

## BIO-BASED PRODUCTION OF CROTONIC ACID

### TECHNOLOGY DESCRIPTION

This technology is a method for producing bio-based crotonic acid by heating bacterial poly(3-hydroxybutyrate), PBH inclusions under controlled condition as compared to the current method of producing crotonic acid which using petrochemical route.

### TECHNOLOGY FEATURES

This technology is efficient and practical with simpler processing steps with higher yield (87%) as compared to the petrochemical route (30%). This technology utilizes PBH, a biopolymer produced from fermentation of bacteria utilizing sugar. The sugars came from renewable feedstock such as oil palm frond juice cellulosic sugar, thus producing high purity of crotonic acid (99%).

### ADVANTAGES

- High purity – 99% crotonic acid
- High recovery yield – 87%
- Simple process
- Green technology and renewable process – ensure continuous supply of crotonic acid

### INDUSTRY OVERVIEW

#### Prospects: Organic fatty acid producers

The crotonic acid market derived from natural sources is witnessing increasing demand. The global market for crotonic acid is forecast to reach US\$2.2 billion by 2018, driven primarily by the growing demand from personal care and cosmetics sectors. Increasing use in industrial applications, backed by its environment-friendliness, and rise in popularity of specialty esters and natural esters, constitute the other factors propelling the market.



**Dr. Hidayah Ariffin**

Faculty of Biotechnology and Biomolecular Sciences  
hidayah@upm.edu.my