
PHD STUDENT IN THE DOCTORAL SCHOOL – CALL FOR APPLICATIONS

Position: PhD student in biological sciences

Unit of the project realization: Faculty of Natural Sciences – University of Silesia in Katowice

Unit realizing the PhD student education: Doctoral School at the University of Silesia in Katowice
in cooperation with the European University consortium – Transform4Europe

The research undertaken by the successful applicant will be carried out within the framework of the project “**The role of spontaneous vegetation in shaping soil micro-food webs and carbon sequestration on mineral extraction areas**”

Duration of the scholarship: 48 months

Scholarship amount: 3466,90 PLN / 5340,90 PLN (after mid-term evaluation)

PhD supervisor: dr hab. Gabriela Woźniak, prof. UŚ

Project description:

The spontaneous ecosystem processes of the mineral extraction areas are dependent on the vegetation built by the non-analogous species composition. The plant individuals colonizing the oligotrophic mineral habitats are shaping the composition of the soil organisms. Soil biota play crucial roles in regulating soil biogeochemical cycle, including carbon sequestration and aboveground biodiversity. This is mainly due to the fact that different plant species affect the physical and chemical properties of the soil, the chemical composition of the litter, detritus supply and rooting depth differently. There is little knowledge of soil microbial communities and their activities in the different plant communities of mineral extraction areas, especially with regard to the influence of soil micro-food web on soil carbon sequestration. The soil micro-food web is the most fundamental component of the soil food web, which is a network of consumer-resource relationships formed by soil biota through complex interactions such as predation, competition, mutualism, commensalism, parasitism, neutralism, and amensalism. The main components of the soil micro-food web are microorganisms, protists and nematodes. Soil microorganisms are influenced by their trophic position in the soil food web, where the bottom-up effect refers to a lower trophic level affecting the community structure of higher levels via physiochemical resource availability, whereas top-down effects refer to organisms at higher trophic levels impacting community structure through predation. Such complex interactions among soil biota can be reconstructed into ecological networks, with species acting as nodes and their connections acting as links, using a correlation-based approach with taxa occurrence and abundance data to define species interactions and ecosystem dynamics.

Requirements:

1. MSc in Biology or Environmental Protection (or related).
2. Fluency in English (both spoken and written).

-
3. Very good knowledge of the interaction between plants and soil microorganisms in disturbed areas. General knowledge of plant and soil ecology. Good skills in laboratory work.

Required documents:

1. A written outline of a research proposal (up to 4500 characters) including methodology, research goals, and bibliography.
2. A list of the candidate's scientific publications.
3. A CV focused on research and academic experience.
4. A copy of the MSc diploma (or a declaration of obtaining a diploma no later than September 10, 2024).
5. One letter of recommendation.

Candidates should register in the IRK system (<https://irk2.us.edu.pl/>), select "Admission to the Doctoral School at the University of Silesia in Katowice – ADMISSION FOR PROJECTS" and choose a suitable project title.

Documents should be delivered until **31.05.2024** through the IRK system.

In case of any questions before submitting the formal application, please contact the Doctoral School (szkola.doktorska@us.edu.pl).

Documents will be evaluated by an interview panel led by the project leader. Admission will be carried out in English. Interviews will be organized online. The final decision will be sent to the candidates via the IRK system until **17.06.2024**.