

# DEEP PURPLE



## ECTOINE FOR COSMETIC APPLICATIONS

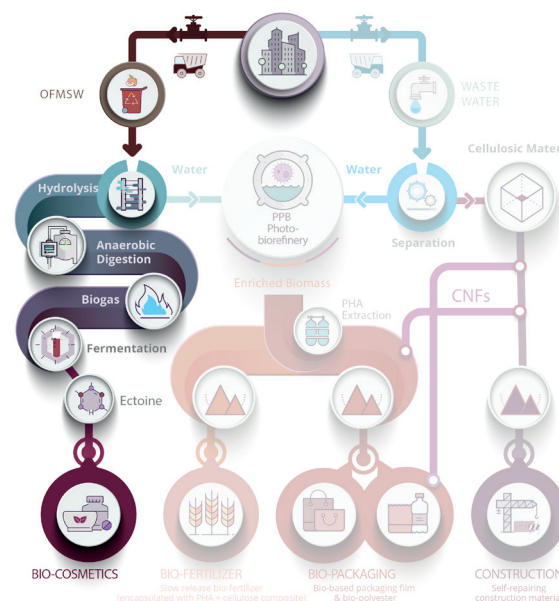
Biobased products derived with  
the help of PURPLE  
PHOTOTROPHIC BACTERIA



**Challenge:** Currently 75% of the up to **138 million tons of urban biowaste are incinerated and landfilled** in the EU with huge ecological and economical costs.

**Opportunity:** Biowaste and wastewater hold a great potential as a **source of renewable energy and recycled materials**. Wastewater contains valuable components such as cellulose and nutrients that can be used as feed-stock for many breakthrough applications.

**Objective:** Create high **value bioproducts through a Multi-Platform Photobiorefinery** approach. Utilize methanotropic bacteria to extract ectoine for use in cosmetic applications out of methane generated through the processing of biowaste.



**Solution:** Cosmeceutical products containing **extracted ectoine** at the RNB laboratories in Valencia, Spain. Ectoine, obtained from urban waste streams, was extracted and purified by ACTIVATEC in the **Biogas Platform**, through a bio-milking process, desalted by electrodialysis and captured by ion exchange chromatography.

RNB used this ectoine as a raw material to develop **cosmetic products**, including various formulations that underwent stability testing. The most stable formulations were **produced at pilot scale and validated in RNB's advanced production plant**.



Biomethanation plant

The EU funded project **DEEP PURPLE** aims to extract valuable resources from urban waste like the organic fraction of municipal solid waste, as well as wastewater and sewage sludge using a Multi-Platform Biorefinery centred around the integration of **Purple Phototrophic Bacteria**, focuses on recovering high value compounds for use in the bio-based industry. Learn more about the project at <https://deep-purple.eu/>

Bio-based Industries  
Consortium



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## PARTNERS



**DEMO SITES  
FLEXIBLE  
BIOREFINERY:  
FEED-STOCK  
PRODUCTION**



**MATERIALS &  
PRODUCTS  
DEMO SITES:**



Construction  
material



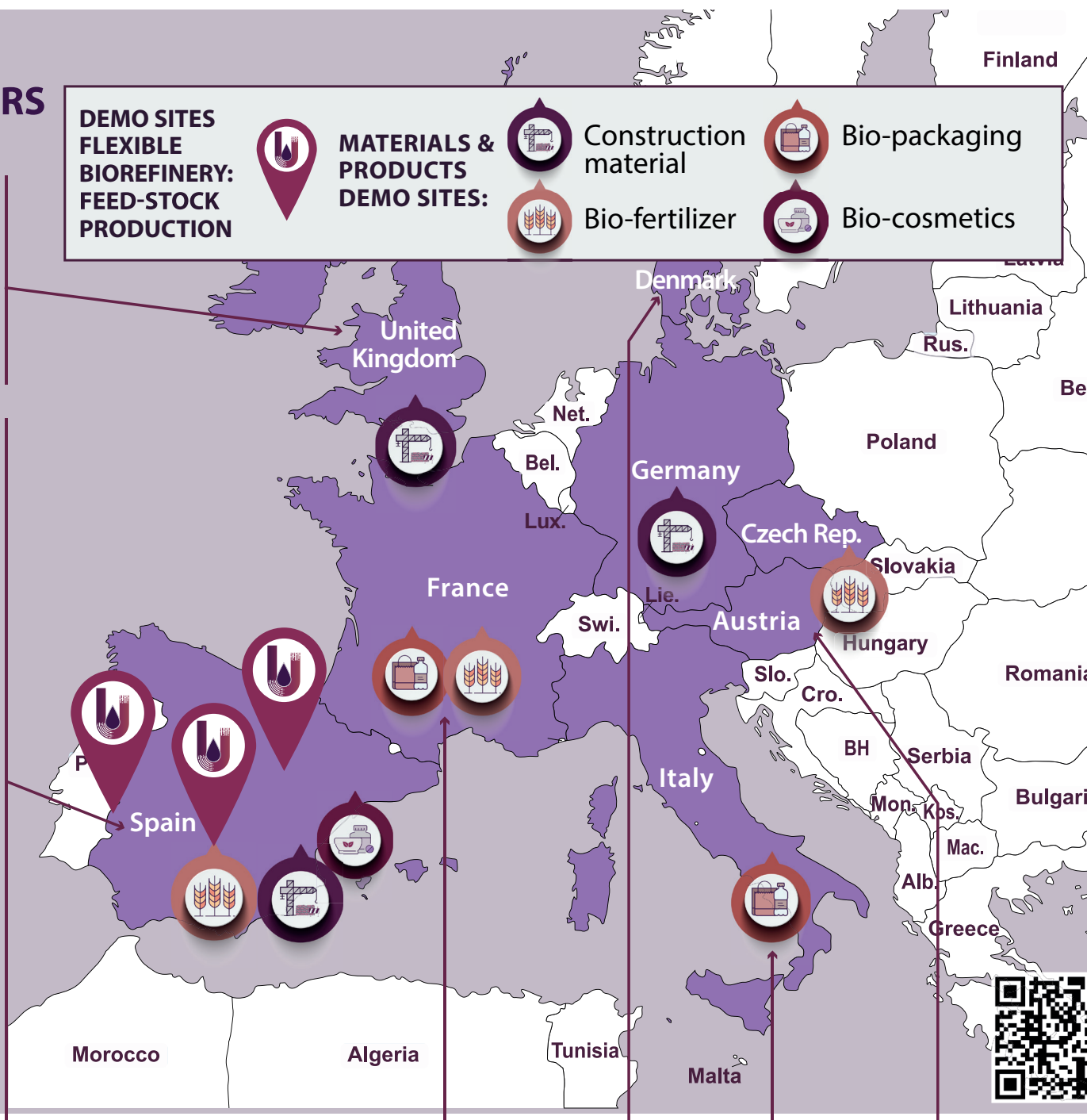
Bio-fertilizer



Bio-packaging  
material



Bio-cosmetics



**RECOVER ENERGY &  
VALUABLE RESOURCES  
from urban waste streams  
IN PHOTOBIOREFINERIES**  
with the help of  
**PURPLE PHOTOTROPHIC  
BACTERIA**



**WWW.DEEP-PURPLE.EU**

