Bioactive compounds in Latvian barley beer

Ilona Dabina – Bicka, Daina Karklina, Zanda Kruma, Fredijs Dimins. Faculty of Food Technology, Latvia University of Agriculture

Beer is a complex mixture; over 400 different compounds have been characterized (proteins, carbohydrates, phenolics, vitamins etc.). Some of the constituents of beer are derived from the raw material and survive the brewing process. The aim of this research was to determine bioactive compounds in Latvian barley beer.

Different types of beer produced in Latvia were studied. The total phenolic content (TPC) was determined by spectrophotometer according to Folin-Ciocalteu colorometric method with some modifications and vitamin E with standard method. TPC were expressed as gallic acid equivalents. The antioxidant potential of barley and their products were analyzed by the DPPH assays. The final results are expressed as micromoles of Trolox equivalents per gram of dry weight. The mixture of 11 phenol components in beer was determined by HPLC.

There are two methods of beer production used in Latvia: traditional method and European. Obtained results show that the TPC of traditionally produced beers was higher than by using European method. Predominant phenol component of all type of light beer were catechin (i.e. from 4.538 to 100.122 mg l⁻¹) and caffeic acid (i.e. 8.418 to 21.824 mg l⁻¹). The content of phenolic compounds ranges from 0.006 to 7.600 mg l⁻¹. Correlation between DPPH radical scavenging activity and content of ferulic acid was observed. The content of vitamin E ranges from 5.52 to 5.68 µg 100 ml⁻¹.

This research has been performed within the framework of the ESF Project „Formation of the Research Group in Food Science”, Contract Nr. 2009/0232/1DP/1.1.1.2.0/09/APIA/VIAA/122.