



EU GREEN DEAL

MAKE IT
REAL

PARTNER EVENT
#EUGREENWEEK
30 MAY – 5 JUNE 2022

DISTAL



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI SCIENZE E TECNOLOGIE
AGRO-ALIMENTARI

STAAA PhD OPEN DAY

Dipartimenti di Eccellenza 2018-2022
DISTAL The Nexus Approach for Sustainability in Agriculture,
Food, Energy & Water

June 1st, 2022

Metabolic profiles of microorganisms of
agro-industrial interest for a sustainable
farm-to-fork approach and exploitation of
biodiversity

PhD candidate: **Marta Reggio**

Cycle: **37°**

(supervisor: *Diana Di Gioia*; co-supervisors: *Marco Pane*;
Fausto Gardini)

**NEXT
GEN
EU**

Background



Climate change-Agriculture ~25% GHG emission

Create a healthier and sustainable agri-food system:

Microorganisms:



- ✓ reduce the use and risk of chemical pesticides by 50%



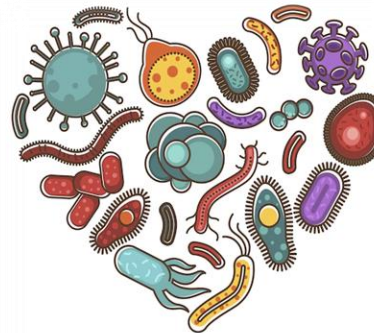
- ✓ reduce nutrient losses by 50% and fertilizer use by at least 20%



- ✓ reduce the sales of antimicrobials for farmed animals and in aquaculture by 50%



- ✓ increase the percentage of organically farmed land by 25%



**BAD & GOOD
BACTERIA**

- Biofertilizers
- Biocontrol agents
- Nutritional food quality and food shelf life
- Compost and bio-based polymers production



Study of **Microbial Phenotype** is crucial to take advantage of their functional traits

PhD project: Aim and Methods

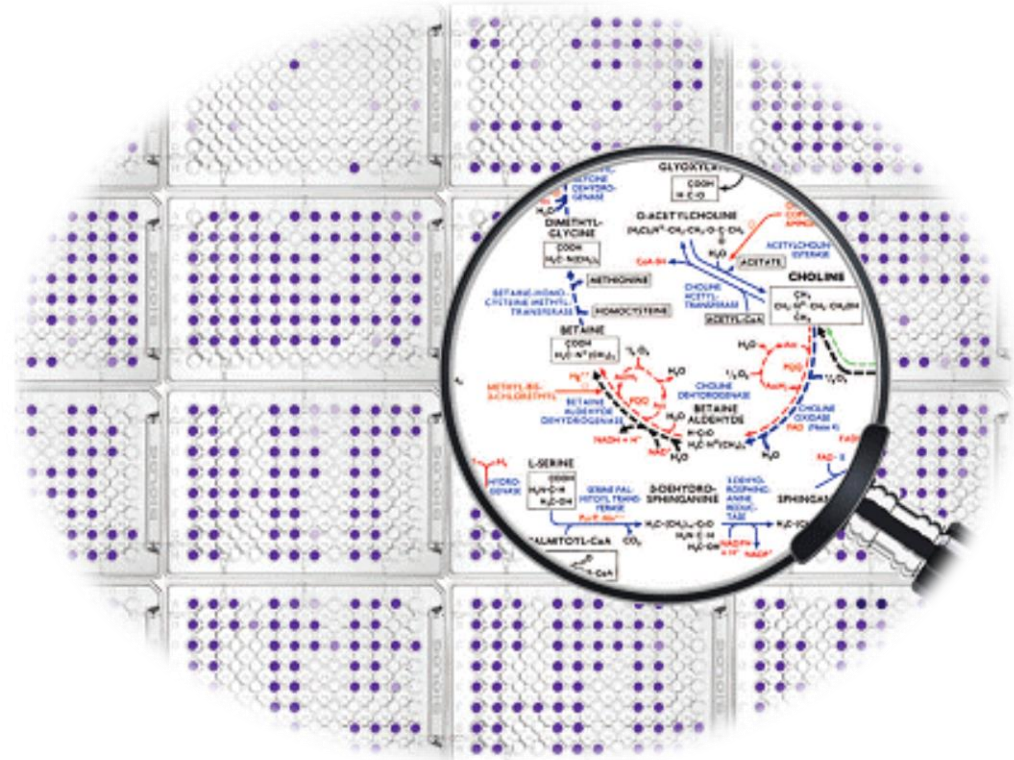


The characterization of the metabolic profile of targeted microorganisms with selective traits that may be useful for sustainable food production and can be used for industrial biopreparations production



Phenotype Microarrays Technology

Microplate-based substrate utilization assays for the Characterization Microbial cellular Metabolic Profile



Research structure and timing-Gantt diagram

[illegible]

Expected results



Identify specific microbes 'Phenotypic Profiles' for the optimization of their culture conditions in order to obtain industrial **biopreparations** useful for improving the sustainability and efficiency of agri-food production



Development of specific metabolic fingerprints using Biolog Phenotyp Microarrays (PM) technique



Standardization of cultural microbial conditions for the production of industrial biopreparations

Improvement of high nutritional quality food and valorize waste and crop residues

Optimization of tailored microbial inocula to improve plant performance and promote sustainable agri-food production

Thanks for the attention!

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