A Sustainable Alternative Route to Produce Methyl Methacrylate

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BRIEF DESCRIPTION

A sustainable alternative route to produce Methyl methacrylate (MMA) in an engineered yeast strain.

BACKGROUND

Methyl methacrylate (MMA) is a critical raw material in the production of acrylic polymers. It is traditionally produced from non-sustainable, hazardous raw materials, such as acetone and hydrogen cyanide using acetone cyanohydrin (ACH). An alternative production route for MMA that is “green” and sustainable would reduce hazardous waste, which has a positive impact on the environment and addresses its traditional production from petroleum.

DESCRIPTION

Researchers at the University of California, Santa Barbara have developed a sustainable alternative route to produce Methyl methacrylate (MMA). By optimizing and engineering yeast strains through metabolic engineering, MAA (methacrylic acid)-CoA is produced directly from glucose at titers approaching 5g/L. This approach allows sustainable raw materials (derived from sugar) to be used as the primary feedstock for MMA production.

ADVANTAGES

- Increased sustainability
- Reduced waste
- Production from glucose at titers approaching 5g/L
- Vastly improved yields

APPLICATIONS

- Acrylic polymers
- Production of MMA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,676,766	06/09/2020	2015-334

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OTHER INFORMATION

KEYWORDS

indadvmat, Advanced Materials, Methylacrylyl-CoA (MAA-CoA), Yeast Strain, Acrylic Polymers, Glucose, Sustainable

CATEGORIZED AS

- **Materials & Chemicals**
  - Chemicals
- **Sensors & Instrumentation**
  - Process Control
- **Engineering**
  - Other

RELATED CASES

2015-334-0

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