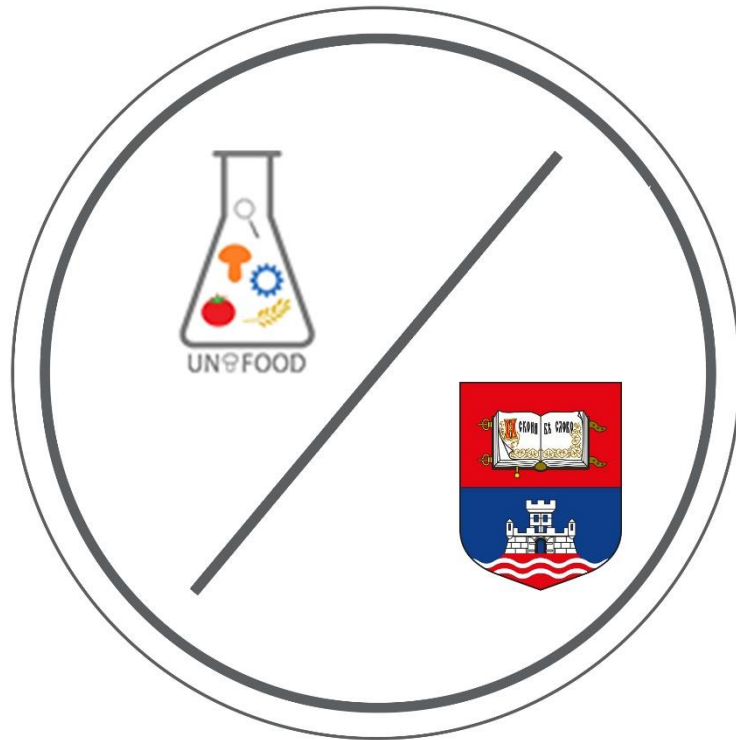


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DEVELOPMENT OF MUSHROOM-BASED CEREAL FLOURS WITH IMPROVED NUTRITIONAL AND ANTIOXIDATIVE PROPERTIES

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Trametes versicolor, *Lentinus edodes* and *Pleurotus ostreatus* HK-35 mushrooms were used for the production of mushroom-based cereal flours. Three different cereals were used for this purpose: wheat (NS 40 S), rye (individual agricultural holding, Vojvodina province) and oat (Italico d.o.o). Sterilized grains (pH 6.0 – 6.5, CaCO₃) were seeded using mushroom's inoculum previously prepared on the malt agar, and incubated at 25 ± 2 °C for 20-30 days in the dark, until the grains were completely overgrown with mycelium. Control samples without seeding mushrooms' mycelium were prepared as well. The obtained grains were dried and milled into flours, in order to be used for the chemical characterization and antioxidative activity determination. All mushroom-based grain flours characteristics were compared with corresponding controls. The highest total carbohydrate content was determined for *T. versicolor* wheat (705.61±48.97 mg/g) and rye (749.15±42.09 mg/g) grain flours, with an increase of 26.39±1.09 % and 39.78±13.42 % compared to non-inoculated grains, respectively, while all inoculated flours had higher protein content compared to non-inoculated ones. A significant carbohydrate content increase was observed for *L. edodes* wheat grain flour (9.66±14.66 mg/g). Expand in total phenolic compounds content, between 7.72±0.39 and 217.74±54.65 %, was observed in eight out of nine tested samples, compared to the control. The highest values of phenolic compounds were noted for *T. versicolor* oat (30.94±0.07 mg/g) and rye (27.45±2.34 mg/g) grain flour. A significant increase (p<0.05) of chelating ability was observed for *P. ostreatus* and *L. edodes* wheat grain flours, when the very high chelating ability for both samples (93.62±3.01 %) was observed. Significantly higher reducing power (p<0.05) was detected in six out of nine tested samples, with the highest absorbance measured for *L. edodes* oat (1.88±0.08) and rye (1.15±0.04) grain flours. Obtained results revealed that the growth of different mushrooms on different cereals could be a promising method for enhancing the antioxidative potential of flours.

Key words: *Mushrooms, Cereals, Flours, Phenolic Compounds, Antioxidative Activity*

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