MOBILES

Monitoring and detection of biotic and abiotic pollutants (...)

Aim of the project: development of a network of experts, data, methods and tools

About the project

MOBILES: Monitoring and detection of biotic and abiotic pollutants by electronic, plants and microorganisms based sensors

Currently there are no portable tests or biosensors validated for air, soil or water quality control for pathogens, Chemicals of Emerging Concern (CECs) and Persistent Mobile Chemicals (PMCs), so such devices are much awaited by all stakeholders to ensure successful control and prevention of contamination and infections. Mobiles consortium will develop an interdisciplinary framework of expertise, and tools for monitoring, detection, and consequently mitigation of pollution from pathogens, CECs, PMCs, thus benefiting human and environmental health. Mobiles consortium will work to achieve the following objectives:

- Develop electronic biosensors for monitoring organic chemicals (pesticides, hormones) and antimicrobial resistance bacteria and pathogens in water, soil and air;
- Develop organism-based biosensor for detection of organic and inorganic pollution in water and soil;
- Study environmental performance of developed organisms and devices;
- Metagenomics analysis of organisms leaving in polluted areas in order to enable searches for diverse functionalities across multiple gene clusters
- Perform safety tests (e.g., EFSA) to assess the impact of developed organisms on the natural environment.

Organism-based biosensor will consist on genetically modified chemiluminescent bacteria able to detect

antibiotics, heavy metals, and pesticides in water; genetically modified plants that will change colour when in the soil is present arsenic; and marine diatoms that will be used to detect bioplastic degradation in marine and aquatic environments. Developed devices and organisms will be implemented by using flexible technologies, which can guarantee an easy adaptation to other biotic and abiotic pollutants. Devices and organisms, after proper validation and approval, could be used by consumers, inspection services and industry operators, as well as environmental emergency responders to monitor and detect PMCs, CECs and pathogens in water, air and soil.

As part of the MOBILES project, RIC Pro-Akademia will conduct a risk assessment of the modified organisms, as well as laboratory-scale research on the impact of MOBILES organisms on other organisms. Our research will be carried out to confirm the safety of MOBILES organisms, which will be required for their use as indicators of environmental pollution.

For more information, visit www.mobiles-project.eu and project's profile on LinkedIn and X.

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