

研究论文

杯芳烃与NO₂硝化反应的研究

于付江, 杨海军, 李勇*

(清华大学化学系 生命有机磷化学及化学生物学教育部重点实验室 北京 100084)

收稿日期 2005-8-17 修回日期 2005-10-8 网络版发布日期 接受日期

摘要 系统地研究了羟基杯[n]芳烃、甲氧基杯[n]芳烃和对特丁基杯[n]芳烃(n=4, 6, 8)与NO₂气体的硝化反应, 发现可以成功地得到25,26,27,28-四羟基杯[4]芳烃、37,38,39,40,41,42-六羟基杯[6]芳烃以及25,26,27,28-四甲氧基杯[4]芳烃的对位全硝化产物, 产率分别为90%, 70%和40%; 尤其是25,26,27,28-四羟基杯[4]芳烃与NO₂的反应20 min即可完成. 认为共振式酚氧负离子结构是影响该类硝化反应的关键, 并对反应机理进行了探讨.

关键词 [杯芳烃](#) [NO₂](#) [硝化反应](#)

分类号

Study on the Nitration of Calix[n]arenes with Nitrogen Dioxide

YU Fu-Jiang, YANG Hai-Jun, LI Yong*

(Key Laboratory of Bioorganic Phosphorus Chemistry and Chemical Biology of Ministry of Education, Department of Chemistry, Tsinghua University, Beijing 100084)

Abstract Syntheses of *p*-nitrocalix[n]arenes were carried out under different reaction conditions by using nitrogen dioxide as nitration agent. It was found that only *p*-nitrocalix[4]arene, *p*-nitrocalix[6]arene and 25,26,27,28-tetramethoxy-5,11,17,23-tetranitrocalix[4]arene were obtained from the corresponding calix[4]-arene, calix[6]arene and 25,26,27,28-tetramethoxycalix[4]arene in yields of 90%, 70% and 40% respectively. Especially, the reaction of calix[4]arene with NO₂ could be finished in 20 min. The reaction mechanism based on resonance structures of phenoxy anion in calixarene is discussed.

Key words [calix\[n\]arene](#) [nitrogen dioxide](#) [nitration](#)

DOI:

通讯作者 李勇 liy@chen.tsinghua.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(0KB\)](#)

▶ [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“杯芳烃”的相关文章](#)

▶ 本文作者相关文章

· [于付江](#)

· [杨海军](#)

· [李勇](#)