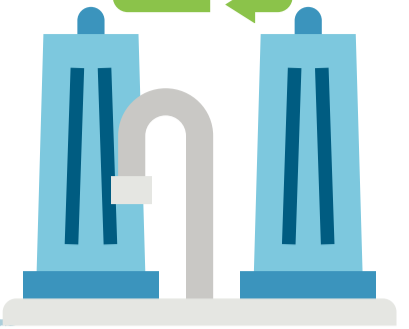
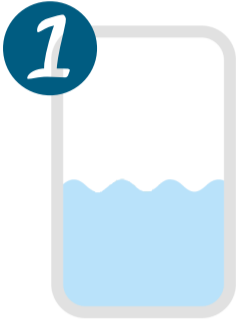


INNOVATIVE TECHNOLOGIES: CIRCULAR ECONOMY IN THE CANNING SECTOR

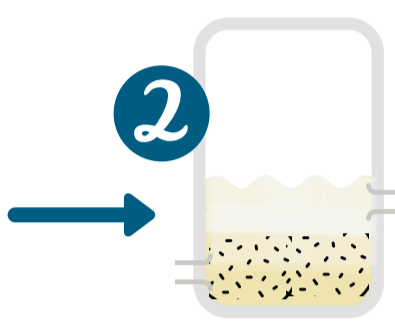


VOLATILE FATTY ACIDS (VFAs) PRODUCTION FROM EFFLUENTS



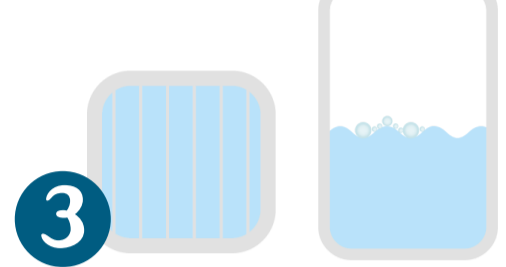
1 PREPARING WASTEWATER

Fatty and pH optimisation to the anaerobe fermenter's requirements.



2 ANAEROBE FERMENTER

Transformation of wastewater organic carbon to VFAs of interest (acetic, propionic, butyric, ...).



3 SEPARATION THROUGH MEMBRANES AND PURIFICATION

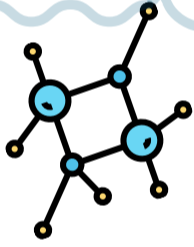
Selective separation and purification of fatty acids and products aligned with the market's interests and needs.

RESULTS

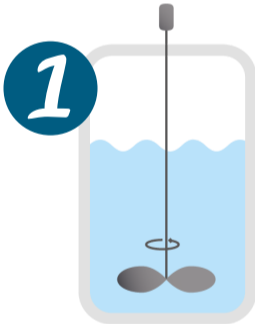
1 Development and validation of a new anaerobe technology for VFAs obtention.

2 Acetic, propionic, butyric (and others) acids obtention process as raw material for industries like chemicals, bioplastics, and biofuels.

3 Conservation of benthic system (aquatic ecosystems) that surrounds factories.

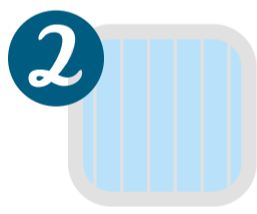


PROTEIN HYDROLYSATE PRODUCTION FROM BYPRODUCTS (fish heads, viscera, skin, and fish bones)



1 ENZYMATIC HYDROLYSIS

Proteases and operation parameters selection in order to obtain optimal protein molecules break down in different sized peptides.



2 CONCENTRATION WITH MEMBRANES

Peptides fractions concentration and purification, depending of their bioactivity.



3 DRYING

Fractions stabilization through spray drying for the end product preservation.

RESULTS

1 Hydrolysis technology allows integral processing of the canning industry's by-products, materializing them in new interesting products for the market.

2 Optimization of the hydrolysis and concentration processes, focusing on bioactive peptides obtention that is of market's interest (antioxidant, hepatoprotective, anti-inflammatory...)



OMEGA 3 ENRICHED FISH OILS EXTRACTION USING GREEN TECHNOLOGIES



1 DRYING

Low-temperature convective drying to preserve oil quality and to condition the raw material for supercritical extraction (<10% humidity).



2 EXTRACTION WITH SUPERCRITICAL CO₂

Pressure <400 bars and temperature adjustments in the supercritical extraction process to maximize the oil extraction.

RESULTS

1 Fish oils obtention with bigger omega 3 percentage. High demanded product, especially in functional food market.

