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Comparative investigations on nutritional compositions of organic and conventional grown cereals and their relationships

With aim to find out the influence of organic farming on cereal quality properties, a comparative analyses were conducted on nutritional composition on selected cereals-wheat, rye, barley, oat and millet, which were grown by organic and conventional farming in three locations. Standard methods of analysis were applied in the analyses on the value of ash, dry matter, protein and fat. Standardized enzymatic-gravimetric methods-the Megazyme Total Dietary Fiber Kit and mixed-linkage β -glucan assay kit (Megazyme Ireland) were used in the analyses of the value of total dietary fiber (TDF) and its compounds-soluble dietary fibre (SF), insoluble dietary fibre (ISF) and β -glucans. Cereal kind-farming method by chemical-technological trait biplot analysis was also applied within R 2.9.0 program environment (R Development Core Team, 2010) to investigate associations between average value of the particular cereal nutrients and farming type.

In comparison with the conventionally grown cereals, some of the organic grown cereals have shown a significant increase in the value of ash, crude protein, and fat as well as of the value of TDF and ISF (%db), while some of the cereals exhibited increase in the value of SF (%db). There was no change in the β -glucan value of some particular cereals grown either by organic or conventional farming. Positive and negative associations between average values of analysed nutrients, TDF, ISF and SF and β -glucans and cereal farming type are discussed. It was pointed out the efficiency of organic farming for particular cereals in regard to examined chemical-technological traits for their improving, what is of importance for breeding programs, agronomic practice and food processing industry.

Biography

Mirjana Menkovska is full Professor at the Department of Food Technology and Biotechnology at the Institute of Animal Science, Sts. Cyril and Methodius University in Skopje, Macedonia. She graduated at the Faculty of Technology and Metallurgy in Skopje in 1976; she took MS Degree in Instrumental Analysis at the same University in 1982, and PhD degree in Food Technology at the University of Belgrade, Serbia in 1993. She was research visiting scientist at many known research centers in the world such as Grain Marketing research Center in Manhattan, Kansas, USA and Cereal Research Institute in Detmold, Germany and other. She published more than hundred thirty papers in domestic and foreign scientific journals; and participated at more than sixty scientific meetings in the country and abroad. She was leader of many domestic and international scientific projects. She is author of a scientific book and she has translated three books from English into Macedonian language, and has reviewed two books. She is senator at the University Senate of the University in Skopje and was its Rector candidate in 2012. Her field of expertise is food technology-cereal science and technology, food processing and new products developing, functional food, quality and safety of food and feed and food instrumental analysis. She was awarded for scientific book in 2004 and got recognition for contribution to the Eu/ICC Cereal Conference 2002 "ECC 2002-ERA". She was for a long time member of AACCC, RACI and ICC National Delegate, as well as of many other world scientific associations and member of many Scientific and Organizing Committees at international and domestic scientific conferences.

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