



Arbuscular mycorrhizae influence the occurrence of soil fluorescent pseudomonads harbouring type III secretion systems

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► To cite this version:

Amandine Viollet, Thérèse Corberand, Adeline Robin, Christophe Mougel, Philippe P. Lemanceau, et al.. Arbuscular mycorrhizae influence the occurrence of soil fluorescent pseudomonads harbouring type III secretion systems. Bageco 10 - Bacterial genetics and ecology, Jun 2009, Uppsala, Sweden. , 1p., 2009. hal-02755399

HAL Id: hal-02755399

<https://hal.inrae.fr/hal-02755399>

Submitted on 3 Jun 2020

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Introduction

Type III secretion systems (T3SS) of Gram negative bacteria mediate direct cellular interactions with eukaryotes.

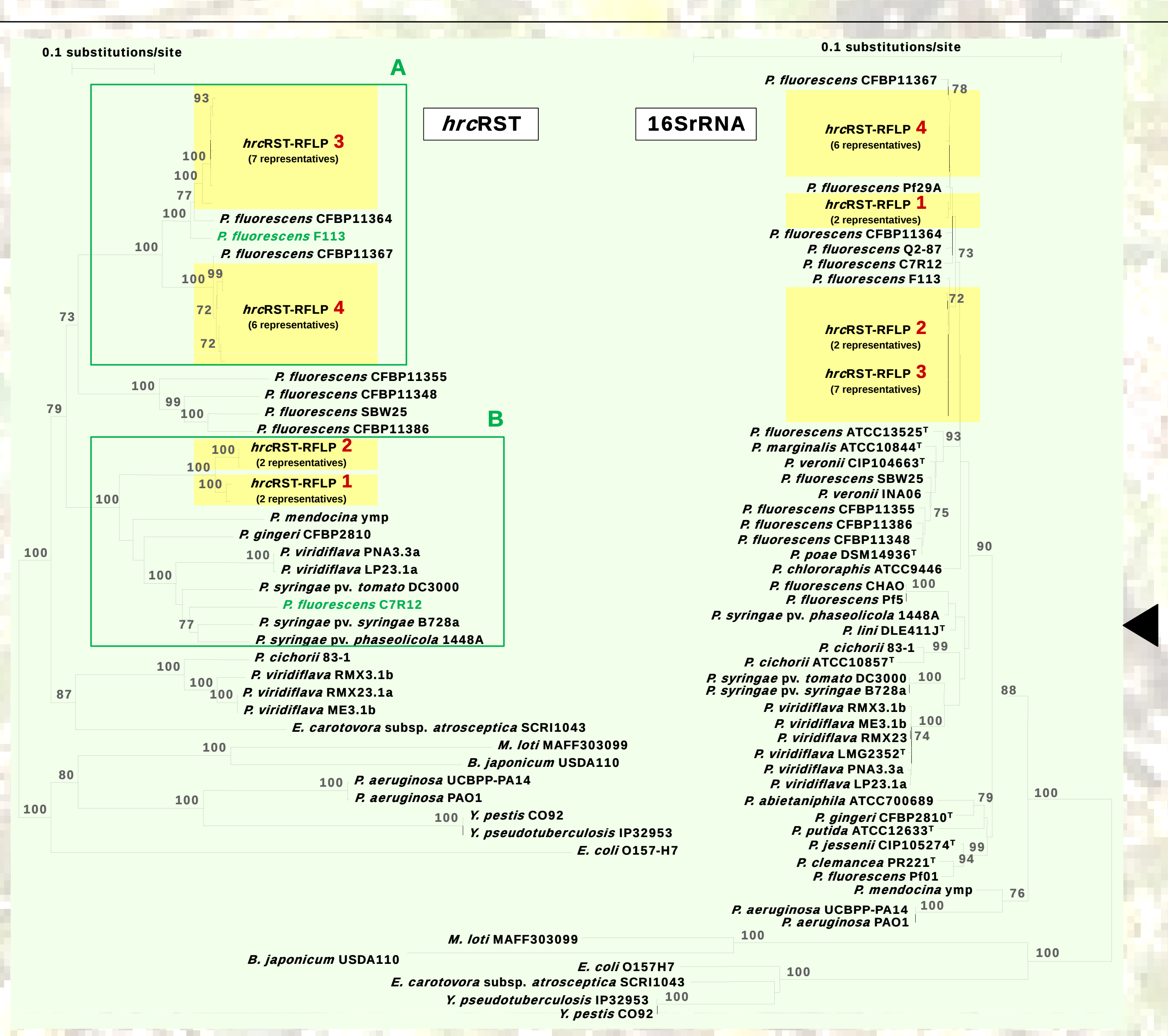
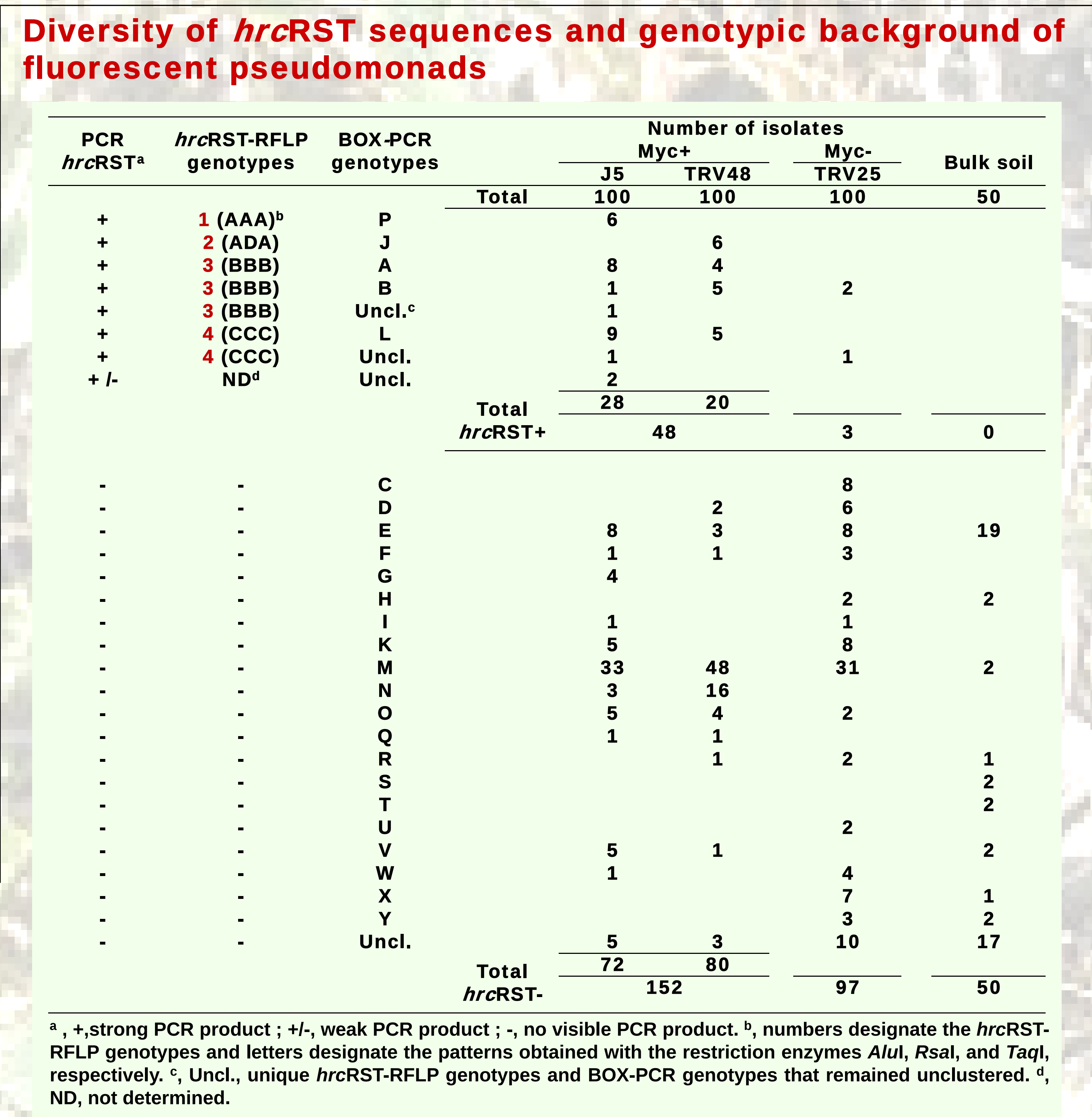
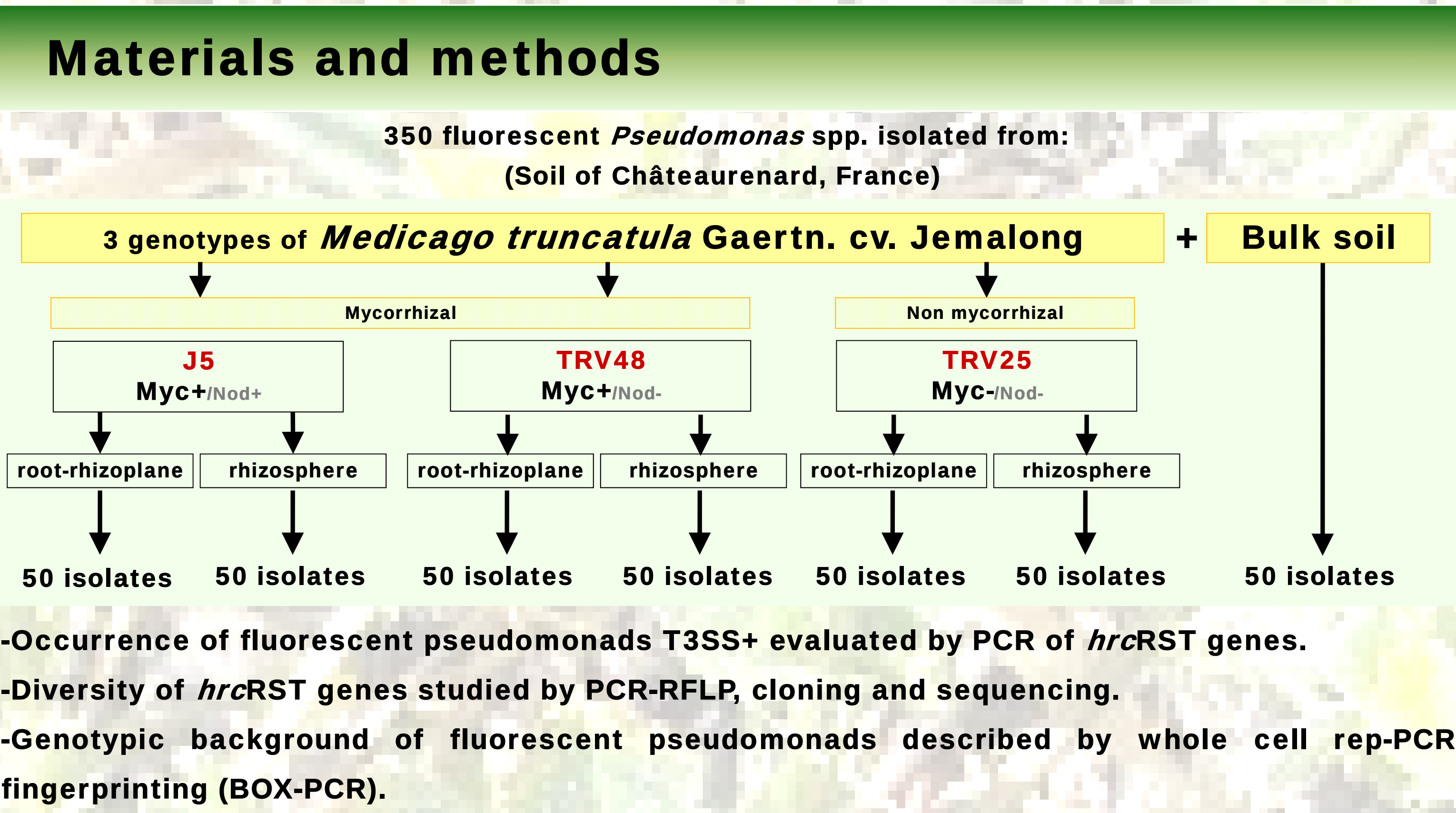
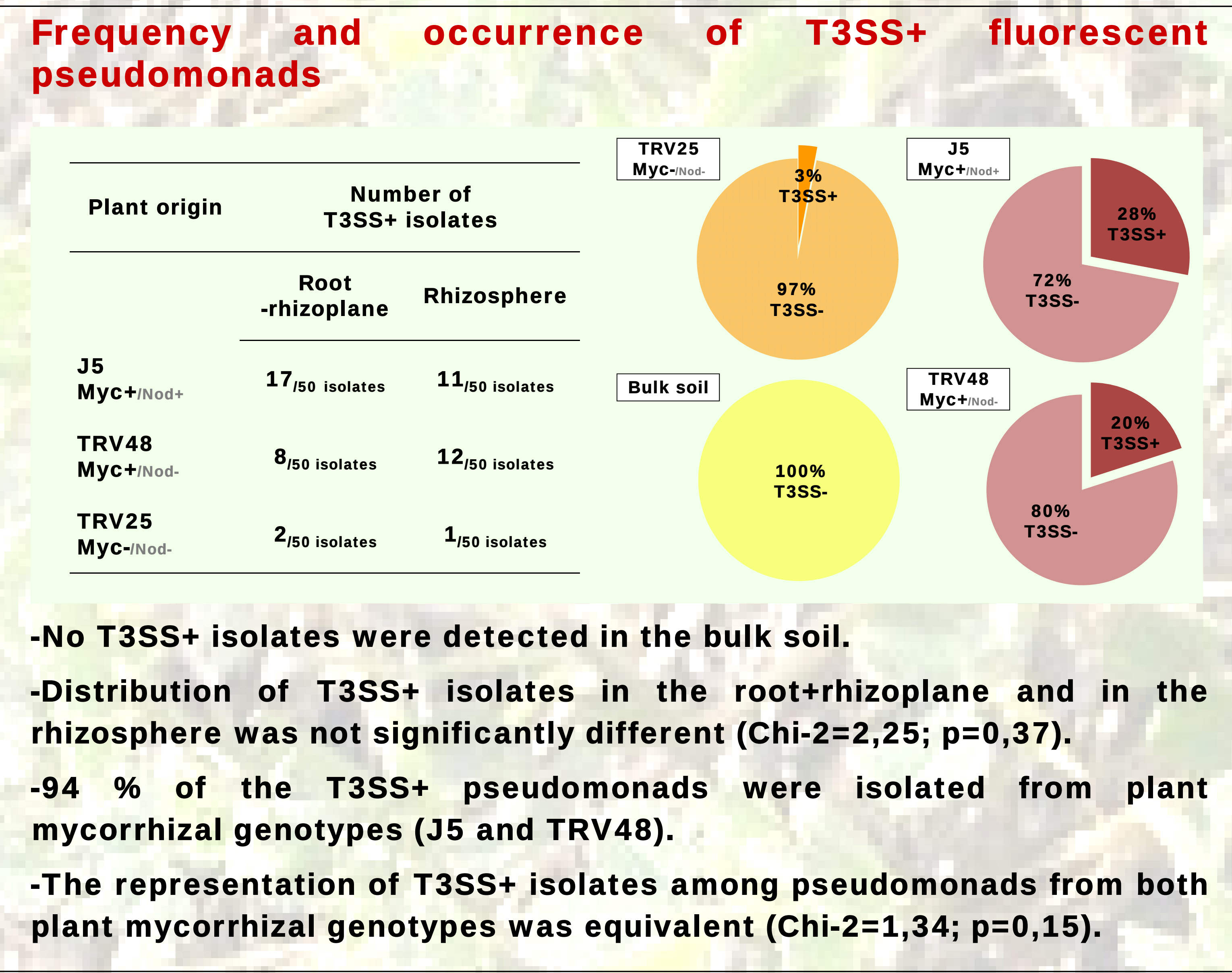
Numerous *Pseudomonas* spp. harbouring T3SS genes have been previously encountered among rhizosphere isolates¹.

