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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWr2c39266dfae549fa95c2d0c7db90ac19&affil=&lang=pl
Researchgate:	-
Personal website / Working group website:	-
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	-
PhD topic:	Study of extruded protein-fiber powders obtained on the basis of potato pulp and vegetable proteins as potential structural and health-promoting ingredients of food
Research discipline in Doctoral School:	Nutrition and Food Technology
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>The extrusion process is widely used to process raw materials of plant and animal origin, resulting in the creation of often unique products with a physically modified structure and changed functional and nutritional properties. This technology enables the processing of high-fibre raw materials, changing their physical and physicochemical properties, such as structure or sorption properties. Fiber fractions of different molecular weight and solubility are formed. In this process, transformations of such polymers as starch and proteins found in processed raw materials, which are important from the point of view of functional characteristics, digestibility and safety, take place, leading to the formation of high-molecular complex compounds.</p> <p>The aim of the proposed research carried out in the field of the PhD thesis would be to study the functional, nutritional and rheological properties of protein-fiber preparations containing potato fiber fractions with a modified structure and starch-protein complex compounds of various digestibility and nutritional value.</p> <p>Assumptions: it is assumed that the structural transformations of non-starch polysaccharides contained in the potato pulp during extrusion and the reactions between the starch contained in the pulp and added vegetable proteins will lead to the production of preparations characterized by beneficial structural, physicochemical and health-promoting properties.</p> <p>Experimental course: extrusion will be carried out in a co-rotating twin-screw cooking extruder. They will be subjected to extrusion of doughs with different humidity, made on the basis of potato pulp with a modeled composition due to the starch content and differing in the type and amount of added protein preparation. The research will also examine the impact of stabilizing additives, such as salt, inulin or glycerides.</p> <p>There are planned analyzes of starch and protein content, soluble and insoluble fiber fractions, sorption and rheological properties of the preparations obtained, their invitro digestibility, glycoalkaloids content, antioxidant activity, structure of the resulting powders by observing the preparation particles before hydration (using SEM - scanning electron microscopy) and after hydration using ImageJ.</p>
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	The candidate should have a master's degree, be familiar with food processing technologies, have at least basic knowledge in the field of extrusion technology and be familiar with the chemistry of carbohydrates and proteins. They should also have knowledge and skills in the use of methods for analyzing the chemical composition, physical and functional properties of food, including proteins, free use of software, including statistical planning of research and conducting statistical analysis of data. Knowledge of the English language is necessary to enable the free use of scientific literature and speaking in this language. Ability to work in a team would be beneficial.
a) Project title:	
b) Agreement number:	
c) Number of months in the project to support PhD (in months; starting from 1st of October 2022):	
Project website:	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWr2c39266dfae549fa95c2d0c7db90ac19&affil=&lang=pl