

Decontamination of soils with hydrocarbons using biorremediation. Experimentation is requested to develop a new analysis system for more effective biostimulation processes

Summary

Profile type	Company's country	POD reference
Technology request	Spain	TRES20220726018
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Francisco BUJAN	26/07/2022 26/07/2023	26/07/2022

General Information

Short summary

A Spanish SME devoted to environmental biomolecular analysis is looking for partners to sign up a technical collaboration in the field of hydrocarbon bioremediation bioreactors. The microorganism community that degrades hydrocarbons in soils is currently being studied by molecular analyses. The company is interested in working with partners already involved in projects with bioremediation bioreactors so an agreement can be sought to obtain samples of its process.

Full description

There are two key factors for the industry in the biological transformation of pollutants in bioremediation by biopiles:

- 1) The time it takes for the microbiota to degrade the waste material to the required concentration.
- 2) The ability of microbiota to eliminate the pollutants of interest.

Usually, the biological transformation control has been carried out by controlling the physicochemical variables and the concentrations of the chemical compounds to be eliminated. But there is no knowledge of the biological communities that carry out this process, despite being the key element in the transformation. In the cases in which microorganism controls are executed, it is by the traditional method. That is, collecting samples and cultivating

bacteria for their identification. But some species are difficult or impossible to cultivate, making these controls insufficient and ineffective. In addition, in areas where the number of species is elevated, the process is extremely complex.

This project aims to demonstrate innovative genetic techniques (also called metasequencing, metagenetics or metabarcoding) to understand the factors that influence the biological transformation of contaminants. In this way, in addition to the microorganisms present in the biopiles, we take into account the activity of the genes involved in the degradation of these compounds.

Similar studies are being carried out around the world, many of them at the research level, with generated in the on a small scale. Therein project we would have the advantage of having real scale bioreactors. So, we would carry out in-situ research and with experimental objectives focused on solving the problems associated with bioremediation that the market is facing. With the information collected from this R + D + i project, temporary forecasts can be made and, in this way, act on the bioreactors. For example, being able to interfere biologically in the process of treating soils contaminated with hydrocarbons, makes it more efficient and faster. Translating this knowledge into a highly competitive capacity in the field of bioremediation.

Advantages and innovations

The development of the product is framed in a 2-year project. Which has already started at the beginning of 2021. The company is already testing bioreactors in the Basque region but it need to cover more experimentation areas.

Stage of development

Available for demonstration

IPR Status

No IPR applied

Sustainable Development goals

- **Goal 11: Sustainable Cities and Communities**
- **Goal 13: Climate Action**

Partner Sought

Expected role of the partner

The company is open to different types of organizations and partnerships: academia, public research centers, SME and large companies within the bioremediation, biostimulation, waste management, polluted soil management sectors.

It needs a collaboration with a body of those mentioned that can offer samples of bioreactor-degrading hydrocarbons and / or contaminated soils. In other words, the company needs a partner to be able to perform the sampling and send the samples in clinical conditions so the company can perform the analyses correctly.

Type of partnership

Type and size of the partner

Commercial agreement with technical assistance

- R&D Institution
- SME 11-49
- Big company
- SME 50 - 249

Dissemination

Technology keywords

- **06002001 - Biochemistry / Biophysics**
- **06002002 - Cellular and Molecular Biology**
- **06002008 - Microbiology**
- **06006012 - Bioprocesses**
- **06006010 - Bio- Composites**

Targeted countries

- **World**

Market keywords

- **04005 - Biochemistry / Biophysics**
- **04016 - Population genetics**
- **08004004 - Other pollution and recycling related**

Sector groups involved