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## Nutrition and health improving by dietary fibre compounds and recent advances in their analyses

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Taking the fact that cereals are rich in dietary fiber into consideration, the interest for cereals as a part of the "functional food" and their application in healthy nutrition nowadays is increasing in Eu and world. There is evidence that the soluble dietary compound (1-3) (1-4)-  $\beta$ -D-glucan has health claim related to cereal-derived beta-glucan may significantly reduce risk of diseases and strengthen the immune system. Organic farming, as a way of producing food that respects natural life cycles and minimises the human impact on the environment and operates in accordance with objectives and principles, nowadays it is also attracting more interest for food production in the EU and world. The aim of the research presented here was to investigate the influence of organic versus conventional production of selected cereals (wheat, rye, oat, and barley) on the content value of  $\beta$ -D-glucans, (as well as on their nutritional composition). A mixed-linkage  $\beta$ -glucan assay kit (Megazyme Ireland) based on the hydrolysis with lichenase and  $\beta$ -glucosidase enzymes was applied. Cereal kind-farming method by chemical-technological trait biplot was also applied in order to find out the existence of associations between average  $\beta$ -glucan content and farming type. It was shown that barley is the major source of  $\beta$ -glucan among the investigated cereals followed by oat and rye in comparison with wheat. Comparing the results obtained for  $\beta$ -D-glucan values in organic and conventional cereals, it was noticed a slight increase in organic wheat (9.84%), and slight decrease in oat (2.91%), and a small decrease in rye (18.06%). There was no change in the content of  $\beta$ -Dglucan value for barley which was grown either by organic or conventional farming. However the opposite was found for the nutritional composition of cereals in the investigations on nutritional composition of the cereals. In the paper is discussed about positive or negative associations between average  $\beta$ -glucan value and cereal farming type, what is of particular importance for breeding programs, agronomic practice and food processing industry.

### Biography

Mirjana Menkovska, Ph.D is full professor at the Department of Food Technology and Biotechnology at the Institute of Animal Science, Ss.Cyril and Methodius University in Skopje, Republic of Macedonia. Her background is Food Technology. She graduated at the Faculty of Technology and Metallurgy in Skopje in 1976, took M.S. degree in Instrumental Analysis in Chemistry and Technology at the same University in 1982, and Ph. D. degree in Food Technology at the University of Belgrade, Faculty of Agriculture, Serbia in 1993. Prof. Menkovska was visiting scientist for cereal research at GMRC in Manhattan, Kansas, during the academic 1985/86, at Cereal Research Institute in Detmold, Germany in 1997, and at other known research centers in Europe. Menkovska has published more than hundred forty papers in domestic and foreign scientific journals and participated at ninety scientific meetings in the country and abroad. Her bibliography data counts over 200 references. She has also translated two books and reviewed five scientific books from English into Macedonian language. Menkovska is also active in the field of education teaching Food Instrumental Analysis and Food Quality and Safety on the post-graduate studies at the Institute of Animal Sciences, Ss.Cyril and Methodius University, as well as Dietoprevention and Dietotherapy on the study program Food Innovative Technologies and Nutrition at Faculty of Technology and Technical Sciences in Veles, University St. Klement of Ohrid. Menkovska has been many years a member of AACC, RACI, ISEKI, National contact person at EUChEMS-Division of Food Chemistry, ICC National Delegate, and member of many Scientific and Organising Committees at many international and domestic scientific meetings and conferences, such as Food Technology Conferences. She got the award "The 13th of November" of her city Skopje in the field of science for the scientific book "Technological quality of Macedonian wheat-recent instrumental techniques and methods, international standards" in 2004, and a Certificate of Recognition for contribution to the Eu/ICC Cereal Conference 2002 "ECC 2002-ERA. She was rector candidate for Ss.Cyril and Methodius University and candidate for corresponding and regular member of Macedonian Academy of Sciences and Arts.

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