Accepted Manuscript

Synthesis and transition metal chemistry of ferrocenylbis(benzo-oxazaphosphininone)

Pandey Sameer Prasad, Maravanji S. Balakrishna

PII: S0022-328X(18)30167-0

DOI: 10.1016/j.jorganchem.2018.03.009

Reference: JOM 20359

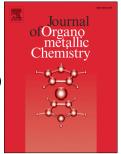
To appear in: Journal of Organometallic Chemistry

Received Date: 11 January 2018

Revised Date: 5 March 2018 Accepted Date: 8 March 2018

Please cite this article as: P.S. Prasad, M.S. Balakrishna, Synthesis and transition metal chemistry of ferrocenylbis(benzo-oxazaphosphininone), *Journal of Organometallic Chemistry* (2018), doi: 10.1016/j.jorganchem.2018.03.009.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

Synthesis and transition metal chemistry of ferrocenylbis(benzooxazaphosphininone)

Pandey Sameer Prasad and Maravanji S. Balakrishna*

Phosphorus Laboratory, Department of Chemistry, Indian Institute of Technology Bombay,

Powai, Mumbai 400 076, India.

ABSTRACT: The new ferrocenylbis(oxazaphosphininone), [Fe{C₅H₄P(OC₆H₄)(CO)N-(C₂H₄Cl)}₂] (1) was synthesized by the reaction of bis(dichlorophosphino)ferrocene with two equivalents of 2(2'-hydroxy)phenyloxazoline in the presence of triethylamine in 83% yield. The reactions of 1 with aq. H₂O₂ or elemental sulfur afforded bis-chalcogenides $[Fe\{C_5H_4P(E)(OC_6H_4)(CO)N(C_2H_4CI)\}_2]$ (2 E = O, 3 E = S). Treatment of 1 with $[M(CO)_4(C_5H_{11}N)_2]$ (M = Mo, W), $[RuCp(PPh_3)_2Cl]$ and $[M(COD)Cl_2]$ (M = Pd, Pt) afforded the chelate complexes $[Fe\{C_5H_4P(OC_6H_4)(CO)N(C_2H_4Cl)\}_2\{M(CO)_4\}]$ (4 M = Mo, 5 M = $[Fe\{C_5H_4P(OC_6H_4)(CO)N(C_2H_4Cl)\}_2\{RuCp(Cl)\}]$ (7) and $[Fe\{C_5H_4P(OC_6H_4)\}]$ W), $(CO)N(C_2H_4Cl)_2\{MCl_2\}$ (8 M = Pd, 9 M = Pt), whereas the reaction of 1 with $[Ru(\eta^6-p-1)]$ $cymene)Cl_2]_2,\ yielded\ a\ bimetallic\ complex\ [Fe\{C_5H_4P(OC_6H_4)(CO)N(C_2H_4Cl)\}_2\{RuCl_2(\eta^6-1)(CO)N(C_2H_4Cl)\}_2\}$ p-cymene)}₂] (6). The reaction between 1 and CuX in equimolar ratio also yielded binuclear complexes, $[Fe\{C_5H_4P(OC_6H_4)(CO)N(C_2H_4Cl)\}_2\{CuX\}_2]$ (10 X = Cl, 11 X = Br, 12 X = I). All the compounds are characterized by spectroscopic methods and the structures of complexes 3, 7, 9 and 10 were confirmed by single crystal X-ray diffraction studies. The electrochemistry of 1, 3, 8, 9 and 12 is also reported.

Keywords: ferrocene; X-ray structure; dppf; phosphininone; diastereomer

*Author to whom correspondence should be addressed. E-mail: krishna@chem.iitb.ac.in, msb_krishna@iitb.ac.in (M. S. Balakrishna); Fax: +91-22-5172-3480/2576-7152.

1. Introduction

The *1,1'*-bis(phosphino)ferrocene ligands have spotted a continuous growth since the discovery of dppf.[1] Dppf and analogues ferrocenylbisphosphines have been used in several catalytic applications [2-6]; whereas the chiral counterparts have been employed in

Download English Version:

https://daneshyari.com/en/article/7756104

Download Persian Version:

https://daneshyari.com/article/7756104

<u>Daneshyari.com</u>