This suggests a possible interaction between these bacteria and rhizosphere eukaryotes.

Objective

To evaluate the impact of arbuscular mycorrhization on the occurrence and diversity of T3SS+ pseudomonads.

Results



Conclusions

- Fluorescent *Pseudomonas* spp. harbouring T3SSs appeared preferentially associated with mycorrhizal roots of *Medicago truncatula*. Further studies are in progress to evaluate the role of T3SS+ pseudomonads in *M. truncatula*-mycorrhizal arbuscular fungi (MA) interactions.
- T3SS+ strains displayed specific genotypic backgrounds and were all ascribed to the *P. fluorescens* phylogenetic group on the basis of 16SrRNA gene identity.
- Incongruencies observed between the *hrcRST* and the 16SrRNA phylogenies are compatible with previous findings made on pathogenic pseudomonads and suggesting that HGT (Horizontal Gene Transfer) is a major force in T3SS evolution.

¹Mazurier S, Lemunier M, Siblot S, Mougel C and Lemanceau P (2004). Distribution and diversity of type III secretion-like genes in saprophytic and phytopathogenic fluorescent pseudomonads. *FEMS Microbiology Ecology*, 49:455-467.

²Pivato B, Offre P, Marchelli S, Barbonaglia B, Mougel C, Lemanceau P and Berta G (2009). Bacterial effects on arbuscular mycorrhizal fungi and mycorrhiza development as influenced by the bacteria, fungi, and host plant. *Mycorrhiza*, 19:81-90.