



The influence of extraction techniques on the antioxidant potential of Chaga mushroom extracts

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Chaga (*Inonotus obliquus*, family Hymenochaetaceae) is a brownish-black parasitic mushroom that has more than 200 compounds, including polyphenols, polysaccharides, triterpenes, melanins, sterols, lignins, minerals, and vitamins. This study aimed to compare the efficiency of two extraction techniques, maceration and ultrasound-assisted extraction (UAE), during estimation of the antioxidant potential of chaga mushroom extracts. Based on the previous knowledge, 50% (v/v) ethanol was used as a solvent of choice for the extraction of antioxidants from chaga mushrooms due to its non-toxicity and environmental acceptability. Unlike 24 h-extraction at room temperature (22 ± 2 °C) in the maceration, the UAE was carried out at 50 °C for 20 min. The liquid-to-solid ratio of 10 mL/g was the same in both cases. The ultrasonic bath with a frequency of 40 kHz and power of 150 W was applied for the production of ultrasonic waves. The total antioxidant and total flavonoid content were 3.27 ± 0.24 mg gallic acid equivalent per 100 g of dry weight (mg GAE/100 g d.w.) and 0.34 ± 0.11 mg rutin equivalent per 100 g of dry weight (mg RE/100 g d.w.), *i.e.*, 3.58 ± 0.26 mg GAE/100 g d.w. and 0.83 ± 0.23 mg RE/100 g d.w. in the extracts obtained using maceration and UAE, respectively. The obtained results indicated that the UAE is a more efficient extraction technique compared to maceration since for shorter extraction time is achieved better yield of antioxidants and flavonoids. The difference in the total flavonoid content was significant by comparing two extraction techniques. Because of that, further studies will be focused on the optimization extraction conditions for antioxidants from used plant material.

Keywords: chaga mushroom, maceration, ultrasound-assisted extraction, antioxidants.

Acknowledgment: This research was supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Program for financing scientific research work, number 451-03-47/2023-01/200133). Siniša Mladenović is a recipient of a scholarship from the Ministry of Science, Technological Development and Innovation of the Republic of Serbia.