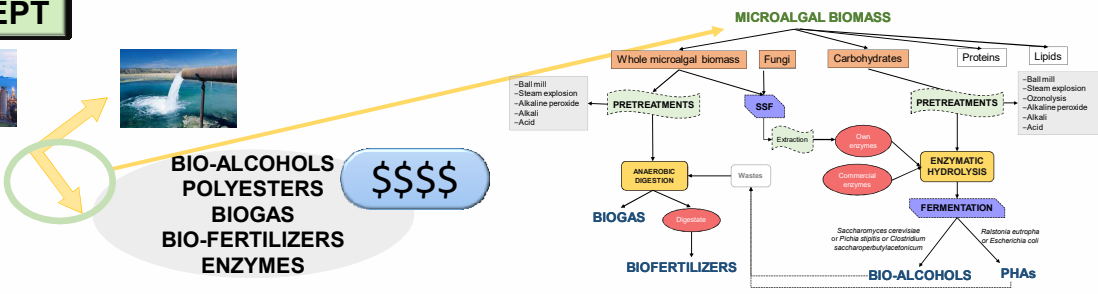


# Valorization of Wastewaters via Bioenergy and Bioproducts using Carbohydrates from Microalgae

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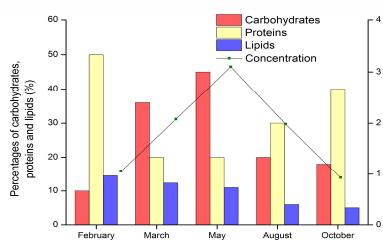
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## 1. BIOREFINERY CONCEPT

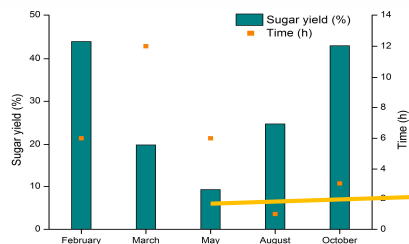


## 2. SUGAR RELEASE

### 1. Biomass composition

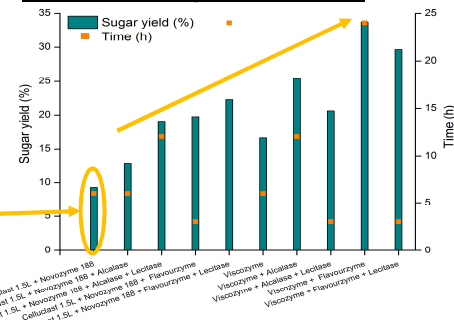


### 2. Maximum sugar yield

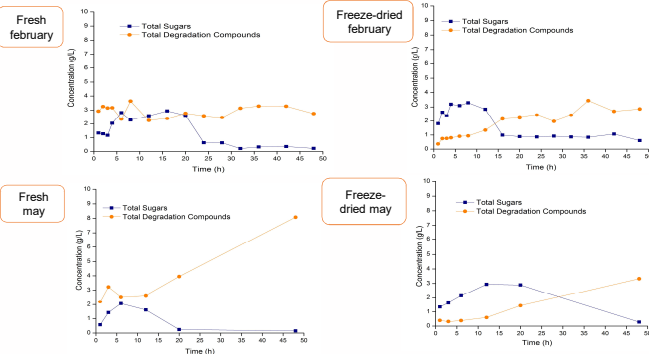


- High sugar yield → low carbohydrates.
- In concentration, the same sugar release.
- Freeze-dried biomass → same yields.

### 3. Different enzymes cocktails

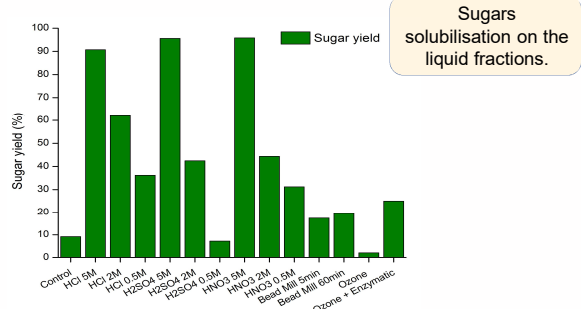


### 4. Enzymatic hydrolysis



- Different behaviour → different carbohydrates.
- Freeze-dried → lower degradation compounds.

### 5. Pretreatments

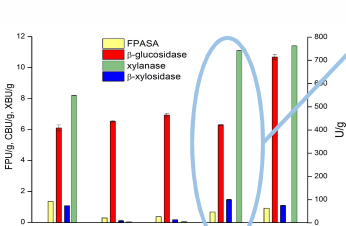


Sugars solubilisation on the liquid fractions.

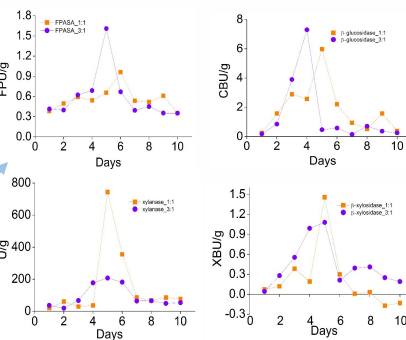
## 3. ENZYMES PRODUCTION

### 1. First screening

Test	Raw materials	Rati o	Saline Solution
Control	Sugarcane bagasse + Wheat Bran	1:1	✓
1	Microalgae	x	✓
2	Microalgae	x	✓
3	Microalgae + Sugarcane bagasse	1:1	x
4	Microalgae + Sugarcane bagasse	1:1	✓

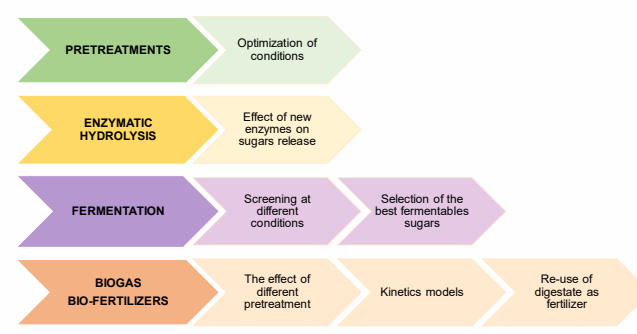


### 2. Enzymes evolution



High influence of the raw material, type and ratio, on the specific activity of each type of enzyme.

## 4. FUTURE WORK



## 5. Acknowledgment

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