



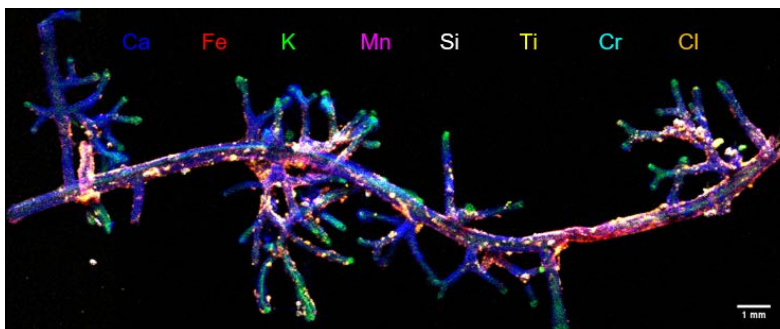
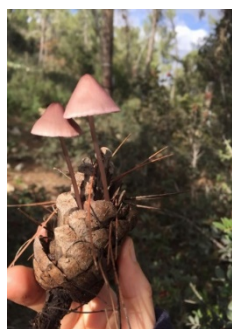
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HORIZON-CL6-2021-BIODIV-01-13: Breeding for resilience: focus on root- based traits

I am Tamir Klein, a tree eco-physiologist. My group at the Weizmann Institute of Science (The Weizmann Tree Lab; <http://www.weizmann.ac.il/plants/klein/>) studies multiple aspects of root eco-physiology in forest and orchard settings:



- A study of the dynamics of tree root exudates in the field and under multiple settings of elevated CO₂, drought, etc., including the exudation metabolome
- Multiple projects studying mycorrhizal networks among forest trees of different species, using isotopic tracers: their role in carbon transfer, their dynamics, and their influence on forest productivity and resilience to stress
- A study of root-bacteria rhizosphere interactions under nutrient deficiency
- Monitoring root growth dynamics in the field, and their responses to water availability



The Weizmann Tree Lab offers the following opportunities for research directed at the **BIODIV-01-13 call topics**:

- A first-of-its-kind, newly built, root greenhouse with an aeroponics basement compartment to study root traits of mature trees and seedlings, including manipulations of temperature, CO₂ level, etc.
- A tree physiology and molecular lab with three postdocs (including a microbial ecology expert and a fungal ecology expert), six PhD students, and six MSc students, to study root eco-physiology and rhizosphere interactions
- A fully equipped eco-physiology lab, including our own carbon isotope analyzer, tree micro C.T., CO₂-controlled growth rooms, and a metabolomic analysis unit
- A set of continuous belowground monitoring devices in multiple field sites in forests and orchards, including a rhizotron camera, exudation sampling systems, and soil water content and potential sensors

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