

10th International Conference



mikrobio kosmos



Divani Palace Larissa
Larissa, Greece



All
microbes
for a
sustainable
future

NEW DATES

30 | 02
Nov | Dec
2023

www.mikrobiokosmos2023.org



FunShield4Med
SECURING FOOD



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ABSTRACT BOOK



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WASTE TO VALUE: FROM BUGS TO DRUGS

Our food, cosmetics, clothes, and other products and consumables across our lives need to get leaner and greener and biotechnology solutions can contribute towards responding to this need. Microorganisms are the most abundant group of organisms on Earth. While invisible to the naked eye and thus somewhat intangible, their abundance and diversity underlie their role in maintaining a healthy global ecosystem. Microorganisms have key roles in carbon and nutrient cycling, human, animal and plant health and are also a source of various products with applications across all major industries, including pharmaceutical, chemical, food, environmental, and the agriculture. Microbial diversity provides a massive pool of inimitable chemicals, which nowadays become a treasured source for innovative biotechnology. In this context, metabolic engineering is a key enabling technology for transforming microorganisms into

efficient cell factories for these compounds and materials. Microorganisms can provide economic and environmental value via bio-upcycling of variety of waste streams to obtain next generation eco-friendly therapeutics.

The novel eco-sustainable routes towards value-added biologics through biotechnology will be presented on a set of bacterially derived natural products (pyocyanin, prodigiosin, actinomycin and staurosporine) with proven bioactivities (i.e. anticancer, antifungal, antibiofilm, antiviral). Their greener production, processing and, formulation using innovative techniques such as fermentative bioprocess intensification, structural optimization via biocatalysis and formulations using metals, as well as biopolymeric drug carriers will be highlighted. In this way, both environmental and biomedical problems of human are once more addressed by microorganisms.

Keywords: biotechnology, upcycling, waste conversion, sustainability