, *Staphylococcus aureus*, was inhibited with a minimum inhibitory concentration (MIC) of 4.00 mg/mL and a minimum bactericidal concentration (MBC) of 8.00 mg/mL.