BOOK OF ABSTRACTS

XIV International School on Organometallic Chemistry "Marcial Moreno Mañas"

ORGANOMETALLIC CHEMISTRY SCHOOL

Organometálicos para la Funcionalización de Entidades Orgánicas
ORFEO-CINQA

Universitat d'Alacant
Universidad de Alicante

EuChemS
European Chemical Society

May 31st - June 2nd, 2023 - Alicante

©Elena Sansano-Muñoz

https://isoc-mmm2023.com/

Rh(III)-Catalyzed twofold C-H activation of *N*-arylpyrroles: an easy entry to ullazines

Sergio Otero-Riesgo, Jesús A. Varela* and Carlos Saá*

Centro Singular de Investigación en Química Biolóxica e Materiais Moleculares (CiQUS), Departamento de Química Orgánica, Universidade de Santiago de Compostela, 15782 Santiago de Compostela, Spain

sergio.riesgo@usc.es

Keywords: C-H Activation, *N*-doped PAH's, Photosensitizers, Rh catalyst, Ullazines

Ullazines (azapyrene) are *N*-doped PAH's with excellent applications as building blocks for organic materials in dye-sensitized solar cells (Figure 1).[1] We herein report our efforts to an expeditious and versatile synthetic route to ullazines by means of Rh(III)-catalyzed twofold C-H activation (double [4+2] oxidative annulation) of N-arylpyrroles with alkynes (Scheme 1).[2] Effects caused by the electronic and steric features of both reaction partners in the reaction course as well as the influence of aryl substituents in the electronic properties of ullazines will be discussed.

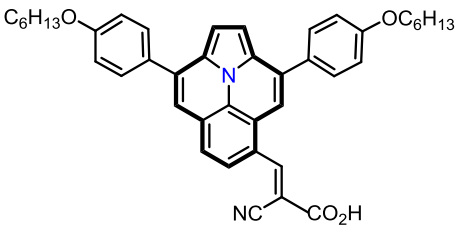
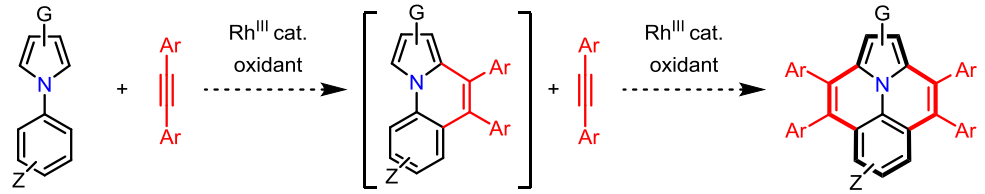


Figure 1. *Ullazine-based organic photosensitizers*



Scheme 1*. Ullazines by Rh(III)-catalyzed twofold C-H activation of N-arylpyrroles with alkynes*

Acknowledgments: This work has received financial support from MICINN (projects PID2020-118048GB-I00, and ORFEO-CINQA network RED2022-134287-T), the Xunta de Galicia (project ED431C-2022/27, Centro Singular de Investigación de Galicia accreditation 2019-2022, ED431G 2019/03) and the European Union (European Regional Development Fund – ERDF). S.O.-R. thanks MICINN for a predoctoral contract.

References

[1] Delcamp, J. H.; Yella, A.; Holcombe, T. W.; Nazeeruddin, M. K.; Grätzel, M. *Angew. Chem. Int. Ed.* **2013**, *52*, 376-380.

[2] Villar, J. M.; Suárez, J.; Varela, J. A.; Saá, C. *Org. Lett*. **2017**, *19*, 1702-1705.