

研究简报

光控生物不对称还原苯乙酮的研究

王梦亮, 杜刚, 刘滇生

山西大学现代化学研究所, 太原 030006

收稿日期 2005-7-26 修回日期 网络版发布日期 2006-9-19 接受日期

摘要

本文以类球红杆菌(*Rhodobacter sphaeroides*)为生物催化剂, 将苯乙酮催化还原成具有光学活性的手性醇. 研究了反应条件对该反应的影响.

关键词 [光合细菌](#) [不对称还原](#) [光电子传递](#) [苯乙酮](#) [手性醇](#)

分类号 [0621.25+4.2](#)

Light-control Asymmetric Reduction of Acetophenone by Microorganism

WANG Meng-Liang, DU Gang, LIU Dian-Sheng

Institute of Modern Chemistry, Shanxi University, Taiyuan 030006, China

Abstract *Rhodobacter sphaeroide* as a new biocatalysts were investigated in the asymmetric reduction of ketones to chiral alcohols. The cells were used in an aqueous system for the asymmetric reduction of acetophenone to prepare (*S*)-1-phenyl-ethanol by photo-electron-transfer reactions. It is found that higher product yield and product enantiomeric excess could be achieved. The results show that the enantiomer excess of the chiral alcohols was up to 99% (*e.e.*) and the yield is more than 90%. The effects of DCMU and the optimal reaction conditions on the reaction were investigated. The results show that the reaction was controlled by light completely, the optimal substrate concentration is 17.0 mmol/L, the optimal cell mass concentration is 0.2 g/mL, the optimal pH is 7—8, the optimal reaction time was 72 h.

Key words [Photosynthetic bacteria](#) [Asymmetric reduction](#) [Photo-electron-transfer](#) [Acetophenone](#) [Chiral alcohols](#)

DOI:

通讯作者 刘滇生 dslu@sxu.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(278KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“光合细菌”的 相关文章](#)

▶ [本文作者相关文章](#)

· [王梦亮](#)

· [杜刚](#)

· [刘滇生](#)