



Twinn4MicroUp: Twinning Innovation Hub for Microbial Platforms in Plastic Upcycling

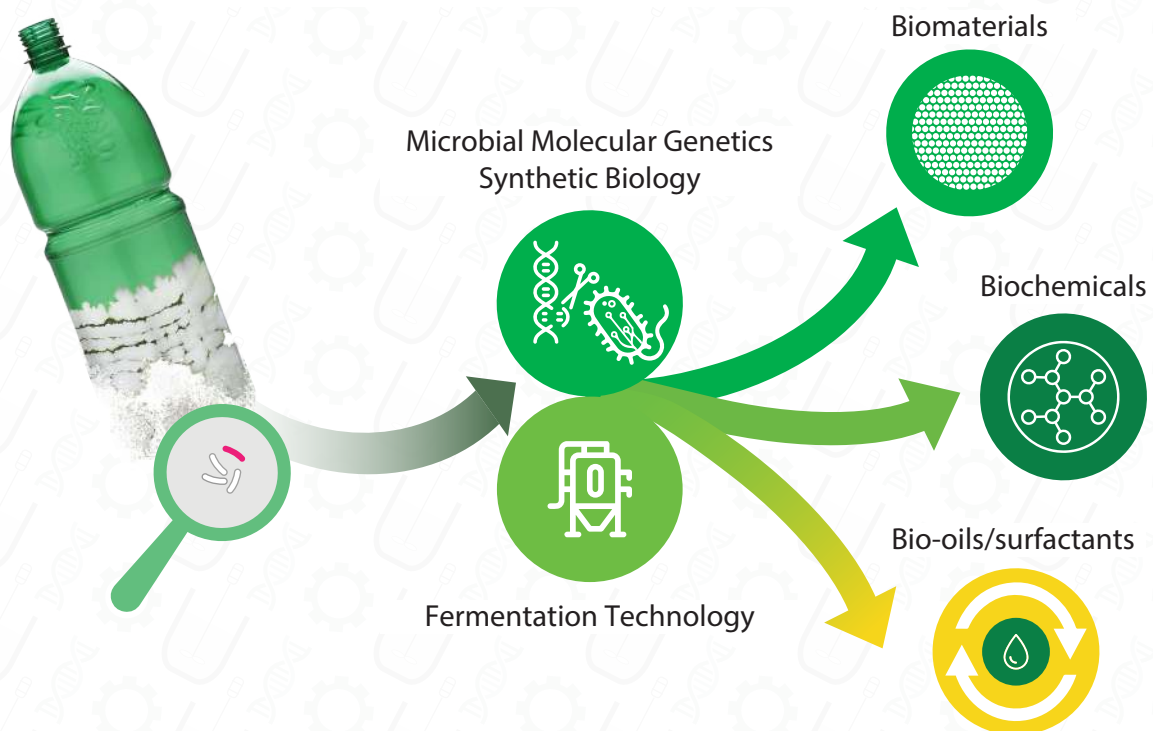
Challenge

Plastics are everywhere: production has skyrocketed from 1.5 million tonnes in 1950 to 359 Mt in 2019, with 8,000 Mt produced by 2020. The result is a massive waste problem—about 20 Mt of plastics leak into rivers, lakes, and oceans every year, creating what's now called the **7th continent of plastic**. Traditional waste management cannot keep up, making new and sustainable solutions more urgent than ever.

Solution

Plastic waste upcycling transforms plastic waste into **valuable, eco-friendly products**. Using innovative biological, mechanical, and chemical methods, we break plastics into their basic parts and feed them to engineered microbes. These **microbial factories** can then produce natural colorants, health-promoting compounds, green cleaning agents, and advanced bio-based materials.

Upcycling Plastic Waste into Valuable Bioproducts with the Power of Microbes



Objectives



Lead in Synthetic Microbial Biotechnology



Strengthen Scientific Expertise



Build Strategic Partnerships



Promote Innovation & Entrepreneurship

Vision

Our overarching goal is to establish the **MicroUp Hub**, a **research and innovation center** that will create partnerships, share knowledge, and drive entrepreneurship. Our goal is to combine **environmental protection** with **scientific progress, economic opportunities**, and **public awareness**—paving the way toward a cleaner, more sustainable future.



National Technical
University of Athens

Industrial Biotechnology
Protein Engineering
Biocatalysis
Innovation Economics



Institute of Molecular Genetics
& Genetic Engineering



Technological University
of the Shannon: Midlands Midwest

Polymer Science
Project Management
Business Development
Intellectual Property Protection

Molecular Biology
Microbial Synthetic Biology
Biotechnology
Technology Transfer



University of Bari
Aldo Moro

Molecular Biology
Microbial Synthetic Biology
Biotechnology
Waste Valorization

Twinn4MicroUp



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TwInn4MicroUp Project



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Prof. Aggelos Tsakanikas
TwInn4MicroUp Tech Transfer Lead
atsaka@chemeng.ntua.gr

Prof. Evangelos Topakas
TwInn4MicroUp Project Coordinator
vtopakas@chemeng.ntua.gr

Dr. Christina Ferousi
TwInn4MicroUp Project Manager
twinn4microup@gmail.com