

ABSTRACT

Brown algae biomass is a promising and challenging resource for industrial bioconversions, but there is a need to develop efficient cell factories to convert the constituent carbohydrates into high-value added products. In this proposal, four metabolically different environmental bacteria, inherently suitable to harsh process conditions, will be engineered for production of a number of industrially important platform and specialty chemicals, including 1,2-propanediol, cadaverine, propanol and lycopene. The project will implement and integrate systems biology and metabolic engineering, including rounds of model-driven metabolic optimization. Feedstock development and process engineering are important parts, to optimize fermentability of the algal hydrolysates, and ensure integration with downstream processing and product recovery. At the end of the project, use of all major carbohydrate fractions from brown algae through integrated processing will be demonstrated at small pilot scale.



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CONSORTIUM

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Topic:

- Materials
- Energy as by-product
- Production of other commodities or services

Marine biomass:

- Macroalgae
- Bacteria

Keywords:

Microbial metabolic engineering, systems biology, value-added chemicals, integrated bioprocess, fermentations

Total costs*: € 2.485.677

Funding granted*: € 1.981.507

Duration: 3 years (2016-2018)

** Exact amount may change after completion of national contracts*