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IBIOL SEMINAR SERIES

29th October 2025

12:15-13:30 PM

F200

Sami Zhioua

The Good, The Bad and the Anatoxicus

Microcoleus cyanobacteria, linked to dog poisonings, are common in river sediments, yet their ecological roles remain unclear. We analyzed microbial communities from a Swiss river over a year using DNA sequencing and toxin gene screening. Microcoleus co-occurred with specific bacteria and algae, influenced by local environmental factors. No toxin gene was detected, suggesting both toxic and non-toxic strains may coexist.

Théo Steiner

Exploring the phytochemical diversity of two contrasting alpine plant communities using untargeted metabolomics.

Plants adapt their physiology and metabolism to thrive under contrasting ecological conditions. In the Alps, siliceous and calcareous outcrops host diverse plant communities with shared functional traits but distinct tolerances to soil pH. On calcareous bedrock, Seslerion grasslands are commonly found, while Nardion grasslands are typical of siliceous bedrock. Where both bedrocks meet, these communities coexist, providing a natural experiment to test whether geology filters plant metabolomes independently of climate and phylogeny. We sampled over 1300 individuals from 100 species across alpine sites in Switzerland and profiled their metabolomes using liquid chromatography coupled with mass spectrometry. Phytochemical diversity and chemical signatures differed between Nardion and Seslerion communities, highlighting some of the ecological processes that shape metabolomic variation across habitats.

Kathrin Altermatt

Can we smell the blind passenger? Detection of the fall armyworm on imported maize cobs using volatiles.

The fall armyworm (Spodoptera frugiperda) is a highly invasive maize pest and a potential threat to European agriculture. A possible way of accidental introduction into Europe is through imported maize cobs. We investigated whether infested cobs emit specific volatile organic compounds (VOCs) and identified potential marker compounds that could be targeted for rapid, non-invasive detection of the pest at border control.