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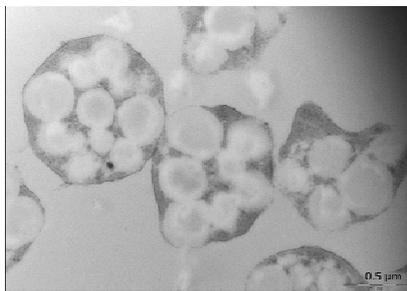
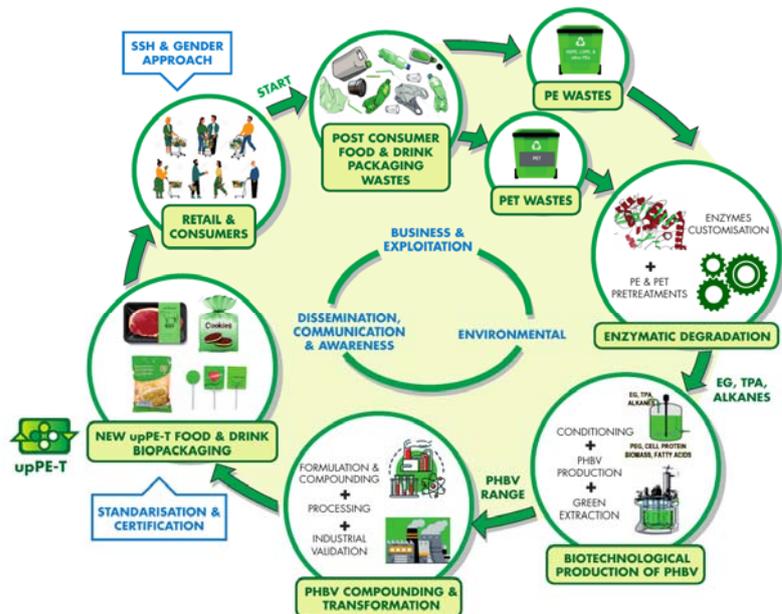
Upcycling of PE & PET wastes to generate biodegradable bioplastics for food and drink packaging

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Plastic packaging, which make up nearly 60% of the total plastic waste in Europe, is highly problematic from a waste management- and environmental- point of view due to their durability and resistance to degradation. Polyethylene (PE) and Polyethylene terephthalate (PET) are the leading plastic use in food and drink packaging (43% PE and 19% PET). The sustainable management of this plastic waste has become a very challenging problem for global society.

upPE-T offers an innovative solution for the upcycling PE and PET post-consumer packaging wastes by transforming them into a range of biodegradable & recyclable bioplastics (PHBVs) for food & drink packaging manufacturing. As an alternative for plastic chemical degradation, PE and PET waste streams will be recycled via enzymatic degradation and microbial metabolism.



Halophilic microorganisms with PHA granules, in an optimized culture medium for PHA accumulation.

Polyhydroxyalkanoates or PHAs are linear polyesters produced in nature by bacteria and other microorganisms to store carbon and energy under stress conditions. They are 100% biodegradable and can be either thermoplastic or elastomeric materials.

The aim of upPE-T is to use halophilic microorganisms that produce this PHA accumulation from post-consumer packaging wastes for the biotechnological production of bioplastics.

In addition, we will simplify the downstream bioplastic recovery process from cell biomass using an efficient and green extraction approach in which toxic solvents are not used. Finally, together with customers and food and drink brand owners, bio-based end-packaging will be demonstrated and validated to ensure fast market deployment.



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