

Special STSM Offer Hosted by the University of Banja Luka – Faculty of Agriculture

Bioinformatics and NGS-Based Microbiome Analysis of Intercropping Systems and Cultivated and Wild Blueberries

The Offer

We invite a researcher with a strong background in molecular biology, bioinformatics, microbiology, plant sciences, or related disciplines to join our research team at the Faculty of Agriculture, University of Banja Luka, Bosnia and Herzegovina. The selected researcher will participate in an ongoing project focused on next-generation sequencing (NGS) and bioinformatic analysis of plant-associated microbiomes in intercropping systems, as well as cultivated and wild blueberry populations. The project aims to characterize microbial diversity, community structure, and functional potential in relation to plant health, environmental conditions, and sustainable agricultural practices.

The participant will contribute directly to laboratory and computational analyses while developing advanced expertise in microbiome research, bioinformatics, and scientific publication preparation.

Research Objective

To investigate the diversity, composition, and functional characteristics of microbiomes associated with intercropping agricultural systems and cultivated and wild blueberries using next-generation sequencing and bioinformatic approaches.

The project will focus on:

- Microbial community profiling using NGS technologies.
- Comparative analysis of microbiomes associated with cultivated and wild blueberry populations.
- Evaluation of microbial diversity within intercropping systems.
- Identification of microbial taxa and functional pathways associated with plant performance and ecosystem sustainability.
- Preparation of scientific publications based on generated datasets.

Training and Research Activities

During the STSM visit, the selected researcher will be trained in and contribute to:

1. Sample Processing and Molecular Analysis
 - DNA extraction from plant and soil samples.
 - Assessment of DNA quality and quantity.
 - Preparation of samples for NGS-based microbiome analysis.
2. Bioinformatics and NGS Data Processing
 - Quality control and preprocessing of sequencing data.
 - Taxonomic classification of microbial communities.
 - Diversity and community structure analyses.
 - Functional prediction and annotation of microbiome datasets.
 - Application of bioinformatics tools and pipelines for microbiome research.

3. Data Analysis, Interpretation and Scientific Writing

- Statistical analysis of microbiome datasets.
- Comparative analyses among intercropping systems and blueberry populations.
- Integration of biological and environmental metadata.
- Preparation of scientific manuscripts, reports, and conference presentations.

Host Institution

University of Banja Luka, Bosnia and Herzegovina

Faculty of Science, Technology and Sustainable Management (STSM)

Contact Person

Prof. Dr. Duška Delić

Email: duska.deluc@agro.unibl.org

STSM Duration

3 months

Funding

The participant must apply for a standard COST STSM grant covering travel and accommodation expenses. The host institution will provide access to laboratory facilities, computational resources, scientific supervision, and research support.

Selection Criteria

Only one participant will be selected.

Ideal candidates should have:

- Background in molecular biology, microbiology, bioinformatics, biotechnology, plant sciences, or related disciplines.
- Experience with DNA extraction and sequencing data analysis is desirable.
- Knowledge of microbiome research and bioinformatic tools is considered an advantage.
- Ability to work independently and collaboratively within an international research team.
- Strong motivation to contribute to scientific publications.

How to Apply

Interested researchers should submit a one-page proposal including:

1. Motivation and Expertise

Describe your interest in microbiome and bioinformatics research and summarize your relevant technical skills and experience.

2. Research Background

Provide a brief overview of your previous research activities and explain their relevance to microbiome studies, plant sciences, molecular biology, or bioinformatics.

3. Expected Outcomes

Explain how participation in this STSM will contribute to your scientific development, future collaborations, and career objectives.

Applications should be sent directly to:

Prof. Dr. Duška Delić

Email: duska.deluc@agro.unibl.org