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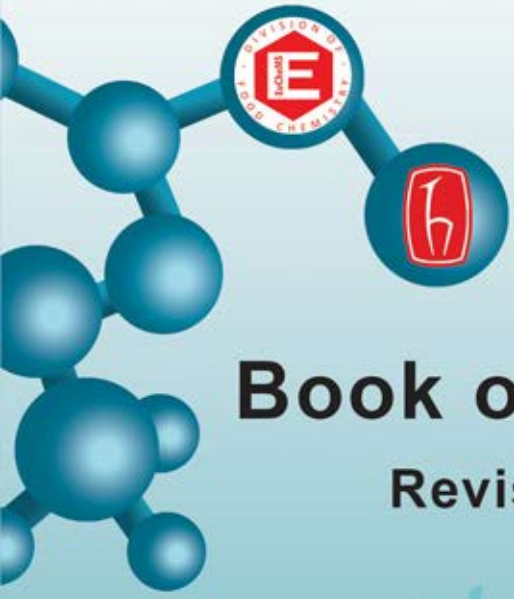

Book of Abstracts

Revised Edition

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Hamit KÖKSEL

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CHEMICAL CONSTITUENTS AND BIOLOGICAL ACTIVITY OF *Boletus aereus* BULL. GROWING WILD IN SERBIA: *In vitro* AND *In situ* ASSAYS

Dejan Stojković[1], AnaĆirić[1], Filipa S. Reis[2], Lillian Barros[2], JasminaGlamočlija[1], Isabel C.F.R. Ferreira[2], Marina Soković[1]

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Boletus aereus Bull. is a bolete, an edible mushroom frequently consumed all over the globe as a delicate mushroom, especially in Serbia, Portugal, Basque Country, Navarre, France and Italy. As a member of the Boletaceae family, this mushroom has tubes and pores, instead of gills beneath its cap. *B. aereus* growing wild in Serbia was chemically characterized in nutritional value and individual compounds (sugars, fatty acids, tocopherols, organic acids and phenolic compounds). Antioxidant (scavenging activity, reducing power and inhibition of lipid peroxidation) and antibacterial and antifungal activities of its methanolic extract were evaluated under *in vitro* conditions. Furthermore, antimicrobial meat preserving properties of its methanolic extract were evaluated under *in situ* conditions using Listeria monocytogenes, *Staphylococcus aureus* and *Escherichia coli* as contaminant microorganisms. *B. aereus* revealed a high content in carbohydrates (88.64 g/100 g dw), followed by ash (6.20 g/100 g dw), fat (3.36 g/100 g dw) and proteins (1.80 g/100 g dw). The most abundant free sugar was identified as trehalose (11.28 g/100 g dw); three tocopherol isoforms (α-, β- and δ-tocopherols) were detected. Unsaturated fatty acids predominated over saturated fatty acids, being oleic and linoleic acids the most dominant ones. p-Hydroxybenzoic (8.95 µg/100 g dw), p-coumaric (7.32 µg/100 g dw) and cinnamic (5.91 µg/100 g dw) acids were quantified, as also four organic acids: oxalic (0.69 g/100 g dw), citric (0.59 g/100 g dw), quinic (0.34 g/100 g dw), and fumaric (0.20 g/100 g dw) acids. The methanolic extract of the mushroom showed *in vitro* antioxidant and antimicrobial activities. The extract exhibited prominent antioxidant potential. The most sensitive bacterium to the effect of *B. aereus* methanolic extract was *Staphyloccocus aureus*, and among the studied microfungi species the most sensitive was *Aspergillus ochraceus*. Methanolic extract successively inhibited the growth of meat contaminant bacteria, both at 25 ºC and 4 ºC, after seven days of inoculation. Among storage period, gradual inhibition of bacteria was achieved. The bacteria responded to the effect of treatment in a dose dependant manner.

Keywords: *Boletus aereus*; chemical composition; antioxidant; antimicrobial; meat preservatives.
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