Effect of „in vitro” digestion of buckwheat products on HT 29 colon cancer cells proliferation.

Dziedzic K., Górecka D., Olejnik A., Rychlik J.

Poznan University of Life Sciences, Food Technology and Nutrition Faculty, Wojska Polskiego 31, 60-624 Poznan
Corresponding author: dziedzic@up.poznan.pl

Many studies has shown that buckwheat natural antioxidants from cereal plants can effectively inhibit oxidation in food and reduce the risk of civilization disease such as cardiovascular disease, obesity, diabetes and cancer disease. The most prevalent varieties of buckwheat are Tartary buckwheat (Fagopyrum tataricum) and Common buckwheat (Fagopyrum esculentum)- a both are cultivated as a human food components and they are rich sources of phenolic substances such as rutin, quercetin, kaempferol, catechin, p-coumaric and benzoeric acid.

Common buckwheat, which is most consumed species in Poland, was investigated. The samples: buckwheat groats (BG), cooked buckwheat groats (CBG), buckwheat hull (BH) and buckwheat bran (BB) were obtained from milling company “Podlaskie Zakłady Zbożowe” from Białystok (Poland). The samples were digested “in vitro” by using bioreactor Sartorius Biostad B plus, where simulated conditions in three sections of gastrointestinal humans tract, such as: stomach, duodenum and large gut. The content of polyphenols (rutin, catechin, quercetin, p-coumaric acid and gallic acid) were determined by using a high – speed method “RRLC” (Rapid Resolution Liquid Chromatography) and an SB – C18 column. It was also conducted MTT test on cytotoxicity of HT 29 colon cancer cell line.

The results showed that “in vitro” digestion increased content of polyphenols in cooked buckwheat groats. In the other sample has reported decrease of polyphenols. All investigated products were caused of mitochondrial toxicity. After the digestion “in vitro” observed reduction of cytotoxicity in the HT 29 colon cancer cell line.

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