

MIC-CERES - Microbial eco-compatible strategies for improving wheat quality traits and rhizospheric soil sustainability

OBJECTIFS

To characterize the wheat responses to beneficial and harmful microbes by both transcriptomic (RNAseq) and proteomic (proteome and phosphoproteome) analyses to better understand the wheat-microbes interactions.

ACTIONS

- WP 1: Profiling of the wheat root-associated microbiomes
- WP2 : Identification of inoculation parameters that maximize wheat performance under different environmental conditions
- WP3 : Evaluation of molecular responses of wheat to beneficial microbes
- WP4 : Field experiments in different agro-social-economic ecosystems
- WP5 : Dissemination and training

RESULTATS

1. Wheat inoculated with *A. brasilense* and *G. mosseae* (alone or combined) grew 2 to 3 times higher compared to control plants (Fig 1 a&b).
2. The roots of plants inoculated by *B. graminis* weighed twice over the control.
3. *Glomus mosseae* increase wheat growth and is able to reduce significantly the lesion length in leaves inoculated by the pathogen *Xanthomonas translucens* (Fig 1 c).

PERSPECTIVES

The first results of the project show that wheat inoculation by arbuscular mycorrhizal fungi (*G. mosseae*) and symbiotic beneficial bacteria (*A. brasilense* and *B. graminis*) are compatible and produce significant phenotypes (growth, biocontrol). The next step is to analyze these plant phenotypes by transcriptomics and proteomics to decipher the mechanisms underlying the growth increase and resistance to the *X. translucens* infection.

Responsable :

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Montant :

