

Name and surname:	Magdalena Szymura
Academic Degree:	dr hab. (DSc.)
Institute/Department:	Institute of Agroecology and Plant Production
e-mail address:	magdalena.szymura@upwr.edu.pl
ORCID:	0000-0002-5726-7393
UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWr10dff724d2e34149a917b1d058fd5f93&affil=&lang=en
Researchgate:	https://www.researchgate.net/profile/Magdalena-Szymura
Personal website / Working group website:	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<p>2023-2025 - Innovative methods of breeding beef cattle for fattening in the Sudetes Foothills in order to produce beef with unique properties and introducing it to the market (RF) - - Agency for Restructuring and Modernization of Agriculture under the "Cooperation" action</p> <p>2022-2024 - Integrated approach to the protection of ecosystems against invasive alien plants in southern Poland - IAS/EcoSystemCARE (RF) - Norwegian funds</p> <p>2022-2024 - Improving the state of ecological connectivity in the Karkonosze National Park and its buffer zone (RF) - Norwegian funds</p> <p>2020-2022 - Innovative methods of sheep breeding and breeding in the light of the changing climatic conditions of Lower Silesia (PI) - Agency for Restructuring and Modernization of Agriculture under the "Cooperation" action</p> <p>2020-2023 - Spatial diversity of species richness of vascular plants in Poland - patterns, causative factors and predicted changes (OPUS, NCN), (RF).</p>
PhD topic:	Potential of phytochemicals isolated from selected invasive plants to use in agricultural sector
Research discipline in Doctoral School:	Agriculture and Horticulture
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>As global trade increases the transfer of goods and commodities around the world, it leads to the movement of species from their native ranges to new locations where they become invasive.</p> <p>Weeds in agricultural fields compete with crop plants for light, moisture, and essential nutrients, lowering crop quality and yield while raising production costs. Although the impacts of invasive alien plant species are unpredictable, they all have mechanisms contributing to their intrusiveness. The continued use of synthetic herbicides to control weeds leads to environmental pollution and health issues. Consequently, chemical formulations have been increasingly banned. However, sustainable solutions still need to be improved in the market. Alternatively, valorizing phytotoxic waste to reduce herbicide use promotes sustainability, meeting circular economy. Successful alien species often owe their capability to repel native enemies to novel biochemistry. Phytochemical uniqueness is fundamental in the invasion ability of alien plants. Therefore, phytochemicals from alien invasive species may be a leading cause of harmful effects on the environment.</p> <p>Conversely, some invasive species have compounds potentially useful to humans and could provide valuable ecosystem services. The research aims to analyze the genetic characteristics of selected species invasive to Central Europe, compare them with species in the native range, and find the differences in active compound types and concentrations during the growing season as a practical result of the PhD proposal of usage of solutions from defined invasive species in agriculture is planned.</p>
Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	The candidate should have an education in agriculture, environmental or biological sciences. Candidate should have basic skills in recognition of plant species and the basics of work in the laboratory. The candidate is expected to carry out fieldwork, readiness to go on scientific internships and participate in international scientific conferences. The candidate should know English at a communicative level and be able to use English-language literature. The ability to use programs for statistical calculations will also be useful.
a) Project title:	0
b) Agreement number:	0
c) Number of months in the project to support PhD student (in months; starting from 1st of October 2024):	0
Project website:	