NOVEL METHOD FOR SYNTHESIS OF BIOFUEL PRECURSORS

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BRIEF DESCRIPTION

Methyl halides are reactive one-carbon compounds from which a wide variety of commercially important organic products can be produced. Industrial production of methyl halides has been carried out using chemical methods that often consume high amounts of energy, and involve conditions of high temperature and pressure. Many plants and fungi produce methyl halides and release them into the environment. These organisms contain methyl halide transferases that combine a chlorine, bromine or iodine ion with a methyl group of the metabolite S-adenosylmethionine to form the methyl halide and S-adenosyl homocysteine. The harnessing of this process can lead to more efficient ways of producing biofuels.

UCSF investigators have developed a method to produce and/or overproduce methyl halides, to be used as a biofuel precursor, in a variety of plants and microorganisms. This process takes advantage of pathways that are common across all organisms and can be carried out on a commercial scale, for example in a reactor.

FEATURES/BENEFITS

- No extra energy required to purify the active reagent
- Cheaper and easier to manufacture
- Increased scale of production
- Can be optimized for a variety of organisms, including bacteria, yeast, and plant systems

APPLICATIONS

Methyl halides can be converted into a variety of fuels, including:

- Bio-diesel
- Higher alkanes
- Alcohols

PATENT STATUS

Country	Type	Number	Dated	Case

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OTHER INFORMATION

KEYWORDS

biofuel

CATEGORIZED AS

- Biotechnology
  - Industrial/ Energy
- Energy
  - Bioenergy

RELATED CASES

2008-033-0

United States Of America	Issued Patent	9,657,279	05/23/2017	2008-033	

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