



HAL
open science

Does the soil microbiota diversity influence the interactions between *Brassica napus* and its bioagressors ?

Lionel Lebreton, Valérie Chaminade, Anne Marie Cortesero, Stéphanie Daval, Sylvain Fournet, Kévin Gazengel, Anne-Yvonne Guillerm-Erckelboudt, Tom Lachaise, Juliette Linglin, Maria M. Manzanares-Dauleux, et al.

► To cite this version:

Lionel Lebreton, Valérie Chaminade, Anne Marie Cortesero, Stéphanie Daval, Sylvain Fournet, et al.. Does the soil microbiota diversity influence the interactions between *Brassica napus* and its bioagressors?. *Phytobiome*, Dec 2018, Montpellier, France. hal-03232457

HAL Id: hal-03232457

<https://hal.inrae.fr/hal-03232457>

Submitted on 21 May 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Does the soil microbiota diversity influence the interactions between *Brassica napus* and its bioaggressors ?

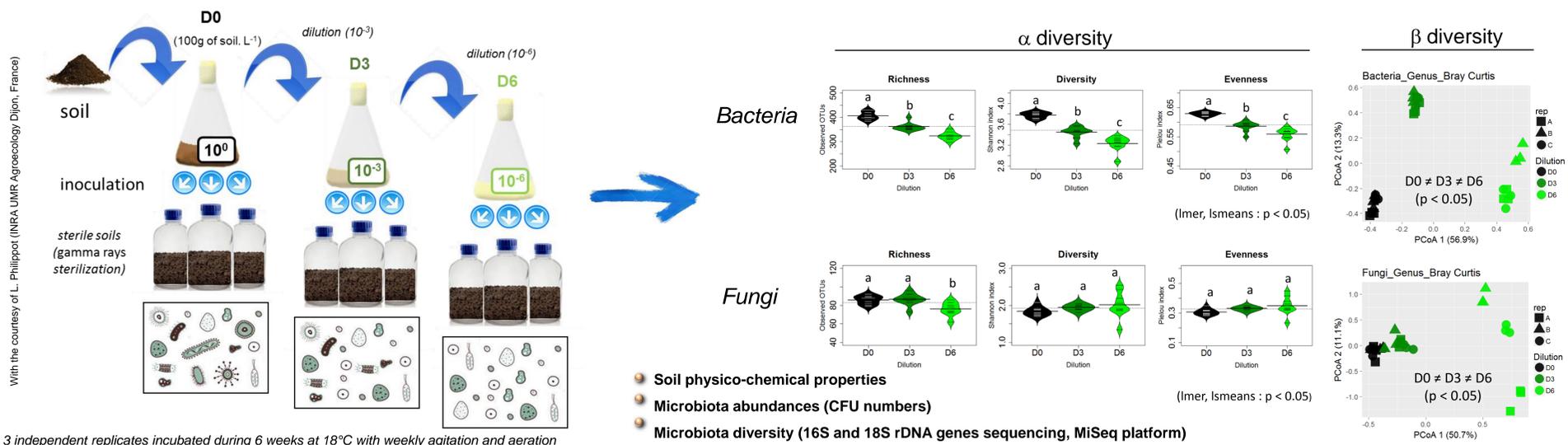
LEBRETON L., CHAMINADE V., CORTESERO A.M., DAVAL S., FOURNET S., GAZENGEL K., GUILLERM-ERCKELBOUDT A.Y., LACHAISE T., LINGLIN J., MANZANARES-DAULEUX M., MONTARRY J., OURRY M., PATY C., POINSOT D., PORTE C. AND MOUGEL C.

