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„Studies of the degradation and absorption processes of anthocyanins from the newly designed models of food products in the context of their health-promoting properties"

Studies to date demonstrate a number of beneficial biological properties of anthocyanins (the common, natural plant pigments) upon *in vitro* condition. However, after anthocyanins ingestion, under *in vivo* condition, these natural pigments are rapidly degraded in the stomach and small intestine and only a small part of these compounds remains in its native form and/or is absorbed, what limiting their potential health promoting effect. Therefore, the planned studies aims to characterize the processes of degradation and absorption of anthocyanins from newly developed models of food products with potentially protective properties towards anthocyanins after their consumption in the upper sections of the gastrointestinal tract. At the same time with the features that enables the native forms of these substances to reach the large intestine, where after release from matrix of consumed products as a result of the activity of the microflora residing there and/or the prevailing conditions may favorably affect the functioning of this section of the gastrointestinal tract and thus on the entire organism. This is particularly important for seniors, who exhibit, due to their age, have more frequent disorders of this part of the gastrointestinal tract, and thus reducing quality of their life. It is hereby justified to design a product with high pro-health value resulting from the combination of natural rich sources of anthocyanins with substances limiting degradation and absorption of anthocyanins in the upper parts of alimentary tract.

The planned studies will include: analysis of the profile and content of anthocyanins, non-anthocyanin flavonoids, phenolic acids by high performance liquid chromatography coupled with mass spectrometry (HPLC-MS/MS) and biological properties of raw materials, semi-products and the final products (1); analysis of the level of binding/release of anthocyanins from newly developed products in the in vitro experiments simulating the conditions of the stomach, small and large intestine (2) and in vivo experiments (3), as well as the analysis of sensory, microbiological and biological properties (4).

Requirements for the candidate:

- diploma of the second-cycle studies (Master's degree or equivalent) in the field of agriculture, biology or related;
- knowledge and experience in the field of food chemistry and technology, and nutrition;
- knowledge of English (both spoken and written).