

Accepted Manuscript

Cobalt(III) complexes with 2-acetylpyridine-derived Schiff bases: studies investigating ligand release upon reduction

Camila V. Garcia, Gabrieli L. Parrilha, Bernardo L. Rodrigues, Paulo J.S. Barbeira, Ryan M. Clarke, Tim Storr, Heloisa Beraldo

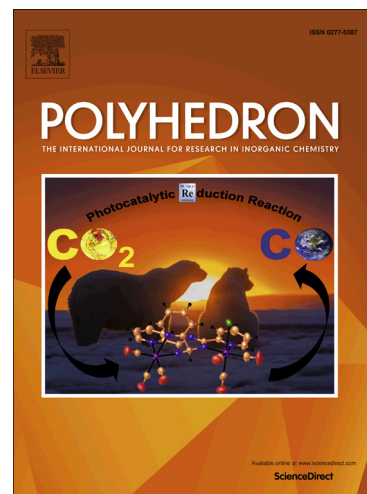
PII: S0277-5387(16)30675-1
DOI: <http://dx.doi.org/10.1016/j.poly.2016.12.024>
Reference: POLY 12382

To appear in: *Polyhedron*

Received Date: 16 October 2016
Revised Date: 10 December 2016
Accepted Date: 18 December 2016

Please cite this article as: C.V. Garcia, G.L. Parrilha, B.L. Rodrigues, P.J.S. Barbeira, R.M. Clarke, T. Storr, H. Beraldo, Cobalt(III) complexes with 2-acetylpyridine-derived Schiff bases: studies investigating ligand release upon reduction, *Polyhedron* (2016), doi: <http://dx.doi.org/10.1016/j.poly.2016.12.024>

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.



1 **Cobalt(III) complexes with 2-acetylpyridine-derived Schiff bases: studies investigating**
2 **ligand release upon reduction**

3

4 Camila V. Garcia^a, Gabrieli L. Parrilha^a, Bernardo L. Rodrigues^a, Paulo J. S. Barbeira^a, Ryan
5 M. Clarke^b, Tim Storr^b, Heloisa Beraldo^{a*}

6 ^aDepartamento de Química, Universidade Federal de Minas Gerais, 31270-901, Belo Horizonte, MG, Brazil

7 ^bDepartment of Chemistry, Simon Fraser University, V5A-1S6 Burnaby, BC, Canada

8

9 **Abstract**

10 Cobalt(III) complexes [Co(L1)₂]Cl·CH₃OH·0.5H₂O (**1**), [Co(L2)₂]Cl·1.5H₂O (**2**),
11 [Co(L3)₂]Cl·2H₂O (**3**) and [Co(L4)₂]Cl·3.5H₂O (**4**) were obtained with 2-acetylpyridine-*N*(4)-
12 phenylthiosemicarbazone (HL1), 2-acetylpyridine-*N*(4)-*para*-chlorophenylthiosemicarbazone
13 (HL2), 2-acetylpyridine-phenylhydrazone (HL3) and 2-acetylpyridine-*para*-
14 chlorophenylhydrazone (HL4). The complexes were characterized by means of
15 microanalyses, molar conductivities and their infrared and ¹H and ¹³C NMR spectra.
16 Electrochemical studies showed that the Co^{III}/Co^{II} reduction potential of complexes (**3**) and
17 (**4**) but not of complexes (**1**) and (**2**) are suitable for the compounds to be reduced by cellular
18 reductants. Reactivity assays showed that complex (**3**) undergoes reduction by sodium
19 dithionite with subsequent ligand release. The results suggested that coordination of 2-
20 acetylpyridine-derived hydrazones with cytotoxic activity to cobalt(III) results in compounds
21 which are able to release the bioactive ligand upon reduction. In addition, the cobalt(III)
22 complexes under study interacted with human serum albumin (HSA), indicating that they
23 could be transported by this protein.

24

25

26 **Keywords:** hydrazones; thiosemicarbazones; cobalt(III) complexes; reduction; ligand release

Download English Version:

<https://daneshyari.com/en/article/5154220>

Download Persian Version:

<https://daneshyari.com/article/5154220>

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