Renewable Energy Synthesis System

Tech ID: 27427 / UC Case 2012-280-0

ABSTRACT

Researchers at the University of California, Davis have developed a novel system for acetoin and 2,3-butanediol synthesis from carbon dioxide.

FULL DESCRIPTION

Growing energy demands has caused an interest in the production of fuels and chemicals from renewable resources. Current methods of producing renewable energies involve converting biomass into biochemicals. These methods include the use of harsh chemical pretreatments and result in toxic byproducts and large land-use requirements.

Researchers at the University of California, Davis have developed a novel system for the synthesis of bioproducts from carbon dioxide. The processes uses photosynthetic cyanobacteria to convert light and CO_2 into acetoin and 2,3-butanediol. This renewable photosynthetic microbial platform possesses photosynthetic efficiency 2-4 times higher than plants and greater genetic malleability. Cyanobacteria also have quicker growth rates and do not compete with food crops for land usage.

APPLICATIONS

- Production of acetoin and 2,3-butanediol from CO_2

FEATURES/BENEFITS

- Environmentally sustainable/friendly
- Renewable
- Efficient petroleum alternative
- Does not compete with food crops for land usage
- Reduces petroleum dependency
- Reduces carbon emissions

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,428,773	08/30/2016	2012-280

CONTACT

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OTHER INFORMATION

KEYWORDS

acetoin, 2,3-butanediol, sustainable, energy, renewable

CATEGORIZED AS

- **Biotechnology**
  - Industrial/ Energy
- **Energy**
  - Bioenergy
  - Hydrocarbon
- **Environment**
  - Other
- **Materials & Chemicals**
  - Biological
  - Chemicals

RELATED CASES

2012-280-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Using Escherichia coli to Produce Human Milk Oligosaccharide Lactodifucotetraose
- Biological Conversion of Ethylene to n-Butanol and Other Chemicals Using E. Coli
- Biological Production of Industrial Small Esters

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