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ÖKOLOGISCHES KOLLOQUIUM

des Instituts für Zoologie

in person in **room 0.40 GENETICS**

Wednesday, 07.06.2023, 01:15 pm



Dr. Alessandra Dupont

Institute of Applied Microbiology, Justus-Liebig University Giessen

Host: Prof. Dr. Bonkowski

ELEVATED ATMOSPHERIC CO₂ MODIFIES THE ACTIVE SOIL MICROEUKARYOTIC COMMUNITY IN THE GIESSEN FREE-AIR CO₂ ENRICHMENT EXPERIMENT

Increased levels of atmospheric CO₂ have been shown to significantly impact bacterial metabolic activity in rhizosphere soils. Protists, as some of the most abundant predators of bacteria, are directly dependent on bacterial community dynamics. In this study, we investigated the effect of increased atmospheric CO₂ levels on the protist community composition and function, as well as their interactions with bacteria from bulk and rhizosphere soils from the Giessen Free-Air CO₂ enrichment (Gi-FACE) grassland experiment. Metabarcoding sequencing data analyses of 18S rRNA genes from total soil RNA showed that CO₂ concentrations impacted soil community composition ($p=0.006$). Differential abundance analyses indicated that only a few ASVs were enriched under either elevated or ambient CO₂ conditions, with only poorly identified phagotrophic predators of both bacteria and other (micro)eukaryotes being stimulated under elevated CO₂ conditions; in parallel, phagotrophic and parasitic lineages were stimulated under ambient CO₂ conditions. Cross-comparisons of protist-bacteria co-occurrences in elevated and ambient CO₂ concentrations showed mostly negative relations between those kingdoms, indicative that the ongoing increase in atmospheric CO₂ will lead to major changes in not only microbial soil communities, but also in the interactions between and within those communities, most likely cascading through to higher trophic levels in soil systems.

Gäste sind herzlich willkommen!
Die Mitarbeiter/innen der Ökologie

→ bei Rückfragen: 470-8242 (Niedeggen)