

## Accepted Manuscript

Dinuclear Pd<sup>II</sup>/Pt<sup>II</sup> complexes [M<sub>2</sub>(phosphine)<sub>n</sub>(thio-ligand)<sub>3</sub>]Cl incorporating N, S-bridged pyridine-2-thiolate and benzimidazoline-2-thiolate

Tarlok S. Lobana, Amanpreet K. Sandhu, Rakesh K. Mahajan, Geeta Hundal, Sushil K. Gupta, Ray J. Butcher, Alfonso Castineiras

PII: S0277-5387(17)30079-7  
DOI: <http://dx.doi.org/10.1016/j.poly.2017.01.042>  
Reference: POLY 12446

To appear in: *Polyhedron*

Received Date: 2 December 2016  
Revised Date: 25 January 2017  
Accepted Date: 25 January 2017

Please cite this article as: T.S. Lobana, A.K. Sandhu, R.K. Mahajan, G. Hundal, S.K. Gupta, R.J. Butcher, A. Castineiras, Dinuclear Pd<sup>II</sup>/Pt<sup>II</sup> complexes [M<sub>2</sub>(phosphine)<sub>n</sub>(thio-ligand)<sub>3</sub>]Cl incorporating N, S-bridged pyridine-2-thiolate and benzimidazoline-2-thiolate, *Polyhedron* (2017), doi: <http://dx.doi.org/10.1016/j.poly.2017.01.042>

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.



# Dinuclear Pd<sup>II</sup>/Pt<sup>II</sup> complexes [M<sub>2</sub>(phosphine)<sub>n</sub>(thio-ligand)<sub>3</sub>]Cl incorporating N, S-bridged pyridine-2-thiolate and benzimidazoline-2-thiolate

Tarlok S. Lobana,<sup>\*a</sup> Amanpreet K. Sandhu,<sup>a</sup> Rakesh K. Mahajan,<sup>a</sup> Geeta Hundal,<sup>a</sup> Sushil K. Gupta,<sup>b</sup> Ray J. Butcher,<sup>b</sup> Alfonso Castineiras<sup>c</sup>

<sup>a</sup>Department of Chemistry, Guru Nanak Dev University, Amritsar-143 005, India

<sup>b</sup>Department of Chemistry, Howard University, 525 College Street NW, Washington, DC 20059, USA

<sup>c</sup>Departamento de Química Inorgánica, Facultad de Farmacia, Universidad de Santiago, Santiago/Spain.

Email: [tarlokslobana@yahoo.co.in](mailto:tarlokslobana@yahoo.co.in);

Fax: 91-183-2258820 ; Telephone : 91-183-2258802 ext. 3195

## ABSTRACT

Equimolar reaction of [PdCl<sub>2</sub>(dppm)] {dppm = bis(diphenylphosphino) methane} with pyridine-2-thione (pySH) in presence of NaOH base in aqueous ethanol formed dinuclear mixed- ligand complex, [Pd<sup>II</sup><sub>2</sub>(μ-κ<sup>2</sup>:N,S-pyS)<sub>3</sub>(μ-P,P-dppm)]Cl **1**. Similarly, reaction of PdCl<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub> with benzimidazoline-2-thione (bzimSH) in 1 : 2 molar ratio in the presence of Et<sub>3</sub>N base in acetonitrile has formed a dinuclear complex, [Pd<sup>II</sup><sub>2</sub>(μ-κ<sup>2</sup>:N,S-bzimS)<sub>2</sub>(κ<sup>1</sup>-S-bzimS)(PPh<sub>3</sub>)<sub>3</sub>]Cl·2H<sub>2</sub>O **2**. Surprisingly, analogous thio-ligand, 1,3-imidazoline-2-thione (imzSH), merely formed a simple square planar complex, [Pd(κ<sup>1</sup>-S-imzSH)<sub>4</sub>]Cl<sub>2</sub>·2H<sub>2</sub>O **3**. The reaction of H<sub>2</sub>PtCl<sub>6</sub> with pySH and dppm (1:1:1 molar ratio) in the presence of Et<sub>3</sub>N base in toluene –ethanol (1 : 1 : : v/v) mixture also formed a mixed-ligand dinuclear complex [Pt<sup>II</sup><sub>2</sub>(μ-κ<sup>2</sup>:N,S-pyS)<sub>3</sub>(μ-P,P-dppm)]Cl similar to **1**. All these complexes have been characterized using analytical data, IR, NMR (<sup>1</sup>H, <sup>31</sup>P), UV-visible, fluorescence, ESI-mass and single crystal x-ray crystallographic techniques. The anionic thio-ligands are N,S-bridged in complexes **1** and **4**, both N,S-bridged and κ<sup>1</sup>-S bonded in **2** and as neutral κ<sup>1</sup>-S bonded in **3**. There are short M···M contacts in **1** and **4** (**1**: 2.7249(5) Å; **4**: 2.7350(8) Å). Complexes **1**, **3** and **4** showed intense fluorescence. ESI mass spectral studies of **1**, **3** and **4** revealed the formation of molecular ions and other species.

Download English Version:

<https://daneshyari.com/en/article/5154502>

Download Persian Version:

<https://daneshyari.com/article/5154502>

[Daneshyari.com](https://daneshyari.com)