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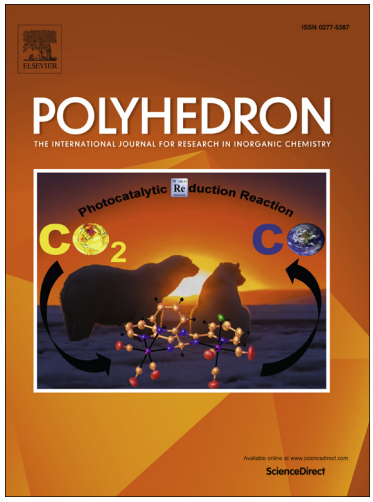

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PII: S0277-5387(16)30624-6
DOI: http://dx.doi.org/10.1016/j.poly.2016.11.033
Reference: POLY 12341

To appear in: *Polyhedron*

Received Date: 3 October 2016
Revised Date: 9 November 2016
Accepted Date: 13 November 2016

Please cite this article as: A. Ambili Aravindakshan, B. Joseph, U.L. Kala, M.R. Prathapachandra Kurup, Dioxidomolybdenum(VI) complexes of tridentate ONO donor aroylhydrazones: Syntheses, spectral and structural characterization, *Polyhedron* (2016), doi: http://dx.doi.org/10.1016/j.poly.2016.11.033

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Dioxidomolybdenum(VI) complexes of tridentate ONO donor aroylhydrazones: Syntheses, spectral and structural characterization

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Abstract

Four dioxidomolybdenum(VI) complexes, $[MoO_2(L^1)(H_2O)]$ (**1**), $[MoO_2(L^1)(H_2O)]\cdot(4,4'\text{-bipy})$ (**2**), $[(MoO_2(L^1))_2(4,4'\text{-bipy})]\cdot 2H_2O$ (**3**) and $[MoO_2(L^2)(DMF)]$ (**4**), of two tridentate ONO donor aroylhydrazones, H_2L^1 and H_2L^2 (where H_2L^1 = 3-methoxy-2-hydroxybenzaldehyde-2-furoic acid hydrazone and H_2L^2 = 4-benzyloxy-2-hydroxybenzaldehyde-4-nitrobenzoic hydrazone), have been synthesized and characterized by partial elemental analyses, molar conductivity measurements, FT-IR and electronic spectral studies. A distorted octahedral geometry was established for all the complexes using single crystal XRD studies. In all the complexes, the aroylhydrazone coordinates to the MoO_2^{2+} core through the phenolate oxygen, azomethine nitrogen and iminolate oxygen atoms, furnishing a vacant coordination site that can be utilized for binding of substrates like solvents or heterocyclic bases. The monomeric complexes $[MoO_2(L^1)(H_2O)]$ (**1**) and $[MoO_2(L^2)(DMF)]$ (**4**) were formed by the stoichiometric reaction of $MoO_2(acac)_2$ with the respective aroylhydrazones. The reaction of H_2L^1 with $MoO_2(acac)_2$ and 4,4′-bipyridine in an equimolar ratio yielded the 4,4′-bipyridine adduct $[MoO_2(L^1)(H_2O)]\cdot(4,4'\text{-bipy})$ (**2**), whereas the binuclear complex $[(MoO_2(L^1))_2(4,4'\text{-bipy})]\cdot 2H_2O$ (**3**) was formed, in which 4,4′-bipyridine acts as a conjugated bidentate

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