

Name and surname:	Anna Zimoch-Korzycka
Academic Degree:	dr hab. inż. (DSc.)
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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info_seam?affil=&ps=20&id=UPWra6a6925f0f3f42788cbf177928b64eb3&lang=en&pn=1&cid=53435
Researchgate:	
Personal website / Working group website:	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<p>1. Project title: Possibilities of shaping the physico-chemical properties of meat analogues using transglutaminase Project number: N090/0008/23 N090/0008/23 Authority granting funds for the project implementation: UPWr SCIENTIFIC RESEARCH SUPPORT FUND - PATH IV (N090/23) From 2023 to 2024. PI</p> <p>2. Project title: "Assessment of the quality of cold meats produced according to standard technology and development of the recipe composition of biopolymer hydrosols for the industrial production of edible protective coatings" Project number: POIR.01.01.01-00-2223/20, Body granting funds for the project: Funds European - Smart Growth Program From 2021 to 2023. PI</p> <p>3. Project title: Development of an innovative product in the form of an anti-stress feed additive based on Cannabis sativa L. Project number: B090/0071/20 Authority granting funds for the project: POIR.02.03.02-06-0061/19-00 From 2020 to 2022. RF</p>
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Auxiliary supervisor
Name and surname:	Żaneta Król - Kilińska
Academic Degree:	dr inż. (Dr. Eng.)
Faculty, Institute/Department:	Faculty of Biotechnology and Food Science, Department of Functional Food Product Development
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UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	<p>1.Kulig, D., Bobak, Ł., Jarmoluk, A., Szmaja, A., Król-Kilińska, Ż., & Zimoch-Korzycka, A. (2023). Effect of Chemical Degradation of Sodium Alginate on Capsaicin Encapsulation. <i>Molecules</i>, 28, 1–14. https://doi.org/10.3390/molecules28237844 2.Kulig, D., Król-Kilińska, Ż., Bobak, Ł., Żarowska, B., Jarmoluk, A., & Zimoch-Korzycka, A. (2023). Functional Properties of Chitosan Oligomers Obtained by Enzymatic Hydrolysis. <i>Polymers</i>, 15, 1–17. https://doi.org/10.3390/polym15183801 3.Jurić, S., Jurić, M., Król-Kilińska, Ż., Vlahoviček-Kahlina, K., Vinceković, M., Dragović-Uzelac, V., & Donsi, F. (2022). Sources, stability, encapsulation and application of natural pigments in foods. <i>Food Reviews International</i>, 38, 1735–1790. https://doi.org/10.1080/87559129.2020.1837862 4.Król-Kilińska, Ż., Kulig, D., Yelkin, I., Zimoch-Korzycka, A., Bobak, Ł., & Jarmoluk, A. (2021). The Effect of Using Micro-Clustered Water as a Polymer Medium. <i>International Journal of Molecular Sciences</i>, 22, 1–11. https://doi.org/10.3390/ijms22094730</p>
Researchgate:	
Personal website / Working group website:	
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	Biopolymer hydrogels prepared on the basis of plasma treated water with [DEC-2020/04/X/NZ9/02138] MINIATURA - NCN From 2020 to 2021. PI
PhD topic:	Possibilities of using selected polymorphic and nanometric forms of cellulose for the production of edible biocomposites
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>Cellulose is the most common biodegradable and renewable biopolymer in nature. It occurs in both plant and bacterial cell walls. Many methods of chemical, enzymatic, or mechanical modification are known, which gives the modifications new properties and creates wider possibilities for use in various industries. Nanostructured cellulose is a material with a fiber diameter of less than 100 nm. Nanocelluloses include microfibrillar cellulose (MFC), nanocrystalline cellulose (CNC), and bacterial cellulose (BNC). Nanocellulose is currently the subject of research in many scientific centers, mainly due to its specific properties, such as a large specific surface area, high compressive strength, low density, low expansion coefficient, and easy modification of the polyhydroxyl structure. Because of the reactive hydroxyl groups of nanocellulose, it is possible to obtain new desired properties, including: antimicrobial, emulsifying, or stabilizing.</p> <p>Modifications of cellulose and nanocellulose can be performed by using high-pressure homogenization, high-frequency ultrasonication, acid or enzymatic hydrolysis, polymer grafting, attachment of functional groups to the surface, e.g. acetyl, ester, carboxyl, or siloxane, and oxidation with the TEMPO reagent. The combination of highly reactive nanocellulose with substances with biological activity, such as chitosan, lysozyme, or other nanosubstances, creates the possibility of producing biocomposites with new biophysicochemical properties.</p> <p>The aim of the research to be the subject of the Ph.D. thesis is to develop methods for modifying selected polymorphic and nanometric forms of cellulose, which would enable obtaining biomaterials with new biophysicochemical properties and producing biocomposites useful for food applications and/or food packaging. The new products will be analyzed microbiologically and sensorial.</p>
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	<p>The candidate is expected to have:</p> <ul style="list-style-type: none"> - an academic title of Master in food, biological, biotechnology, chemistry, pharmaceutical sciences, - a large commitment to do research, - basic laboratory skills, - analytical techniques: polymer modification methods, antioxidant properties, antimicrobial propoerties, chemical structure and characteristic of polymers, - a good English skills (at the minimum B2 level), - readiness to do foreign internships and experience in laboratory work. It is desirable that the candidate has: - experience/knowledge in working with polymers and or bioactive substances, - ability in working with MS Office (Excel, Word), Statistica or another similar programmes.
a) Project title:	none
b) Agreement number:	none
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	0
Project website:	