高等学校化学学报 2007 28 (10): 1889—1892 ISSN: 0251-0790 CN: 22-1131/O6

研究论文

低价钛促进的苯并咪唑并[1,2-*c*]喹唑啉衍生物的合成

史达清[1,2], 李正义[2], 窦国兰[2], 石春玲[2], 王香善[2], 纪顺俊[1]

1. 苏州大学化学化工学院, 江苏省有机合成重点实验室, 苏州 215123;
2. 徐州师范大学化学系, 徐州 221116

收稿日期 2007-1-24 修回日期 网络版发布日期 2007-10-24 接受日期

摘要 利用低价钛试剂促进的2-邻硝基苯基苯并咪唑与原甲酸酯或丙酮或固体光气的反应, 合成了一系列苯并咪唑并[1,2-*c*]喹唑啉衍生物, 化合物的结构经IR, ^{1}H NMR, MS和元素分析确定, 化合物4c的结构经单晶X射线衍射分析进一步确证. 该方法具有原料易得、操作简便和产率高等优点.

关键词 低价钛 苯并咪唑并[1,2-*c*]喹唑啉 2-邻硝基苯并咪唑

分类号 O626.416

DOI:

Synthesis of Benzoimidazo[1,2-*c*]quinazoline Derivatives Promoted by Low-valent Titanium

SHI Da-Qing[1,2]*, LI Zheng-Yi[2], DOU Guo-Lan[2], SHI Chun-Ling[2], WANG Xiang-Shan[2], JI Shun-Jun[1]

1. College of Chemistry and Chemical Engineering, Key Laboratory of Organic Synthesis of Jiangsu Province, Suzhou University, Suzhou 215123, China;
2. Department of Chemistry, Xuzhou Normal University, Xuzhou 221116, China

Received 2007-1-24 Revised Online 2007-10-24 Accepted

Abstract Quinazoline is an important heterocyclic compound which has potential biological and pharmaceutical activities. It was reported that benzimidazo[1,2-*c*]quinazoline derivatives have a high anticancer activity. In this paper, a series of benzimidazo[1,2-*c*]quinazoline derivatives such as benzimidazo[1,2-*c*]quinazoline, 5,6-dihydrobenzimidazo[1,2-c]quinazoline and benzimidazo[1,2-*c*]quinazolin-5-one were synthesized *via* the reaction of 2-(*o*-nitrophenyl)benzimidazoles with triethyl orthoformate or acetone or triphosgene promoted by the low-valent titanium reagent($TiCl_4$-Zn system). The products were characterized *via* IR, ^{1}H NMR, MS and elemental analysis. The structure of compound 4c was confirmed by X-ray single crystal diffraction. A possible reaction mechanism was put forward in this paper. This new method possesses the advantages of easily accessible starting materials, convenient manipulation and high yields.

Key words Low-valent titanium; Benzimidazo[1 2-*c*]quinazoine; 2-(*o*-Nitrophenyl)benzimidazole

通讯作者:
史达清 dqshi@263.net
作者个人主页: 史达清[1;2]; 李正义[2]; 窦国兰[2]; 石春玲[2]; 王香善[2]; 纪顺俊[1]