



PhD position in Plant Sciences

Mechanisms of water loss after stomatal closure and their implications for plant survival under severe drought



PhD position supported by Bordeaux University and Bordeaux Plant Science (BPS) research program is available in the **UMR BioGeCo** and the **Laboratory of Membrane Biogenesis** in Bordeaux, France.

Climate change represents one of the most important challenges to our planet, resulting in more intense and longer periods of drought at many places worldwide. Drought affects the physiology of many plant species, leading to reduced growth and crop productivity, and contributing to drought-induced forest mortality. Therefore, it is of outmost importance that scientists investigate drought resilience of plants, which includes both the capacity to resist drought and the potential recovery after drought. As plant leaves can be exposed to various levels of drought, these are frequently the first organs directly affected by it. Yet, mechanisms associated with the resistance and potential recovery of leaves remain poorly understood, especially with respect to water transport in xylem and extra-xylary tissue. While stomatal behavior has been extensively studied in response to both vapor pressure deficit and soil water stress, the mechanisms of water loss after drought-induced stomatal closure remain poorly understood (e.g. stomatal leakiness and cuticular transpiration, together referred to as minimal leaf conductance). We hypothesize that under extreme drought conditions, these water losses after stomatal closure could define the time needed for the plant to reach the critical water content at which living tissues die of dehydration. **This PhD project will aim at quantifying the components of minimal leaf conductance and their impacts on plant survival. It will determine whether these components are associated with more classical traits related to drought resistance and to what extent the predictions of dynamic vegetation models can be improved by considering these relevant traits.**

Environment

The PhD candidate will work at the interface between two research units in Bordeaux : BioGeco and the LBM. We are located on the plant science campus of Bordeaux University and INRAE.

Bordeaux is an easy-going and enjoyable UNESCO world heritage city with many cultural, social, sportive events, famous for its vineyards and only one hour away from marvellous sand beaches.

Starting date: October 1st, 2022

Team/lab website:

✦ [UMR BioGeCo](#)

✦ [UMR LBM](#)

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