Escherichia Coli Capable of Producing Isobutyraldehyde

Tech ID: 21866 / UC Case 2011-677-0

ABSTRACT

Researchers at the University of California, Davis have developed strains of *Escherichia coli* capable of producing the valuable chemical feedstock, isobutyraldehyde. This strain is specifically optimized for the production of isobutyraldehyde.

FULL DESCRIPTION

E. coli has long been used for the industrial production of valuable chemicals due to its fast growth rate, well-developed fermentation technology, and tools for genetic modification. In recent year, *E. coli* has seen great success in the production of many alcohols. However, there has been little effort to optimize *E. coli* for aldehyde production.

Researchers at the University of California, Davis have developed a novel strain of *E. coli* capable of producing isobutyraldehyde in high titers without conversion to isobutanol. Aldehydes are reactive compounds useful for chemical feedstocks to generate many additional, more complex molecules. In particular, isobutyraldehyde can be later converted to isobutanol and isobutyrate, or be used to generate polymers.

APPLICATIONS

- Renewable production of isobutyraldehyde

FEATURES/BENEFITS

- Improved production of Isobutyraldehyde
- Industrial scale production
- Greatly reduced side product formation
- Potentially useful for production of other aldehydes

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,701,948	07/11/2017	2011-677

RELATED MATERIALS

- Isobutyraldehyde production from *Escherichia coli* by removing aldehyde reductase activity - 06/25/2012
- Isobutyraldehyde production from Escherichia coli by removing aldehyde reductase activity. Gabriel M Rodriguez and Shota Atsumi. - 11/01/1990

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OTHER INFORMATION

KEYWORDS

Biofuel production,

Energy, Chemical

Feedstock

CATEGORIZED AS

- **Energy**
  - Bioenergy
- **Materials & Chemicals**
  - Chemicals

RELATED CASES

2011-677-0

PUBLISHED PATENT APPLICATION

Escherichia coli engineered for isobutyraldehyde production. WO 2013192237 A1

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