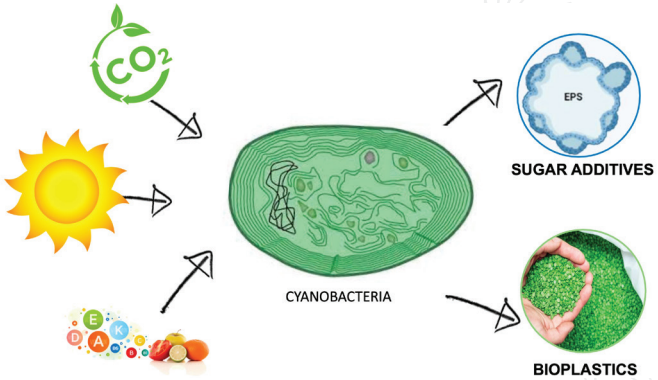
PROMICON

NEW STRATEGY FOR BIOPLASTIC AND EXOPOLYSACCHARIDES PRODUCTION: ENRICHMENT OF FIELD MICROBIOMES WITH CYANOBACTERIA



Key message

This study showcases the promising potential of harnessing the power of cyanobacteria for biopolymer production, offering a sustainable solution to the growing concerns surrounding plastic pollution and **paving the way for a more eco-conscious approach to material manufacturing.**

Background

Cyanobacteria are fascinating microorganisms that can thrive using sunlight and CO2, similar to plants and algae. What makes them even more intriguing is their ability to produce substances resembling plastic, known as bioplastics, or sugar additives.

Objective

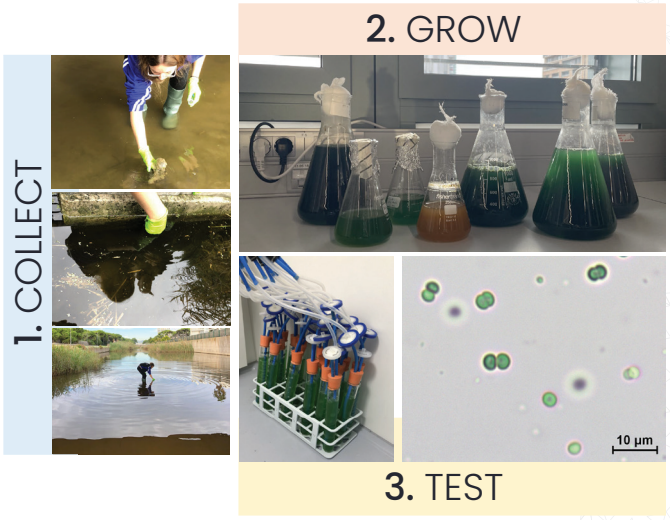
This study delved into the realm of cyanobacteria, exploring their capacity to produce biopolymers as **eco-friendly alternatives** to conventional polymers. By **COLLECTING** samples from rivers and wetlands and creating lab conditions mimicking natural environments with nutrients, light, and CO2, researchers aimed to boost the **GROWTH** of photosynthetic microorganisms for bioproduct production.

Methods

Initially, the goal was to explore methods for increasing the presence of cyanobacteria in these natural samples. After getting the cyanobacteria cultures, researchers **TESTED** their ability to synthesise both bioplastics and sugars. By supplementing with acetate, they found a positive impact on biopolymer production, paving the way for a **more sustainable approach to manufacturing bioplastics.**

Impact

- The study not only identified cultures with high bioproduct yields but also highlighted the potential for scaling up production in larger reactors. This breakthrough offers industries in **textiles, food and cosmetics** valuable insights into utilising cyanobacteria-enriched microbiomes for **sustainable biopolymer production.**
- By optimising culture conditions and nutrient supplementation, the study demonstrated the feasibility of enhancing bioplastic and sugar additive synthesis in an environmentally friendly manner.
- This research opens doors to a greener future, where bioplastics derived from cyanobacteria could serve as a **viable alternative to conventional plastics, reducing the environmental impact of plastic waste.**



Source

Altamira-Algarra, B., Rueda, E., Lage, A., San León, D., Martínez-Blanch, J.F., Nogales, J., García, J., Gonzalez-Flo, E. (2023). New strategy for bioplastic and exopolysaccharides production: Enrichment of field microbiomes with cyanobacteria, *New Biotechnology*, 78, https://doi.org/10.1016/j.nbt.2023.10.008

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