EVALUATION OF TOCOPHEROLS AND TOCOTRIENOLS IN ALBANIAN CULTIVARS

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Abstract

Wheat is a major component in the human diet with an impact on nutritional health due to its significant intake. The aim of this study was to evaluate the quality of Albanian wheat by analysing chemical and nutrition parameters and understanding the health impact of the components in wheat flour.

Five winter wheat cultivars grown during the year 2017 - 2018 on experimental fields of Agriculture Technology Transfer Center (ATTC) in Lushnja were analysed. Protein content (%N x 5.7) was determined by the Kjedahl method and lipid content was evaluated by Soxhlet extraction method utilizing n-hexane as solvent. The starch content was analyzed following the Megazyme Starch determination procedure (Megazyme International, Ireland, Ltd). The determination of the total content of tocopherols (TP) and tocotrienols (TT) in the five wheat cultivars was carried out using the High Performance Liquid Chromatography (HPLC) analysis. A descriptive statistical analysis was performed for result elaboration. The analysis of variance (ANOVA) and Principal Component Analysis (PCA) was performed using StatSoft Statistica 10.0 software and the significant differences were calculated according to post - hoc Tukey's (HSD) test at $p < 0.05$.

All cultivars showed higher level of protein content ranging from 11.39% to 12.38% and the starch content ranging from 58% to 62%. Statistical results indicated that the protein content was significantly affected by the wheat cultivars. α-Tocopherol and ß-tocotrienol were the most abundant compounds in all samples, ranging, from 9.8 mg/kg DW to 15.6 mg/kg DW and from 8.1 mg/kg to 12.7 mg/kg DW, respectively.

The daily requirement of vitamin E calculated in whole flour ranges from 14.7% to 26%.By selecting the suitable wheat cultivars with high vitamin E content, we can contribute to increasing the content of vitamin E in Albanian wheat flour and supporting the problems of vitamin E deficiency in the human diet.

Key words: *Wheat cultivars, Chemical parameters, Tocopherols, Tocotrienols, Vitamin E.*