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Research topic	Metabolic and molecular characteristics of selected
	entomopathogenic fungi and their impact on plant and soil
	microbiome
Synthetic description of the	Entomopathogenic fungi are natural enemies of pests and belong
research topic (up to 300	to environmentally friendly microorganisms, used mainly in
words)	agriculture to protect crops and reduce the need for pesticides.
	Most commercially available biopreparations contain fungi of the
	genera Metarhizium and Beauveria; however, many other fungi
	are equally effective in pest control, but are not used to produce
	biopreparations. Such microorganisms include, e.g. fungi of the
	genera Samsoniella, Akanthomyces and Hirsutella, which have
	potentially valuable biological properties and could be used to
	control pests or as microorganisms improving plant growth.
	However, they remain unused due to the lack of sufficient
	research on the method and scope of their action.
	The proposed research focuses on basic research covering
	identifying the metabolic profile and functional structure of the
	genomes of selected species of entomopathogenic fungi, not yet
	used in agricultural practice, and their impact on natural bacterial
	and fungal communities of soil and plant. By integrating
	metabolic, molecular and bioinformatic methods, the research
	aims to deepen knowledge on less frequently used species of
	entomopathogenic fungi with significant infectious potential, thus
	enabling the development of bioinsecticide preparations in the
	future.
	The objectives include identifying the metabolic profile of
	selected entomopathogenic fungi using the Biolog system and
	determining the functional structure of genomes using advanced
	genomic and transcriptomic techniques. The proposed research
	aims to identify changes in the microbiome and mycobiome of
	soils and plants, based on metataxonomic analysis, under the
	influence of selected taxa of entomopathogenic fungi.
	The proposed research is essential for understanding new
	ecological roles and adaptive capabilities of entomopathogenic
	fungi. It will increase microbial biodiversity and soil quality
	awareness, and identify genes and metabolic pathways crucial for
	their pathogenicity and host interactions. The proposed research
	will provide basic knowledge, essential for the development of
	biopreparations for agriculture in the future.
Additional requirements for	Investigator should have experience and skills in work with
the candidate	classical microbiology methods and molecular biology techniques.

	The ability to elaborate results statistically and graphically. Bioinformatical skills are welcome. Master in biotechnology, biology, environmental protection or related education in life sciences
An indication of the sources and extent of funding for the scholarship from outside the subsidy	National Science Centre – OPUS 27 Grant Agreement No. UMO-2024/53/B/NZ9/01058 For research project No. 2024/53/B/NZ9/01058 pt. Mechanisms determining the suitability of selected entomopathogenic fungal species for biocontrol - a multi-omics approach