

Master thesis topic: Exploring root exudate mediated plant-plant interactions in natural *A.thaliana* populations

Plants engage in complex belowground interactions that significantly influence their growth and survival. They possess the ability to recognize neighboring plants and determine whether to cooperate or compete based on genetic, chemical, and environmental cues. However, experimental evidence supporting these recognition mechanisms remains scarce. Understanding how plants interact belowground is crucial for elucidating community dynamics and ecosystem functioning.

This research focuses on *Arabidopsis thaliana*, where we have estimated the chemical composition of root exudates from plants in the Iberian Peninsula. In addition to chemical analyses, we have established genetic, environmental, and life history distances among these genotypes. Our objective is to investigate the role of genetic and chemical similarity or dissimilarity in mediating plant-plant interactions.

We seek a motivated student to assist with a greenhouse experiment aimed at exploring the interactions between natural *A. thaliana* plants. The experiment will involve the following tasks:

Experimental Design: The student will assist in designing the greenhouse experiment, including setting up treatments, randomization of plant placements, and establishing controls.

Sowing and Germination: The student will learn the techniques for sowing *A. thaliana* seeds and monitoring germination rates.

Scoring Phenotypic Characteristics: The student will assess and score various above-ground phenotypic traits, providing insights into how genetic and chemical factors influence plant behavior.

Data Collection and Analysis: In addition to practical skills, the student will gain experience in data collection and analysis, focusing on the relationship between root exudate chemistry and plant interactions.

This greenhouse experiment represents an exciting opportunity for a student to engage in cutting-edge research on belowground plant interactions. By investigating how genetic and chemical factors mediate plant-plant interactions, we aim to contribute valuable insights to the field of plant evolutionary ecology. Interested candidates should have a background in plant sciences and a strong desire to learn through hands-on research.

For further inquiries or to express interest in participating in this study, please contact me at your earliest convenience.

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