

## Production of green itaconic acid

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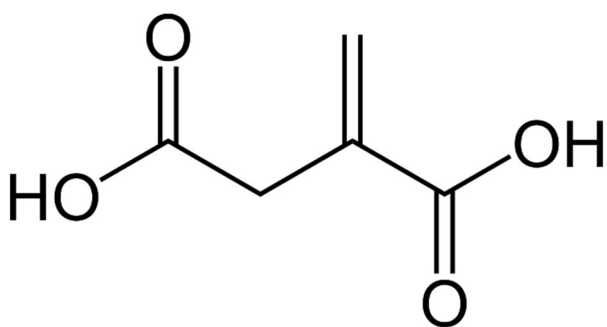
### Description

Itaconic acid is a C5 dicarboxylic acid currently used to produce styrene butadiene rubber latex and it is manufactured via aerobic fermentation of highly purified sugars using an *Aspergillus terreus* fungal strain. Itaconic acid has been identified as one of the top twelve building blocks produced via (bio)chemical conversion using renewable feedstocks as it could potentially become a standard intermediate for the production of various commodity and specialty chemicals.

The major objective of this project was to evaluate the technical and economic feasibility of itaconic acid large-scale manufacturing in the Netherlands using cost-effective and sustainable feedstocks.

The project scope comprised three main blocks: the design of an itaconic acid biorefinery model for each evaluated feedstock, downstream processing experiments and an economic analysis performed on the biorefinery models.

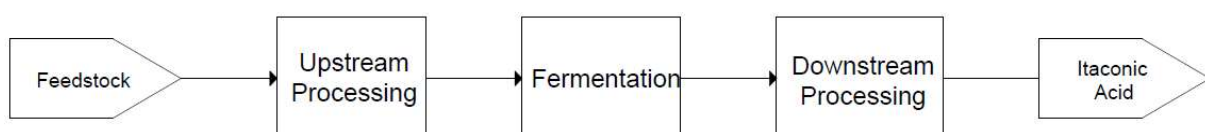
The outcome was that it was possible to recover itaconic acid crystals on basis of fermentations of 2<sup>nd</sup> generation feedstocks. Economic feasibility depends on 2<sup>nd</sup> generation feedstock prices and on approaching fermentation performance such as obtained with 1<sup>st</sup> generation feedstocks.



*Itaconic acid chemical structure*



*Itaconic acid crystals*



*Itaconic acid biorefinery general block scheme*