Accepted Manuscript

Title: Copper-catalyzed three-component reaction of imidazo[1,2-*a*]pyridine with elemental sulfur and arylboronic acid to produce sulfenylimidazo[1,2-*a*]pyridines

Authors: Genhua Xiao, Hao Min, Zhilei Zheng, Guobo Deng, Yun Liang

PII: S1001-8417(17)30547-8
DOI: https://doi.org/10.1016/j.cclet.2017.12.013
Reference: CCLET 4375

To appear in: *Chinese Chemical Letters*

Received date: 7-10-2017
Revised date: 8-12-2017
Accepted date: 18-12-2017

Please cite this article as: Genhua Xiao, Hao Min, Zhilei Zheng, Guobo Deng, Yun Liang, Copper-catalyzed three-component reaction of imidazo[1,2-a]pyridine with elemental sulfur and arylboronic acid to produce sulfenylimidazo[1,2-a]pyridines, Chinese Chemical Letters https://doi.org/10.1016/j.cclet.2017.12.013

Communication

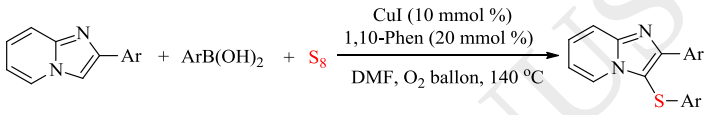
Copper-catalyzed three-component reaction of imidazo[1,2-*a*]pyridine with elemental sulfur and arylboronic acid to produce sulfenylimidazo[1,2-*a*]pyridines

Genhua Xiao, Hao Min, Zhilei Zheng, Guobo Deng*, Yun Liang*

National & Local Joint Engineering Laboratory for New Petro-chemical Materials and Fine Utilization of Resources, Key Laboratory of Chemical Biology and Traditional Chinese Medicine Research, Ministry of Education, Key Laboratory of the Assembly and Application of Organic Functional Molecules, College of Chemistry and Chemical Engineering, Hunan Normal University, Changsha 410081, China

* Corresponding authors.
E-mail addresses: gbdeng@hunnu.edu.cn; yliang@hunnu.edu.cn.

Graphical Abstract



A copper-catalyzed three-component reaction for the synthesis of sulfenylimidazo[1,2-*a*]pyridines using elemental sulfur as the sulfenylating agents has been developed.

ARTICLE INFO

Article history:
Received 7 October 2017
Received in revised form 8 December 2017
Accepted 12 December 2017
Available online

Keywords:
Copper
Three-component
Pyridine
Sulfur
Arylboronic acids

ABSTRACT

In this work, an efficient copper-catalyzed three-component reaction for the synthesis of sulfenylimidazo[1,2-*a*]pyridines using elemental sulfur as the sulfenylating agents has been developed. The reaction could proceed smoothly with a high degree of functional group tolerance and provide the desired products in moderate to good yield.

The imidazo[1,2-*a*]pyridine core is of great interest on account of their broad applications in many bioactive natural products and pharmaceuticals [1], such as alpidem [2], zolpidem [3], necopidem [4], saripidem [5], zolimidine [6], minodronic acid [7] and olprinone [8]. Furthermore, sulfur-containing substances play a particularly significant role in a variety of synthetic drugs and natural products, and represent a ubiquitous “privileged scaffold” [9]. Therefore, there has been increased interest in the exploration of synthetic methods for the formation of sulfenylimidazo[1,2-*a*]pyridines in recent years. To the best of our knowledge, lots of methods have been reported to prepare aryl sulfides by various organic sulfenylating agents such as disuldes [10], thiols [11], sodium sulfinates [12], sulfonyl chlorides [13], sulfonyl hydrazide [14] and sulfinic acids [15], *etc.* (Scheme 1, b). However, most of these organic sulfenylating agents are foul-smelling, toxic, unstable, or expensive, which limited their widespread application. In order to comply with environmental friendly chemistry principles, more and more scientists focus much attention on inorganic sulfur as a source of C−S bond formation. For example, Adimurthy group [16] and Deng group [17] all reported the three-component one-pot synthesis of sulfenylimidazo[1,2-*a*]pyridines using haloarenes and elemental sulfur with a copper catalyst (Scheme 1, b). Compared with organic