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Academic Degree:	dr hab. inż. (DSc.)
Institute/Department:	Institute of Animal Husbandry and Breeding
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UPWr Base of Knowledge - link:	https://bazawiedzy.upwr.edu.pl/info.seam?id=UPWre59b4c6baee1494aadf63e93864ad719&affil=&lang=pl
Researchgate:	https://www.researchgate.net/profile/Pawel-Migdal
Personal website / Working group website:	
Participation in projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<p>PI:</p> <ol style="list-style-type: none"> Changes in biochemical indicators of honey bee workers under the influence of various compositions of plant protection products - 2020-2022. High-frequency electromagnetic fields as a possible factor influencing gene expression in honeybees - 2023 - 2024. <p>RF:</p> <ol style="list-style-type: none"> Implementation of a research and development project to develop methods and algorithms necessary to create a modern BeeMonitor product - 2019-2020. Development and implementation of a bacteriophage preparation used in the treatment and prevention of foulbrood in honey bee brood - 2019. Analysis of the mechanisms of increased effectiveness of antimicrobial substances against biofilm in the presence of a rotating magnetic field - 2019-2020.
Do you plan to engage support of second supervisor or auxiliary supervisor?	YES
	Auxiliary supervisor
Name and surname:	Agnieszka Murawska
Academic Degree:	dr inż. (Dr. Eng.)
Faculty, Institute/Department:	Faculty Of Biology and Animal Science, Institute of Animal Husbandry and Breeding / Department of Bees Breeding,
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ORCID:	
UPWr Base of Knowledge - link or most important publications from last 3 year (JCR) / patents from last 3 years (maximum 5):	https://bazawiedzy.upwr.edu.pl/info/author/UPWrca3b044afa7f496bbf0527abba64ddc7?tab=main&conversationPropagation=begin&sort=&title=Profil%2Bosoby%2B%25E2%2580%2593%2BAgnieszka%2BMurawska%2B%25E2%2580%2593%2BUniwersytet%2BPrzyrodniczy%2Bwe%2BWroc%25C5%2582awiu&lang=pl&pn=1
Researchgate:	
Personal website / Working group website:	
Projects in last 5 years (chronological; with distinction into PI (kierownik) and RF (wykonawca)):	<p>RF:</p> <ol style="list-style-type: none"> Development and implementation of a bacteriophage preparation used in the treatment and prevention of foulbrood in honey bee brood - 2019.
PhD topic:	Protein and carbohydrate malnutrition of honey bees in the context of climate change
Research discipline in Doctoral School:	Animal Science and Fisheries
Short description of the research problem to be solved in the PhD (minimum 1000 characters):	<p>Climate change contributes to shifts in the flowering dates of plant parts that are a source of carbohydrate and protein food in the diet of honey bees (<i>Apis mellifera</i> L.). As a result, intensive harvests accumulate in a short period, and then there is a large shortage of flowering plants in the environment. This phenomenon is also intensified by emerging droughts and heavy rains. Moreover, the wintering periods of bees are currently unstable and have a negative impact on the nutritional needs of bee colonies. Such factors cause periodic needs for emergency feeding of bee colonies. Protein and carbohydrate malnutrition in bee colonies causes a decrease in productivity, problems with brood rearing, and limited hygiene procedures. The subject of the research planned as part of the work will be the development of a new dough, a feeding system, and a list of additives that can be given to bee colonies to reduce the above-mentioned negative effects. Additionally, attempts will be made to determine a biochemical panel and develop biomarkers related to the expression of selected genes related to food stress. An important aspect of the work will be to analyze the mechanism of the honey bee's body's reaction to nutritional stress and what its consequences may be for beekeeping production. Working on this topic involves handling bee families and laboratory tests.</p>

Professional skills for PhD candidate (e.g. master program, specializations, softwares, language, analytical techniques, minimum 500 characters):	To implement this topic, education in zootechnic, biology, biotechnology or related sciences will be useful. The candidate should have basic knowledge of breeding and breeding or the biology of farm animals, especially insects. Experience in working with bees or other insects is desirable. The candidate should have basic knowledge of working in the laboratory and on research projects. In addition, he should be open to new challenges and trips abroad that will enable the achievement of the assumed work goals. Experience in writing scientific publications and participation in conferences is welcome.
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:	