INTEGRATED SYSTEM OF BIOREMEDIATION - BIOREFINERING USING HALOPHYTE SPECIES

Program ERA-NET CO-FUND FACCE SURPLUS 2
„Sustainable and resilient agriculture for food and non-food system"

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Project leader:
National Institute of Research and Development for Biological Science, Romania

Partners:

- University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
- IMT Atlantique, France
- Solutions Déchets & Développement Durable, France
- Instytut Włókien Naturalnych i Roślin Zielarskich, Poland
- BIOTEN Ltd., Poland

The description of the project:

The HaloSYS project proposes economically feasible integrated pathways that combine the use of saline soils for the production of halophyte biomass with advanced biorefining processes of obtained biomass, opening opportunities for the development of new value chains and new approaches to sustainable agriculture.

The project concerns monitoring the degree of soil purification and halophyte biomass yield, and the obtained biomass is tested for the possibility of using it to produce:
- biocomposites,
- briquettes for energy purposes,
- sugars for fermentation processes - bioethanol production,
- active biomolecules and microelements - new pharmaceuticals and/or nutraceuticals,
- oils from seeds - biodiesel synthesis.

The efficiency of the process in terms of biomass production, saline soil remediation, biomass conversion, material and energy demand is the basic activity of each stage in the development of integrated technology focused on the optimal solution ensuring completely sustainable development.

The HaloSYS project proposes research work with high knowledge transfer potential - an alternative, economic solution for restoring agricultural land degraded by salinity during coastal floods, as a result of intensive agricultural practices or as a result of pressure from climate change.

Potential benefits of halophyte biomass based biorefineries will include reducing greenhouse gas emissions and dependence on fossil resources, as well as creating employment opportunities in rural areas and creating new markets for agriculture.