

## 研究报告

### 顺式环氧琥珀酸水解酶酶活的快速测定方法

彭亮亮<sup>1,2</sup>,王自强<sup>2</sup>,王云山<sup>2</sup>,张利平<sup>1</sup>,苏志国<sup>2</sup>

(1.河北大学生命科学学院,河北保定 071002|2.中国科学院过程工程研究所生化工程国家重点实验室,北京100080)

摘要:

在对产顺式环氧琥珀酸水解酶(ESH)的细胞超声破碎的基础上,通过正交实验对细胞中ESH生物转化生产L(+)-酒石酸过程中的底物浓度、酶浓度、转化时间进行了分析,建立了一种快速测定ESH酶活的方法,即1 g湿细胞,30 mL 0.2 mol/L的顺式环氧琥珀酸二钠(ES),置于37℃保温转化10 min后,利用HPLC测定酒石酸含量。此方法具有快速、准确和细胞用量少的特点,可用于菌种选育、发酵过程检测、发酵条件优化及工业生产。

关键词: 顺式环氧琥珀酸水解酶;超声破碎;L-酒石酸;生物转化

### Method for Rapid Measuring Cis-epoxysuccinate Hydrolase Activity

PENG Liang-liang<sup>1,2</sup>, WANG Zi-qiang<sup>2</sup>, WANG Yun-shan<sup>2</sup>, ZHANG Li-ping<sup>1</sup>, SU Zhi-guo<sup>2</sup>

(1.College of Life Science, Heibei University, Hebei Baoding 071002|2. National Key Laboratory of Biochemical Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100080, China)

Abstract:

On the basis of cis-epoxysuccinate hydrolase (ESH) producing cell ultrasonication, orthogonal experiments were conducted to analyze the effect of substrate concentration, the enzyme concentration and the time of biotransformation on the activity of ESH in the process of L(+)-tartaric acid production with cis-epoxysuecinate as the substrate for fermentation. An extraordinarily faster method for measuring ESH activity was constructed, which was to put 1 g wet cells into 30 mL 0.2 mol/L ES aqueous solution under the condition of 37℃ for 10 min to biotransform and then to measure the concentration of L(+)-tartaric acid with HPLC. This method possesses the advantages of fast speed, high accuracy and small quantities of cells which were suitable for strain selection, inspection of fermentation parameter, optimization of fermentation conditions and industrial production.

Keywords: cis-epoxysuccinate hydrolase ultrasonication L(+)-tartaric acid biotransformation

收稿日期 2009-12-30 修回日期 2010-01-11 网络版发布日期 2010-02-02

DOI: 10.3969/j.issn.1008-0864.2010.

基金项目:

通讯作者: 王云山,副研究员,主要从事微生物发酵工程和生化分离工程。E-mail:yswang@home.ipe.ac.cn

作者简介: 彭亮亮,硕士研究生,研究方向为微生物学。E-mail:loasersking@163.com

作者Email:

参考文献:

本刊中的类似文章

文章评论

扩展功能

本文信息

▶ Supporting info

▶ PDF(301KB)

▶ [HTML全文]

▶ 参考文献[PDF]

▶ 参考文献

服务与反馈

▶ 把本文推荐给朋友

▶ 加入我的书架

▶ 加入引用管理器

▶ 引用本文

▶ Email Alert

▶ 文章反馈

▶ 浏览反馈信息

本文关键词相关文章

▶ 顺式环氧琥珀酸水解酶;超声破碎;L-酒石酸;生物转化

本文作者相关文章

PubMed

反  
馈  
人

邮箱地址

反  
馈  
标  
题

验证码

0272