

evaluating
microbiome
based
applications for
risk
quantification

Bioinoculant innovation is hindered by **regulatory frameworks** designed for **chemicals rather than living microbes**. The lack of clear EU guidance on microbial risk assessment, tracking after field application and inconsistent national implementation creates uncertainty, high costs and delays the safe deployment of biosolutions.

EMBARQ addresses the need for improved **risk assessment** of **novel biological agents** used in agriculture and environmental management. These include **live microbes** – such as biofertilizers, biopesticides and bioremediation agents – that promote sustainability by reducing reliance on chemical input.

Our vision is to develop complementary and integrative **safety and environmental impact evaluation methods** in a **OneHealth** perspective through an interdisciplinary approach, connecting biotechnology, risk assessment and environmental science.



Consortium



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Our Approach



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Strategic roadmap

Hazard assessment

EMBARQ gathers relevant data on factors such as horizontal gene transfer or key microbes.

Microcosm research

EMBARQ uses methods such as metagenomics to investigate effects of perturbation and large scale variation.

In silico validation

EMBARQ investigates geographic and climatic variation using AI, bioinformatics and big data.

Field trials

EMBARQ investigates bioprotection and bioremediation using metagenomics, transcriptomics and metabolomics.

Chemical analysis

EMBARQ employs advanced techniques to provide chemical analyses of metabolites, toxins and bioinoculant by-products.

Impact

EMBARQ will develop recommendations based on research findings to support safer and more sustainable practices.