MIAE : a collection dedicated to soil microbial diversity and environment (INRA, Dijon, France)

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MIAE: a Collection Dedicated to Soil Microbial Diversity and Environment (INRA, Dijon, France)

To better know, conserve and use soil microbial resources

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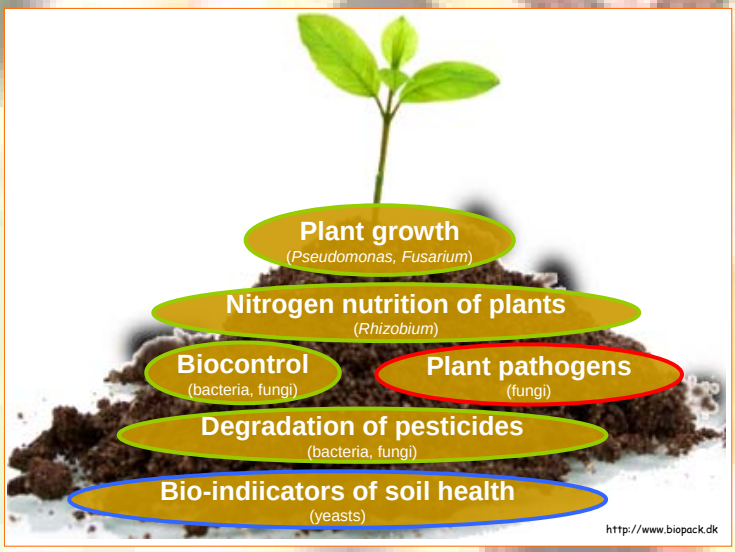
HISTORICAL & AIMS

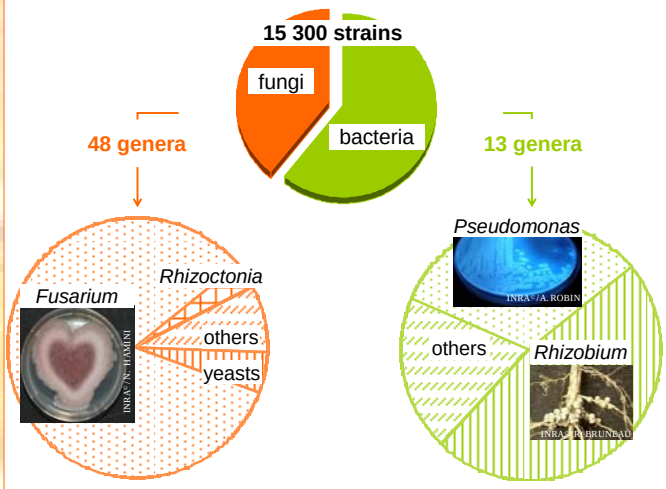
The MIAE (**Microorganisms of Interest for Agriculture and Environment**) structure is holding over 15 300 soil-borne microbial strains (bacteria and fungi). These microorganisms have been isolated for over **30 years of scientific investigations related to soil functioning**. Up to 2008, each microbial resource was preserved by the scientist involved in isolation, leading sometimes to orphan collections.

The creation of a **unique and common collection** aiming at guaranteeing the preservation of these microbial resources requires a **High Quality standard** approach. There is **no equivalent structure** all around the world. It includes **sets of reference strains** (*Fusarium* sp., *Rhizoctonia* sp., *Rhizobium* sp., *Pseudomonas* sp.) permitting scientists to **characterize in a taxonomic and functional way** their own strains.

REFLECTION OF THE FUNCTIONAL DIVERSITY OF SOIL MICROORGANISMS



CONSERVATION OF THE MICROBIAL DIVERSITY OF SOILS



continuous deposits *(~500 strains/year)*

IMPLICATED IN CURRENT PROJECTS

HOW TO CONSERVE

MICROBIAL RESOURCES

Most of the strains are preserved at **-80°C with glycerol** in duplicate.
Rhizoctonia and oomycota (*Pythium*, *Phytophthora*) are preserved on agar slants at room temperature. Long-term preservation protocols at 4°C are under evaluation.

RELATED DATA

Creation of a unique relational database (PostgreSQL®) that will be used for the **administration** of the collection and the **on-line catalogue**.

HOW TO IDENTIFY

MORPHOLOGICAL METHODS

Use of macro- and microscopic **identification keys**

CHEMOTYPICAL METHODS

Detection of mycotoxin using **HPLC-DAD**

TCTB/ZEA profile of MIAE00376 (*Fusarium graminearum*)

MOLECULAR METHODS

Use of specific-primers, DNA sequences in accordance with «**barcode**» standards (*for example see Fiers et al., Poster 28 Area 2*)

ENGAGED IN QUALITY MANAGEMENT

To ensure a **reliable system in the acquisition, preservation, identification and distribution** of its strains, the MIAE collection must meet different requirements :

certification 2 years

ISO9001:2008
Quality management systems — Requirements

certification 1 year

NF S 96-900 (july 2008)
Quality of biological resource centres (BRCs) — Management system of a BRC and quality of biological resources of human and microbiol origin

Integration request

International Center for Microbial Resources
created by INRA in order to centralize its microbial collections and to ensure their long-term preservation

VISIBLE & ACCESSIBLE

Open collection accessible to scientific community via a web page
http://www2.dijon.inra.fr/umrmse/spip.php?rubrique21

- **inventory**
- **distribution/use protocol**

(Material Transfer Agreement form)

~250 delivered strains/year

- **deposit** protocol

Keywords : soilborne microorganisms, conservation, identification, distribution, quality management