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BIOLOGICALLY ACTIVE COMPOUNDS IN POLISH CRAFT BEER

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Beer is one of the oldest and mostly consumed alcoholic beverages around the world. It is produced by means of alcoholic fermentation through yeasts that convert sugars contained in malt wort mainly into ethyl alcohol and carbon dioxide. The beer also contains hops and, optionally, some additives. It is rich in carbohydrates, amino acids, minerals, vitamins and phenolic compounds, which derive mainly from malt and hops. The basic flavonoid present in hops is xanthohumol which inhibits the growth of human cancer cells, has a high bioavailability and low toxicity. In malt, however, there are large quantities of microelements and macroelements, that perform a number of important functions in the human body. In this study the level of: xanthohumol, isoxanthohumol, 8-prenylnaringenin and micro- and macroelements in Polish craft beer, brewed in Polish craft brewery located in Lower Silesia, was tasted. The content of flavonoids was determined using liquid chromatography (HPLC), whereas the determination of Na, Ca and K content was performed by atomic emission spectrometry and Mg, Fe and Zn by atomic absorption spectrometry. The highest amount of all controlled flavonoids was determined in Black IPA beer, summary 4,26 mg/L, whereas in beers Pale Ale and AIPA the content of these compounds was on the average level of 2,4 mg/L. Several times lower number of discussed compounds was marked in Oatmeal Hoptart beer. Among the tested beers, the highest content of potassium (436,23 mg/kg), magnesium (92,30 mg/kg) and sodium (84,26 mg/kg) ions was found in AIPA beer. That beer was also rich in zinc (0,135 mg/kg), however a similar amount of this element was tested in the Oatmeal Hoptart type beer (0,133 mg/kg). The largest amount of calcium (42,46 mg/kg) and iron (0,202 mg/kg) ions was characterized by Black IPA beer.

Biography

Prof. Joanna Kawa Rygielska in the head of Department of Fermentation and Cereals Technology in Wroclaw University of Environmental and Life Sciences. She has many years of experience in research on fermentation processes and yeast cells.

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