

Project title: **Sustainable route for production of glycosylated flavonols using immobilized biocatalyst on renewable inexpensive carrier**

Project code: PN-IV-P7-7.1-PED-2024-2513

Contract no.: 87PED from 05.05.2025

Project acronym: SusBioGly

PNCDI IV - Programme 5.7 - Partnership for Innovation

Subprogramme 5.7.1 – Partnerships for competitiveness

Project type: Experimental - Demonstration project – Competition 2024

Contracting Unit: UEFISCDI (Executive Unity for Financing the Superior Education, Research, Development and Innovation)

Contracted Unit: "CORIOLAN DRĂGULESCU" INSTITUTE OF CHEMISTRY

Period: 24 months (05.05.2025-05.05.2027)

Total Budget: 771.162 lei (746.162 lei public budget + 25.000 lei own budget)

- **Budget in 2025:** 273.772 lei (269.772 lei public budget + 4.000 lei own budget)
- **Budget in 2026:** 397.033 lei (381.033 lei public budget + 16.000 lei own budget)
- **Budget in 2027:** 100.357 lei (95.357 lei public budget + 5.000 lei own budget)

Project leader: Dr. Livia Nicoleta Deveseleanu-Corici

Consortium Structure:

1. Coordinator: "Coriolan Drăgulescu" Institute of Chemistry (**ICCD**)
2. Partner: S.C. Pro Air Clean Ecologic S.A. (**PACE**)

Project members:

ICCD:

Dr. Liliana Cseh
Dr. Ildiko Bută
Dr. Alina-Ramona Buzatu
Dr. Costin-Ioan Popescu
Dr. Laurentiu Spiridon
Dr. Adriana Costache
Dr. Rodica-Aura Badea
Dr. Madalina Talpău

PACE:

Eng. Laurențiu Amos Tadeus Demetrovici

Eng. Diana Popa

Eng. Marcel Lazarovici

Project Summary:

In the last decades increased attention has focused on the development of new environmentally friendly processes and products with low impact on the environment and human health. Flavonol glucosides are the subject of intense research due to their variety of bioactivities in human beings. However, most strategies of enzymatic synthesis involve poor operational stability, high cost of the enzyme and difficulty of removal from the reaction system which hamper their application at industrial scale. The present proposal addresses the problem of producing dihydromyricetin glucoside through sustainable process by employing a novel biodegradable and inexpensive immobilized UDP-glucosyltransferase on lignocellulosic agro-industrial wastes. The renewable carriers used for enzyme immobilization represents attractive alternatives which also responds to the challenges of circular bioeconomy since they can be reused at the end of the industrial application. After development of the process, determination of the best reaction conditions, the glucosylation reaction will be scaled up in order to produce glucosylated dihydromyricetin product available for further functional characterisation.

Poster presentation 2025:

Deveseleanu-Corici L., Bută I., Buzatu A.R., Demetrovici L., Lazarovici M., Popa D., Cseh L., Agro-Industrial Wastes As Promising Matrices For Enzyme Immobilization: A Sustainable Alternative For Producing Bioactive Flavonols, **17th Edition of New Trends in Chemistry Research, (NewChemRes2025)**, 24-26 September 2025, Timisoara, Romania

Event dissemination:

European Researcher Night, 26 September 2025, Nokia Campus, Timișoara