



PhD opportunity announcement

Determine effects of heat and drought stress on rhizosphere microbiome and its association with wheat genotype adaptation

The International Maize and Wheat Improvement Center (CIMMYT) in Mexico is working in the framework of the project “Harnessing translational research across a global wheat improvement network for climate resilience” on the effects of heat and drought stress on the microbiome of the rhizosphere and its association with wheat genotype adaptation. We speculate that traits such as root architecture, turnover and exudate composition, which can vary widely across wheat genotypes, shape directly the population size, composition and functional potential of the rhizosphere microbiome.

We hypothesize that the rhizosphere microbiome plays a key role in fostering the resilience potential of selected wheat genotypes to drought and/or heat stress events.

Objectives of the PhD project are to

- (1) assess the diversity and functional potential of the rhizosphere microbiome of contrasting wheat lines (in terms of resilience), in response to experimental treatments (e.g. drought and heat stress), and
- (2) contribute to the discovery of promising microbial candidate strains with complementary functions for follow-up development of microbial consortia formulations to promote stress resilience in wheat.

Field experiments will be established annually each November-May by CIMMYT at the experimental station near Ciudad Obregón in Sonora, NW Mexico. The station is CIMMYT’s most important field experimental station with a long history for, but not only, research on drought- and heat stress tolerance of wheat. Lab and coursework work will be conducted at the University of Hohenheim in Germany.

The identified candidate, together with supervisors from the Institute of Agricultural Sciences in the Tropics (Germany) and CIMMYT (Mexico), needs to 1) develop a PhD project proposal, and 2) apply for a PhD scholarship at “ATSAF – Council for Tropical and Subtropical Research”, financed by the German Federal Ministry for Economic Cooperation and Development (BMZ), in collaboration with giz.

Details about the Academy: <https://www.atsaf.org/en/atsaf-academy/>

Full scholarships (3+1 years) are to be awarded with a PhD project start 1 April 2021.

Expected qualifications of the candidate:

- Affinity to and first experience in omics-oriented microbiology technologies.
- A good understanding of soil-plant-microbiome interactions.
- Very good and certified English skills. Basic Spanish is an asset. Proficiency in German is not required, but would be an asset for daily living.
- Willingness to conduct field work in NW Mexico (depending on the possibility of international travel during the COVID-19 pandemic).
- MSc in Agricultural Sciences or related fields (e.g. Biology, Ecology, Plant Sciences, Soil Sciences).

To express your interest, please send 1) a 1-page cover letter expressing your interest and 2) a resume providing details of your education and experience **by 5 February 2021 to both of the following:**

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