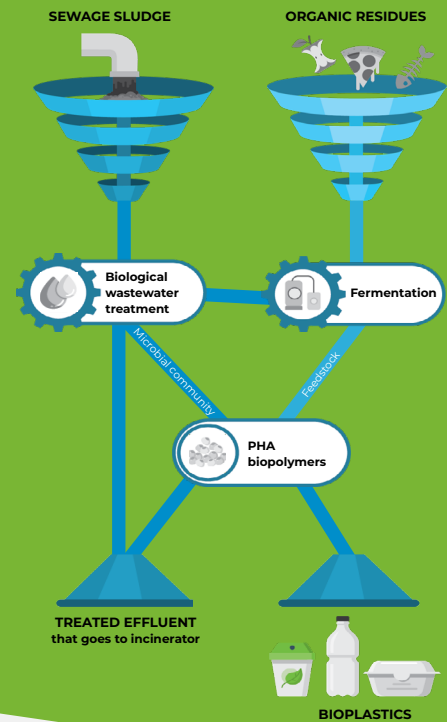
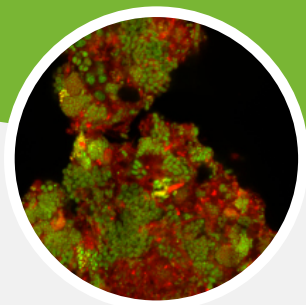


BIOPOLYMER (PHA) FROM SEWAGE SLUDGE & ORGANIC RESIDUES

"Your organic waste can be turned into biobased and biodegradable plastics."

Erik de Vries, researcher at Wetsus & Etteke Wypkema, Innovation manager at Water Board Brabantse Delta.



AS THE DEMAND FOR BIOPLASTIC GROWS, HOW TO PRODUCE IT IN A SUSTAINABLE WAY?

> WHAT?

PHA is a biobased and biodegradable polymer that can be used to create biodegradable plastics. However, the traditional use of refined sugar and fat to produce it competes with food production.

Wetsus and WBD are working on a novel approach, the 'PHARIO' concept, to create PHA from abundant waste sources available globally: the solution utilizes bacteria that purify wastewater and are being fed with organic residues.

This solution presents low manufacturing costs since most wastewater treatment plants already produce these bacteria with PHA storing capacity or could do so with only minor modifications.

> HOW?

The 'PHARIO' concept uses the microbial community present in sewage sludge. These bacteria have the capacity to convert fermented organic residues into PHA and store it, with a similar sense of purpose as when fat accumulates in mammals: PHA acts as 'food reserve' for the bacteria.

Thus, Wetsus and WBD feed these bacteria with fermented organic residues. The organic residues are naturally converted into the high-quality biopolymer PHA. Municipal organic waste or agricultural residues can act as sustainable feedstocks for PHA production.

Finally, the accumulated PHA needs to be extracted from the PHA rich biomass. Wetsus and WBD have demonstrated the use of environmentally friendly solvents like common alcohols towards obtaining purified polymer in the form of granules or powder.

> WHEN?

The generated knowledge is directly transferred to demo-scale developments that run in parallel and together support details towards scaling up to industrial scale PHA production.

Want to learn more about PHA production ?

- Read about **the PHARIO concept here**
- Discover our **SCALIBUR project**.

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This project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817788

