Understanding how MICROORGANISMS sustain health and productivity of the SOIL

Little guys, big role

and how YOU could benefit from it

CMBP
Common Microbial Biotechnology Platform

Should you get in touch with the CMBP?

YES, if you –

- **Are a researcher** interested in the study of microbial biotechnology.
- **Are engaged in the agriculture business** and are concerned about the overall, long-term sustainability of the yields; would like to know the status of your soil health and quality; and are interested to benefit from the interactions between soil microbial communities and crops in order to increase production at the lowest environmental cost.
- **Work with legumes and other crops** and have a stake in optimal, sustainable legume yields. The CMBP promotes biological nitrogen fixation, and works towards development of effective plant growth-promoting rhizobacteria (PGPR), including rhizobial, inoculants.
- **Are engaged in the fertilizer manufacturing business** and are interested in the development of new microbial inoculants effective for plant growth, in order to serve a huge market, particularly, in Southeast Asia.

Get in touch with:

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eco & sols

Soils provide the foundation to the agriculture system. Agriculture is only as productive, efficient, and healthy as the soils which nurture and sustain it.

Healthy and fertile soils are able to support and sustain plant growth by making key nutrients and micro-elements available for use by the plant.

How do you know whether the soil of your farm or plantation is nurturing nutrients and micro-elements essential for plant growth? How confident are you about the sustainability of your soil fertility management?

The **Common Microbial Biotechnology Platform** assesses soil indicators, helping you gauge the level of your soil's quality, health, and sustainability.

The **Common Microbial Biotechnology Platform (CMBP)**, a partnership between the Vietnam Agricultural Genetics Institute (AGI), the International Center for Tropical Agriculture (CIAT), and the French Center for Agricultural Research for Development (CIRAD) was established in 2018 to develop innovative solutions addressing soil health and sustainability issues, customized to the needs of either smallholder farmers or agricultural companies. The CMPB helps develop solutions addressing efficiency, productivity, and sustainability of agricultural systems beginning with soil and other types of agro-ecological analyses.

Soil functionality depends on soil biodiversity, and regulates decomposition, provides nutrients for plants, regulates water flow and quality, suppresses pathogens, provides pharmaceuticals, and supports above-ground biodiversity.

CMBP defines soil health as the capacity of soil to function as a living, dynamic component of agroecosystems that sustain plants and animals, and ultimately, human livelihoods. Our approach to soil health is essentially a biological one. We study how soil microorganisms interact with each other, with the physical and chemical components of soils, with vegetation, with the cropping system, and how these interactions impact the ecosystem in which they thrive.

We do this by using the following techniques and methodologies:

Microbiology Techniques

- Isolation, purification, culture and storage of strains
- Characterization of bacterial strains by sequencing
- Production of high-quality inoculants
- Inoculation experiments under laboratory conditions
- Characterization of microbial communities' (bacteria and fungi) genetic and functional diversity
- Assessment of the Arbuscular Mycorrhizal Fungi (AMF) root colonization

Molecular Biology Techniques

- Extraction of DNA
- DNA amplification by Polymerase Chain Reaction (PCR)
- Characterization of an individual strain
- Characterization of microbial communities by high throughput sequencing