

# OPTIMISED ENZYME COCKTAIL TO VALORISE OFMSW



“By combining specific enzymes, we demonstrated the possibility to increase the amount of sugars extracted from biowaste by a factor of five compared to water”

Dr. Arno Cordes, Managing Director at ASA



## HOW TO OPTIMISE THE EXTRACTION OF SUGARS FROM BIOWASTE, TO BETTER VALORISE THIS HIGHLY VALUABLE WASTE STREAM?

### ➤ WHAT?

ASA created a cocktail combining enzymes with specific activities and demonstrated the possibility to improve the extraction of sugars from biowaste by a factor of five compared to water.

Sugars are important substrates used for fermentation processes to create high value end products. But traditional sugar sources like corn or sugar canes contribute to deforestation and is an unefficient use of nutritive resources. Thus, exploiting alternative sustainable sugar sources such as biowaste is a promising opportunity.

### ➤ HOW?

Sugars can be extracted from biowaste through enzymatic Hydrolysis, a process that uses enzymes and water to break down the polysaccharide chains and release the sugar molecules.

Within SCALIBUR, ASA worked on the optimisation of enzyme formulations useful for this sugars extraction process. Enzymes having different effects on molecules, ASA's scientists tried more than 60 different enzyme combinations to determine the best “enzyme cocktail” to complete the enzymatic hydrolysis most efficiently. The goal being the extraction of the sugar molecule, the focus was on combining three specific enzymes under the best proportions: cellulase, pectinase, and  $\beta$ -glucosidase.

The final enzyme cocktail being stable enough to stay in liquid state, this result is very promising. It makes it more convenient to use and cheaper as it does not need to be transformed into powder for stabilisation purposes.

### ➤ WHEN?

This research result is not protected, and the cocktail is already used by CENER, another partner in the SCALIBUR project working on the optimisation of the biowaste sugar extraction. More about CENER innovative extraction process here.

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#### Want to learn more about sugars extraction ?

- Learn about biowaste's sugar extraction through enzymatic hydrolysis [here](#) and through anaerobic digestion [here](#).
- Discover our **SCALIBUR project**

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