Palladium-Catalyzed Oxidative Alkynylation of Allenyl Ketones: Access to 3-Alkynyl Poly-substituted Furans

Bowen Dou[1], Kang Wang[1], and Jianbo Wang[1]

[1]Peking University

August 21, 2023

Abstract

Furans bearing alkynyl substituents are highly useful in organic synthesis. However, the methodologies to access these important furan derivatives are rather limited. We herein report an efficient synthesis of alkynylated furan derivatives based on Pd-catalyzed oxidative cross-coupling reaction between allenyl ketones and terminal alkynes. This novel synthesis of alkynylated furans with wide substrate scope is operationally simple and tolerates various functional groups. Mechanistically, the formation of the palladium carbene through cycloisomerization and the subsequent alkynyl migratory insertion are proposed as the key steps in the transformation. The reaction reported in this manuscript further demonstrates the generality of the carbene-based cross coupling.

Hosted file

`CJC Manuscript.docx` available at https://authorea.com/users/654532/articles/660887-palladium-catalyzed-oxidative-alkynylation-of-allenyl-ketones-access-to-3-alkynyl-poly-substituted-furans