

CONTINUOUS POLYHYDROXYALKANOATE PRODUCTION BY PERCHLORATE RESPIRING MICROORGANISMS

Tech ID: 33042 / UC Case 2023-081-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

Plastics are essential for the modern world but are also non-sustainable products of the petrochemical industry that negatively impact our health, environment, and food chain. Natural biogenic plastics, such as polyhydroxyalkanoates (PHA), are readily biodegradable, can be produced more sustainably, and offer an attractive alternative. The global demand for bioplastics is increasing with the 2019 market value of \$8.3B expected to reach a compound annual growth rate of 16.1% from 2020-2027 (<https://www.grandviewresearch.com/industry-analysis/bioplastics-industry>). However, current PHA production is constrained by the underlying physiology of the microorganisms which produce them, meaning bioplastic production is currently limited to inefficient, batch fermentation processes that are difficult to scale.

To address this problem, UC Berkeley researchers have developed a new system for PHA production wherein the PHA are generated continuously throughout microorganism growth lifecycles. The invention allows these sustainable bioplastics to be produced via precision continuous fermentation technology, a scalable and efficient approach.

SUGGESTED USES

- » Production of environmentally-friendly, biogenic plastics as alternatives to current widespread plastic products

ADVANTAGES

- » Compatible with continuous precision fermentation versus batch fermentation processes
- » Sustainable, efficient biogenic plastic production

RELATED MATERIALS

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OTHER INFORMATION

CATEGORIZED AS

- » **Biotechnology**
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 - » Other
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 - » Other
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