



MOBILES



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MONITORING AND DETECTION OF BIOTIC AND ABIOTIC POLLUTANTS BY ELECTRONIC, PLANTS AND MICROORGANISMS BASED SENSORS

The **MOBILES project** is an innovative project funded by the European Union under Horizon Europe Programme. By developing advanced **electronic and organism-based biosensors**, the project aims to **detect and monitor harmful organic chemicals, antimicrobial-resistant bacteria, and pathogens across soil, water, and air**. Furthermore, soil metagenomic analysis will be conducted on contaminated soils across Europe, and a metagenomic database will be constructed in order to identify a pool of genes linked to soil specific soil pollutants.

Our Vision

MOBILES is dedicated to safeguarding environmental health through real-time, portable diagnostic tools, enabling rapid and precise detection of biotic and abiotic pollutants in soil, water and air.

Key Objectives

- **Next-generation electronic biosensors:** Eco-friendly devices to detect organic chemicals, antimicrobial-resistant (AMR) bacteria, and pathogens.
- **Organism-based biosensors:** Usage of genetically engineered plants, bacteria, and marine diatoms to monitor organic and inorganic pollution.
- **Metagenomic analysis:** Comprehensive soil microbiota analysis in polluted areas across Europe to uncover gene clusters and genetic diversity. This helps assess microbial functions and provides genetic markers to quick evaluation of soil and land health.





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- **Environmental performance testing:** Validating biosensors using real-world samples from polluted sites.
- **Safety assurance:** Rigorous evaluation of environmental impacts associated with these modified organisms and innovative devices.

Innovation

- Use of cutting-edge biotechnology to enhance environmental monitoring efficiency and accuracy.
- Creation of a **soil metagenomic database** to map pollutant-linked genes across Europe.

Project Overview

- **Coordinator:** National Technical University of Athens
- **Duration:** 1.9.2024 – 29.2.2028
- **Budget:** €4.6 million
- **DOI:** <https://doi.org/10.3030/101135402>

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