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## CHEMICAL-MINERAL CONTENT AND RHEOLOGICAL PROPERTIES OF SESAME AND SPELT FLOUR

Jelena Filipović<sup>1</sup>, Milenko Košutić<sup>1</sup>, Rada Jeftić-Mučibabić<sup>1</sup>, Vladimir Filipović<sup>2</sup>,  
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Spelt wheat is suitable raw material for flour based products characterized by altered nutritional characteristics and health benefits compared to conventional products. This paper deals with the chemical and mineral composition of sesame and spelt flour. The influence of sesame flour on dough for pasta characteristics is presented by rheological parameters. Post-hoc Tukey's 95% confidence limit showed significant differences between sesame and spelt flour. Sesame flour has a superior mineral profile than spelt flour. Sesame flour has a superior mineral profile than spelt flour characterized with high concentrations of Ca, Zn, Cu and Fe (1906.5, 48.7, 5.22, respectively). In pasta formula sesame flour was replacing the quantities of 0%, 10% or 20%. Addition of sesame seed influenced dough rheology (farinograph and mixolab data). Pertinent positive contribution of sesame seed to the mineral content of pasta values that meet human daily needs of mineral.

*Keywords: sesame, spelt, mineral content, rheology*

## DETERMINATION OF FATTY ACID COMPOSITION IN WHEAT BRAN BY GAS-CHROMATOGRAPHY

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Various bran have been added to food products as the functional food to improve the nutritional value. Wheat bran is specifically rich in dietary fibre, essential fatty acids and contains important quantities of starch, protein, vitamins, dietary minerals and phytic acid. It is also well known medicinally for its powerful anticarcinogenic and antioxidant properties. Wheat bran is rich source of essential fatty acids, such as linoleic acid (18:2n6) and linolenic acid (18:3n3). Linoleic acid and fatty acid of n6 and n3 series play an important role in the modulation of human metabolism. Linoleic acid is undoubtedly one of the most important polyunsaturated fatty acids in human food because of its prevention of distinct heart vascular diseases. In 2012, a field experiment was conducted on the location of Rimski Šančevi (Vojvodina Province, Serbia) to evaluate oil contents and fatty acid profiles in a collection of 25 wheat genotypes. The samples consisted the bran portion of the outer layer of wheat grain that were the by-product of milling on the MLU 202 laboratory flour mill. Oil content was obtained by exhaustively extracting samples in a soxhlet apparatus using petroleum ether as the extractant. Total oil contents at wheat bran varied between 2.68-4.96% for investigated genotypes. Trimethylsilyl esters of fatty acids were determined from oils of wheat bran by using capillary gas chromatography with a flame ionisation detector. Gas chromatography analyses showed major fatty acids to be linoleic, oleic and linolenic acids. The content of 18:2n6, oleic and 18:3n3 acids were within the ranges of 49.13- 65.83%; 13.21- 30.09% and 5.94-2.99% of the total fatty acids, respectively. Results showed that wheat bran of the tested genotypes is the rich source of essential fatty acids (18:2n6 and 18:3n3). The presence of essential fatty acids in investigated wheat bran makes them nutritionally valuable.

*Keywords: fatty acids, wheat, wheat bran, GC-MS*