CARE 4BIO

Horizon Europe Brokerage Event
Cluster 6 Calls 2025

Warsaw , 27 May 2025

Production of building materials (bricks, aggregates, wood panels) by reusing various agricultural or construction/demolition waste

Prof. Rodica-Mariana Ion

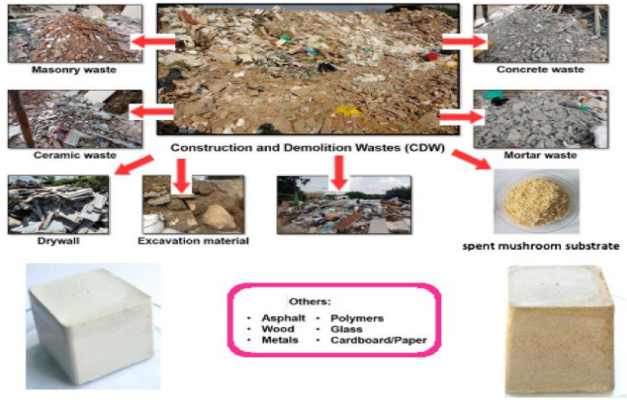
University VALAHIA from Targoviste , Romania

This project has received funding from the European Union's Horizon Europe research and innovation programme, under Grant Agreement No 101059839

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the granting authority can be held responsible for them.

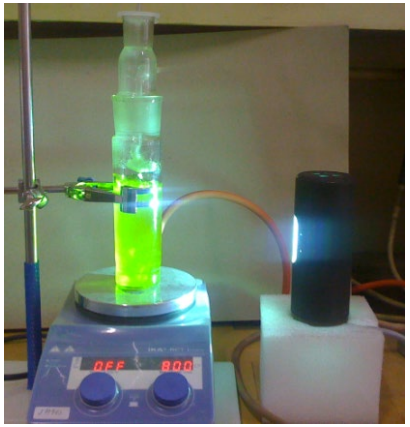
Topic(s) addressed :

CIRCBIO-03, Production of building materials (bricks, aggregates, wood panels) by reusing various agricultural or construction/demolition waste



Other topics of interest:

ZEROPOLLUTION-02: Photocatalytic degradation of the pollutants from agriculture (pesticides, insecticides, dyes, antibiotics, so on)



Project idea

Background

The 2030 Agenda: promoted the "Sustainable Cities" model, with the objective of reducing the negative environmental impact of cities, paying special attention to waste management, replacing a linear economy with a circular one. Recycling agricultural and/or construction and demolition waste in the form of additional aggregates or cementitious materials is a promising solution for environmental protection.

Concept: *Promoting 3D strategy—Reduce, Recycle, and Reuse.*

This proposal emphasizes the economic feasibility of utilizing agricultural waste, such as wood waste or wooden substrates from vegetable grow, mussel and mollusk shells, in place of aggregates and cement as beneficial considering concrete properties and the environmental impact. Also, some innovative technologies that transform the waste into valuable products; by reducing pollution of air, water, and soil (possibly linked with photocatalytic degradation of the pollutants from agriculture (pesticides, insecticides, dyes, antibiotics, with new photocatalysts, improved mechanisms / kinetics and specific photoreactors)

Objectives

(i) Creation of new efficient economically viable solutions to recycle agricultural, construction and demolition waste materials; (ii) In-depth physico-chemical and mechanical characterization of the new composition with better workability, strength, and insulation qualities, low greenhouse effect (the cement industry alone is responsible for about 7% of CO_2 generated worldwide) and reduced human toxicity; (iii) Evaluation of low health impact and high energy efficiency building materials.

Main expertise offered / sought

The expertise possessed by your organisation/company;

- MATERIALS, ELECTRIC, MECHANICS ENGINEERING
- RESILIENT, INCLUSIVE, HEALTHY AND GREEN RURAL, COASTAL AND URBAN COMMUNITIES
- CLEAN ENVIRONMENT AND ZERO POLLUTION
- CIRCULAR ECONOMY AND BIOECONOMY SECTORS

Involvement in previous/ongoing projects in the area;

- *DEVELONUTRI : Development of high throughput approaches to optimize the nutritional value of crops and crop-based foods – DEVELONUTRI, 2006-2011*
- *SD-WHISHES: Supporting and Developing WIdening Strategies to tackle Hydroclimatic Extreme Events: impacts and Sustainable solutions for cultural heritage ; 2024-2026*
- *KreativEU - Knowledge & Creativity European University, Horison Europe: 2025-2028:*

Role in project (coordinator / partner): Partner

The requirements for additional partner(s), i.e. expertise sought.

- RESILIENT, INCLUSIVE, HEALTHY AND GREEN RURAL, COASTAL AND URBAN COMMUNITIES
- CLEAN ENVIRONMENT AND ZERO POLLUTION
- CIRCULAR ECONOMY AND BIOECONOMY SECTORS

Contact details

Prof. Rodica -Mariana ION;

University VALAHIA from Targoviste ;
Academic institution; higher education institution
Country: Romania

E-mail: rodica.ion@valahia.ro