

Ad hoc support : WHEAT'N BIOTA

Support for a Lebanese PhD student on investigation of root exudation and interactions with beneficial microorganisms in wheat ancestors and elite cultivars towards sustainable agricultural practices

ABSTRACT

The main immediate objective of the demand is to obtain support for Houssein in order to allow him to get a PhD work extension. Such an extension is necessary to secure an amount of work/results reaching the standard of the Gaia Doctoral School for a PhD, and to allow Houssein to valorise his investment in studies for his future.

Also, allowing Houssein to achieve a PhD of good level through such support will (i) allow our group to strengthen the collaboration with Lebanon (initiated during Houssein's Master) with the group of Pr Ali Chokr, who is co-directing Houssein's PhD Thesis, as well as via Houssein when back in his country as a young scientist, and (ii) increase locally the visibility of this starting project in our group and likely foster interactions/collaborations within the Montpellier scientific network of the Agropolis Foundation.

Keywords : Lebanese PhD student in difficulty, Wheat, Root exudates, Microbiota, Sustainable, Agriculture

Year : 2021

Project number : 2100-016

Type of funding : SP

Project type : PC

Research units in the network :

Start date : 2021-07-01

End date : 2022-06-30

Flagship project : no

Project leader : Anne-Aliénor VERY

Project leader's institution : CNRS

Project leader's RU : BPMP

Budget allocated : 20000 €

Total budget allocated (including co-financing) : 20000 €

Funding : labex

GOAL

The main objective of Houssein's PhD project is to investigate and compare the ability of wild and modern wheat cultivars to exude compounds in the rhizosphere and through exudation to determine the ability of the different wheats to shape their microbiota. The hypothesis of a putative loss of capacity of wheat plants to interact efficiently with their underground environment in elite varieties after an active human selection driven under artificialized soil conditions (fertilizers and pesticides) is tested. Houssein has started to answer this important point but won't be able to get an overview for the full gradient of domestication without extension of his PhD. Another objective is to better understand the tight interaction and dialogue between the plant and the bacteria. Bacterial exudate analysis will allow us to identify which secreted molecules are perceived by plants and able to induce a local or systemic response. Without prolongation, Houssein will not be able to investigate this part of his project.