

## Research Project

Application and transfer to India of molecular tools for monitoring of bacterial PGPR bioinoculants, particularly *Pseudomonas* spp., in wheat crops in tropical soils

### Third-party funded project

**Project title** Application and transfer to India of molecular tools for monitoring of bacterial PGPR bioinoculants, particularly *Pseudomonas* spp., in wheat crops in tropical soils

**Principal Investigator(s)** [Boller, Thomas](#) ;

**Co-Investigator(s)** [Wiemken, Andres M.](#) ;

**Project Members** [Natarajan, Mathimaran](#) ;

**Organisation / Research unit**

Departement Umweltwissenschaften / Pflanzenphysiologie Pathogenabwehr (Boller)

**Department**

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The development of monitoring tools for bioinoculants answers the necessity to have a look inside the "black box" which generally constitutes a bioinoculation experiment. Indeed, in the past, the use of bioinoculants was developed in a quite empiric way, often giving rise to unpredictable and unreproducible results. This discouraged farmers to invest in bioinoculation, following repeated failures. Therefore, it was decided to develop tools for monitoring the strains, which could altogether allow to make a follow-up of the fate of bioinoculants in the rhizosphere and soils, and to make useful predictions regarding the conditions of their utilization, concerning particularly the agricultural practices, the soils and the climate.

Main questions to be answered are:

1. To which extent will the developed tools allow to detect specifically the presence and abundance of the inocula in the inoculated crops in field conditions ?

→Evaluation of tools' specificity in field conditions. Attempts to re-isolate the inoculated strains.

2. How does root colonization proceed during the vegetation phase ? Is it dependent on inoculum or on soil characteristics/climate (at different sites) ?

3. Are the alternate crops (as well as possible other crops ?) compatible with our inoculants, and to which extent?

→This question could be extended to other wheat varieties.

4. Is the efficiency of bioinoculants and their persistence (acclimation) in soil dependent on soil characteristics/climate (at different sites) ? In other terms, will root colonization occur again and with similar intensity in other soil types, as well as in further crops if not re-inoculated ?

→Soil dependence and necessity of re-inoculation?

**Keywords** *Pseudomonas*, strain-specific PCR primers, biofertilization, plant growth-promoting rhizobacteria, PGPR, wheat, pulse-field electrophoresis, Q-PCR, RT-PCR, root colonization, soils, rhizosphere

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**Add publication**

**Add documents**

**Specify cooperation partners**

<b>ID</b>	<b>Kreditinhaber</b>	<b>Kooperationspartner</b>	<b>Institution</b>	<b>Laufzeit - von</b>	<b>Laufzeit - bis</b>
169602	Boller, Thomas; Wiemken, Andres M.	Mäder, Paul, Dr., Forschungsleiter	Forschungsinstitut für Biologischen Landbau, Frick	01.09.2008	31.03.2011
169610	Boller, Thomas; Wiemken, Andres M.	Sharma, Anil, Prof. Dr.	Department of Biological Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar	01.09.2008	31.03.2011
169612	Boller, Thomas; Wiemken, Andres M.	Adholeya, Alok, Dr., Research Director	TERI, Darbari Seth Block, Habitat Place, Lodhi Road, New Delhi	01.09.2008	31.03.2011
169617	Boller, Thomas; Wiemken, Andres M.	Sahai, Vikram, Dr., Research Director	Indian Institute of Technology Delhi, Hauz Khas, New Delhi	01.09.2008	31.03.2011