

Full Paper

无溶剂下 $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ 催化的 N-取代丙烯酰基吡咯烷酮的 Diels-Alder 反应研究

裴文,* 王永江, 余长泉

浙江工业大学化学工程与材料学院, 杭州, 310014

收稿日期 2006-11-6 修回日期 2007-3-16 网络版发布日期 2007-6-27 接受日期

摘要 在离子液体反应体系中, 由不饱和酸制得的酰氯与酰亚胺及内酰胺进行亲核取代, 成功地合成了官能化N-取代丙烯酰基吡咯烷酮化合物。采用便宜易得的 $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ 作为催化剂, 在无溶剂和室温条件下, 实现了官能化N-取代丙烯酰基吡咯烷酮与双烯体的 Diels-Alder 反应, 得到了高收率和高立体选择性的环加成产物。该项研究是绿色化学合成方法学的研究。

关键词 [N-取代丙烯酰基吡咯烷酮](#) [Fe离子催化Diels-Alder反应](#) [无溶剂反应](#)

分类号

Diels-Alder Reactions of N-Functionalized Acryloyl α -Pyrrolidone Derivatives Using $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ as an Efficient Catalyst under Solvent-free Conditions

PEI Wen*, WANG Yong-Jiang, YU Chang-Quan

Chemical Engineering and Materials, Zhejiang University of Technology, Hangzhou, Zhejiang 310014, China

Abstract Diels-Alder reactions of N-functionalized acryloyl α -pyrrolidone derivatives were investigated, which were catalyzed by $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ as an efficient catalyst under solvent-free conditions at room temperature. The corresponding cycloadducts with functionalized-pyrrolidone were prepared in high yield with high stereoselectivity by a green chemistry procedure. N-Functionalized acryloyl pyrrolidone derivatives, a kind of pyrrolidone-functionalized chelating α, β -unsaturated ketone usable as a dienophile in Diels-Alder reaction, were synthesized by N-acylation procedure in ionic liquid as a novel synthetic method.

Key words [acryloylpyrrolidone derivative](#) [Diels-Alder reaction](#) [ferric chloride](#) [lewis acid](#) [solvent-free](#)

DOI:

通讯作者 裴文 peiwen58@zjut.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“N-取代丙烯酰基吡咯烷酮”的 相关文章](#)

▶ [本文作者相关文章](#)

- [裴文](#)
- [王永江](#)
- [余长泉](#)