

Overview of citric acid production from *Aspergillus niger*

ABSTRACT

Citric acid has high economic potential owing to its numerous applications. It is mostly produced by microbial fermentation using *Aspergillus niger*. In view of surges in demand and growing markets, there is always a need for the discovery and development of better production techniques and solutions to improve production yields and the efficiency of product recovery. To support the enormous scale of production, it is necessary and important for the production process to be environmentally friendly by utilizing readily available and inexpensive agro-industrial waste products, while maintaining high production yields. This article reviews the biochemistry of citric acid formation, choices of citric-acid producing microorganisms and raw materials, fermentation strategies, the effects of various fermentation conditions, citric acid recovery options and the numerous applications of citric acid, based on information drawn from the literature over the past 10 years.

Keyword: *Aspergillus niger*; Citric acid; Fermentation; Glucose; Microbial