

New transparent soil microcosms for live assessment of competition for nitrogen in the rhizosphere

Initiative: "Experiment!" (beendet)

Ausschreibung: Explorative Phase

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Projekt-Website: www.plantinteractionsecophysiology.com

Acquisition of nutrients, particularly that of growth-limiting nitrogen, from the soil plays an important role in achieving maximum growth and reproductive fitness in plants. This highly dynamic activity in the rhizosphere, the thin soil layer surrounding the roots, is not easy to observe by commonly used methodology mainly because soils are opaque and analyzing techniques are usually destructive. This project aims at developing a "transparent soil" microcosm system to study the changes in the rhizosphere of tree species in response to species composition and modification of the environment. The project will identify species-specific differences in morphological and functional traits and reveal how changes in environmental conditions affect root-root-soil interactions. Using "transparent soil" as a tool the project tries to unlock current limitations inherent to studies of root-root interactions for a better understanding of how trees acquire nitrogen from the soil for growth and how this shifts with environmental conditions. The results might provide opportunities for applications in forest management and/or agroforestry to improve nitrogen acquisition and reduce the application of fertilizer for sustainable ecosystems.

Projektbeteiligte

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