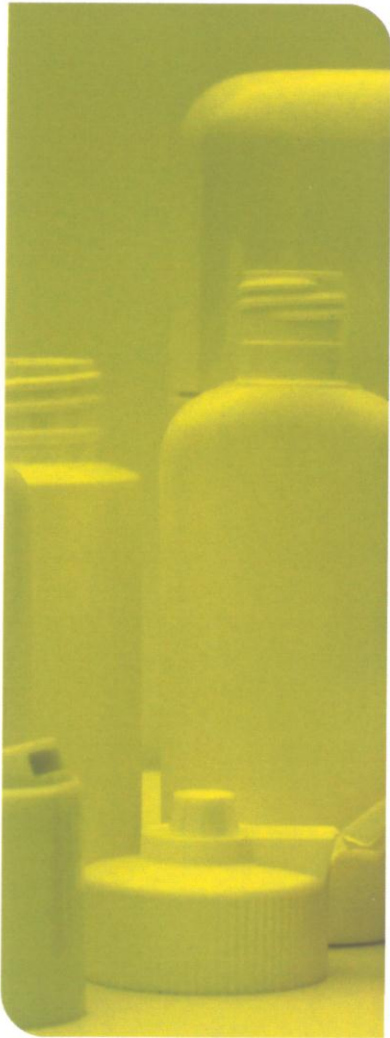


Functional Sustainable Packaging

OLIPHA[®]7



There is clear market and consumer demand for more sustainable packaging solutions.

While many biopolymers pose limitations in relation to processing difficulties, moisture sensitivity, poor mechanical or barrier properties making them unsuited to packaging applications, polyhydroxyalkanoates (PHA) biopolyesters offer comparable performance to fossil-based counterparts and can be used in versatile biodegradable formulations. However, barriers to uptake are linked to the challenge of producing cost effective and sustainable **PHA**.



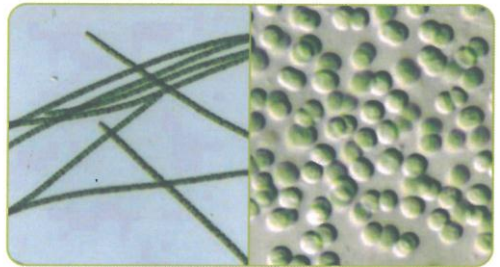
Olive oil producers generate large volumes of highly polluting wastewaters for which, to date, no satisfactory economical and effective treatment process exists. While commercially available **PHA** is mainly obtained by microbial culture on refined feedstock under sterile conditions, promising past research has shown that cyanobacteria can accumulate **PHA** by oxygenic photosynthesis in such wastewaters.

More sustainable and cost effective **PHA** products will be realised optimising PHA yields as a result of engineering tailored photobioreactors, genetically modifying the cyanobacteria, and developing fine-tuned derived compound formulations. The resulting **PHA** polymer, together with composites derived from the natural fibres released by the olive pip during the milling process and antioxidants extracted from the effluents, will be used to produce functional packaging solutions (flexible, rigid, active) that will be validated to pack foods and cosmetics. The leftover biomass will be used for biogas production thereby completely valorising the **OMWW**.





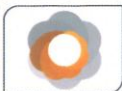
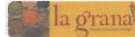
Based on MaxiUse, a holistic integrated environmental approach for developing new materials and processes, the **OliPHA** project will provide the packaging industry with **PHA** produced by photosynthetic bacteria. Such microalgae are gaining interest due to their potential for the production of a number of compounds including biodiesel but also food supplements and biopolymers.



Source: Dr. Claudio Sili, ISE, CNR (INSTM)

www.olipha.eu

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PARTNERS

