BIOSYSMO

BIOremediation systems exploiting SYnergieS for improved reMoval of mixed pOllutants

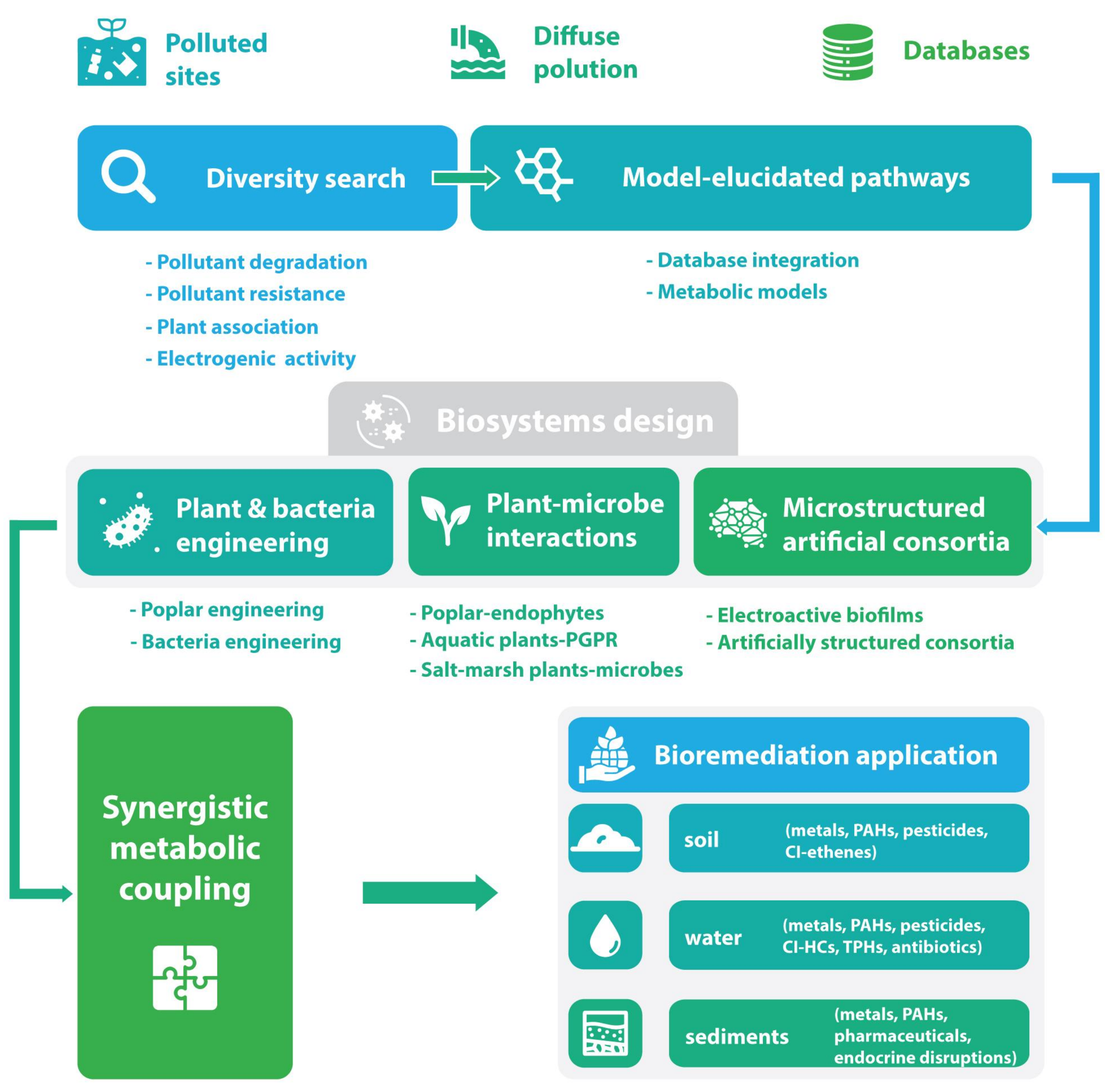
ABSTRACT

BIOSYSMO develops a computationally assisted framework for designing and optimising synergistic biosystems (bacteria, fungi, and plants) for efficient degradation and sequestration of pollutants in soil, sediments, and water. The project screens samples from polluted sites to identify existing microorganisms to metabolise target pollutants. Research is expanded to microorganisms by applying data mining tools to genomic and metagenomic data to identify improvements in biosystems.

OBJECTIVES

- Bioremediate polluted soil, water and sediments
- Collect and characterise polluted samples
- Design, apply and optimise synergistic biosystems
- Enhance plant-microbe interactions and engineered bacteria
- Maximise pollutants uptake and degradation

PROCEDURE



IMPACTS

- Biobased solutions for zero-pollution
- Circular bio-based systems to reverse climate change
- New improved synergistic biosystems
- Lab (TRL4) and field validated (TRL5) bioremediation
- Reduced environmental footprints of bioremediation
- Healthy symbiotic microbes-plants biosystems
- Protected soil health and water quality
- Restored biodiversity

APPLICATIONS

1. Water phytoremediation
2. Groundwater remediation
3. Soil phytoremediation
4. Soil bioaugmentation
5. Sediment bioremediation

www.biosysmo.eu | info@biosysmo.eu

idener.ai

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