lionel.lebreton@inra.fr



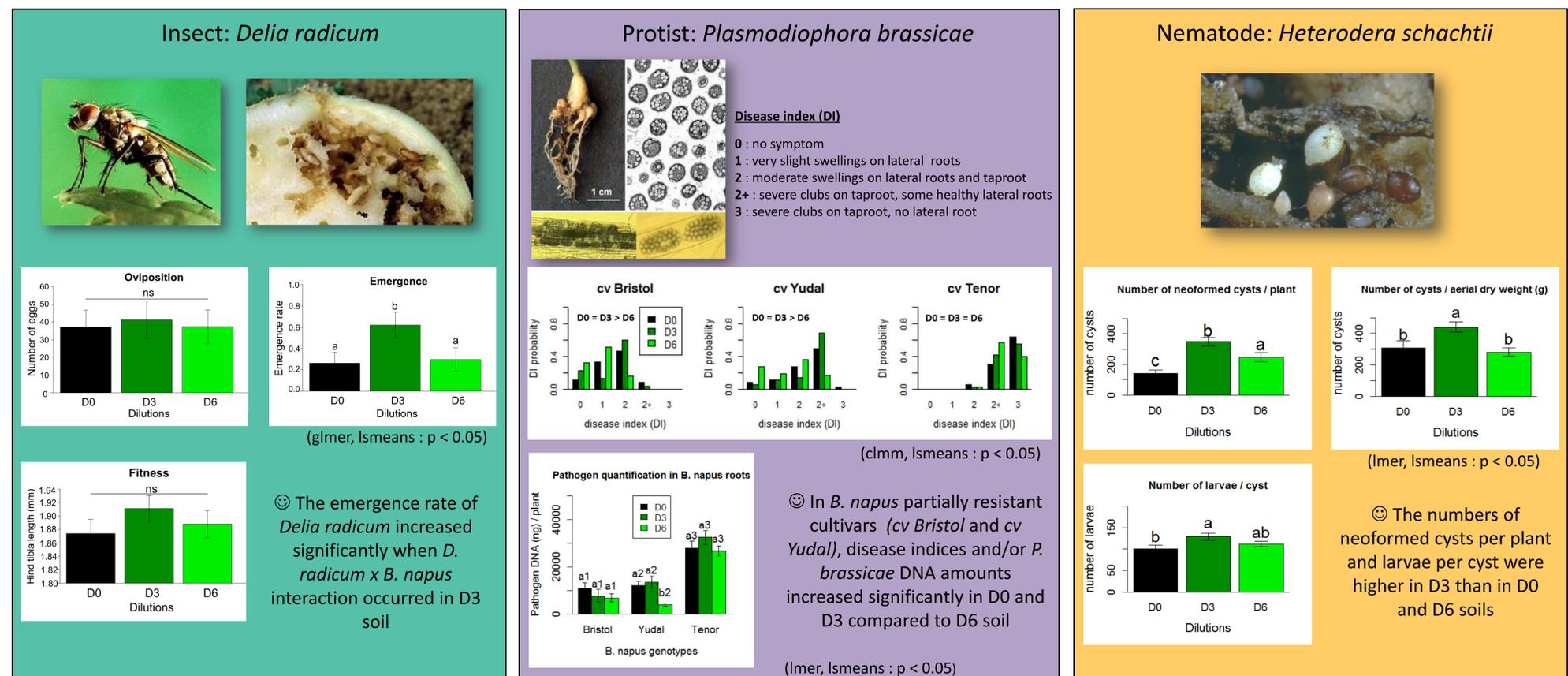
An overall perspective of the holobiont concept is to analyse the consequences of plant * microbiota interactions on plant defenses and bioaggressor traits linked to their fitness and parasitism. For this purpose, three soil preparations with different microbial diversities but with the same abiotic properties were obtained from one native soil by a removal/recolonization method. After interaction experiments carried out under controlled conditions between *B. napus* and three of its bioaggressors in these three soils, bioaggressor traits were compared. The initial diversity of soil microbial communities influences the traits of bioaggressors in interaction with *Brassica napus*.

1. EXPERIMENTAL MANIPULATION OF MICROBIAL DIVERSITY, *i.e.* THE SAME ABIOTIC ENVIRONMENT WITH DIFFERENT DIVERSITIES OF MICROBIAL COMMUNITIES



Three soils with three initial microbial richness and diversity levels were obtained through a removal/recolonization method
A better dilution effect on diversity parameters for bacteria than fungi communities

2. [BRASSICA NAPUS * SOIL MICROBIOTA] * BIOAGGRESSORS INTERACTIONS: KEY RESULTS



The fitness of bioaggressors increased when the interactions were carried out in soils of intermediate diversity compared to the soils of weak and strong diversity

Modification in the soil microbial diversity was associated with modification in plant metabolite profiles (Lachaise *et al.*, 2017)

Our results highlighted the holobiont concept and we need now a broader view of the link between diversity and function of microbial communities modulating traits related to plant defenses against bioaggressors in relation with the genetics of plant

