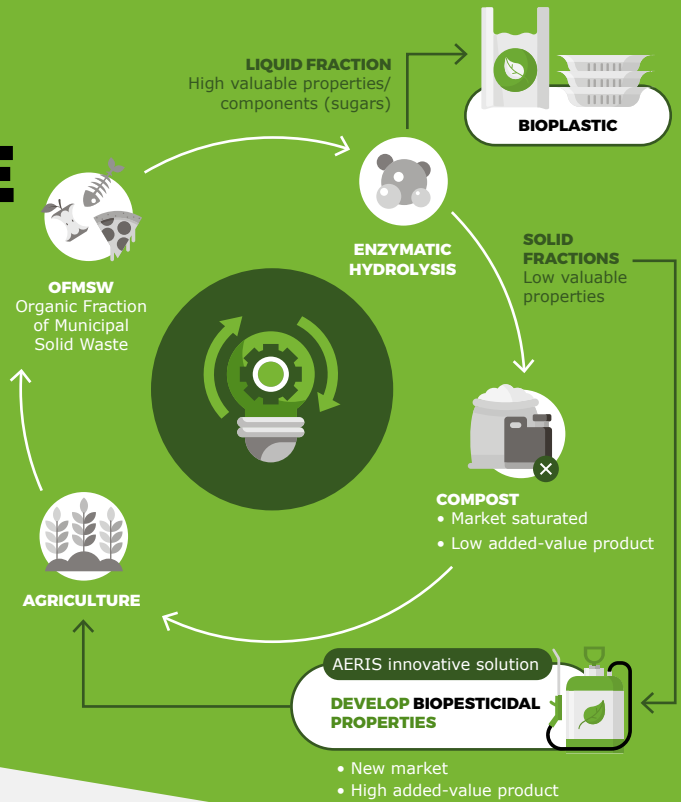


# BIOPESTICIDES FROM SOLID STATE FERMENTATION

"We improve the waste valorisation cycle, adding bio-pesticidal properties to the compost made with the solid fraction of OFMSW."

Esther Molina Peñate, researcher at AERIS



## AFTER OFMSW\* IS SUBJECTED TO ENZYMATIC HYDROLYSIS, HOW CAN WE VALORISE THE SOLID RESIDUES?

### > WHAT?

AERIS proposes to transform the solid fraction of OFMSW collected after the enzymatic hydrolysis into a compost fitted with biopesticidal properties.

This solution presents two advantages:

- Bio-waste based biopesticides have a lower environmental footprint than traditional biopesticides;
- The compost market being very competitive, adding biopesticidal properties opens new market opportunities.

\*Organic Fraction of Municipal Solid Waste.

### > HOW?

To create biopesticides, AERIS uses *Bacillus thuringiensis*, a microorganism which naturally sporulate in the substrate, creating protein crystals that are toxic to insect larvae but are innocuous to humans.

This sporulation is a natural process, which is accelerated through Solid State Fermentation (SSF). SSF consists of a fermentation process occurring in the absence or near-absence of free water, but using oxygen.

The final product consists of a solid biopesticide with a compost-like appearance containing the pesticide crystals. Within SCALIBUR, we will experiment using this product as a compost with pesticidal properties.

### > WHEN?

The technology is currently at TRL level 4 – technology validated in lab - and it is expected to reach TRL 5/6 in early 2022.

To be tested at pilot scale, AERIS needs to produce a bigger batch of this product, and find an agreement with a facility that grows pests.

### Contact

Esther Molina Peñate  
Esther.Molina.Penate@uab.cat

www.aeris.es

### Want to learn more about urban biowaste valorisation ?

- Read scientific article on bioproducts from biowaste digestate through SSF [here](#) and [here](#).
- Listen to our webinar on **Technologies for urban biowaste and wastewater valorisation**.
- Discover our **SCALIBUR project**.