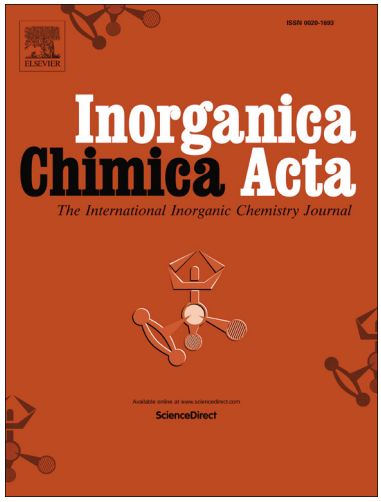

Research paper

Novel Oxime-palladacycle Supported on Clay Composite as an Efficient Heterogeneous Catalyst for Sonogashira Reaction

Mohammad Gholinejad, Neda Dasvarz, Carmen Nájera

PII: S0020-1693(18)30888-0
DOI: https://doi.org/10.1016/j.ica.2018.08.043
Reference: ICA 18443

To appear in: *Inorganica Chimica Acta*

Received Date: 7 June 2018
Revised Date: 11 August 2018
Accepted Date: 24 August 2018

Please cite this article as: M. Gholinejad, N. Dasvarz, C. Nájera, Novel Oxime-palladacycle Supported on Clay Composite as an Efficient Heterogeneous Catalyst for Sonogashira Reaction, *Inorganica Chimica Acta* (2018), doi: https://doi.org/10.1016/j.ica.2018.08.043

Novel Oxime-palladacycle Supported on Clay Composite as an Efficient Heterogeneous Catalyst for Sonogashira Reaction

Mohammad Gholinejad,[ab]* Neda Dasvarz,[a] Carmen Nájera[c]*

[a]Department of Chemistry, Institute for Advanced Studies in Basic Sciences (IASBS), P. O. Box 45195-1159, Gavazang, Zanjan 45137-66731, Iran. Email: gholinejad@iasbs.ac.ir

[b]Research Center for Basic Sciences & Modern Technologies (RBST), Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan 45137-66731, Iran

[c]Departamento de Química Orgánica and Centro de Innovación en Química Avanzada (ORFEO-CINQA). Universidad de Alicante, Apdo. 99, E-03080-Alicante, Spain. Email: cnajera@ua.es

Abstract: A novel supported catalyst formed by an oxime-derived palladacycle supported on clay OxPdCy@clay is synthesized and characterized. This palladium composite promotes the Sonogashira reaction of aryl iodides, bromides and chlorides with terminal alkynes in polyethylene glycol200 at 85 or 130 °C using 0.05-0.1 mol% of palladium loading under copper and phosphine free conditions. This supported palladacycle, OxPdCy@clay, showed a superior catalytic activity than dimeric oxime-palladacycles. Mechanistic studies about the heterogeneous or homogeneous nature of the catalyst show that catalyst is working mainly under heterogeneous conditions. This supported palladacycle OxPdCy@clay can be recycled by simple centrifugation and reused for at least nine consecutive runs with small decrease in activity.

Keywords: Clay composite, Oxime-palladacycle, Sonogashira, Copper-free, PEG 200