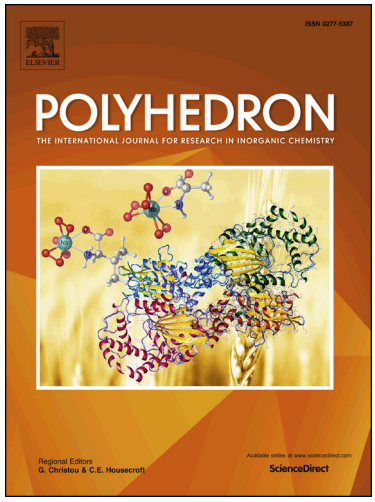

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Mannar R. Maurya, Lata Rana, Fernando Avecilla

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Phloroglucinol and resorcinol based mononuclear dioxidomolybdenum(VI) complexes: Synthesis, structural characterization and catalytic epoxidation

Mannar R. Maurya [a,*], Lata Rana [a], Fernando Avecilla [b]

[a]*Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee 247667, India. E-mail: rkmanfcy@iitr.ac.in; Fax: +91 1332 273560; Tel: +91 1332 285327*

[b]*Departamento de Química Fundamental, Universidade da Coruña, Campus de A Zapateira, 15071 A Coruña, Spain*

Keywords: Tridentate ONO donor Schiff base ligands; Dioxidomolybdeum (VI) complexes; NMR spectroscopy; Catalytic epoxidation of Alkenes.

Abstract

Five mononuclear dioxidomolybdenum (VI) complexes of phloroglucinol and resorcinol derived ligands are reported. Two types of ligands are accessible through condensation of 2,4,6-trisacetyl-1,3,5-trihydroxybenzene (2,4,6-triacetylphloroglucinol) and benzoylhydrazide (H_2ptk-bhz, **I**) or 2-furoylhydrazide (H_2ptk-fah, **II**) and condensation of 4,6-diactylresorcinol and benzoylhydrazide (H_2dar-bhz, **III**), 2-furoylhydrazide (H_2dar-fah, **IV**) or nicotinoylhydrazide (H_2dar-nah, **V**). Mononuclear dioxidomolybdenum (VI) complexes of these ligands have been prepared. Isolated complexes, [$Mo^{VI}O_2$(ptk-bhz)(MeOH)] (**1**), [$Mo^{VI}O_2$(ptk-fah)(MeOH)] (**2**), [$Mo^{VI}O_2$(dar-bhz)(MeOH)] (**3**), [$Mo^{VI}O_2$(dar-fah)(MeOH)] (**4**) and [$Mo^{VI}O_2$(dar-nah)(MeOH)] (**5**) have been characterized by spectroscopic techniques like FT-IR, UV-Vis, ^{1}H NMR and single crystal X-ray diffraction (for complexes **1**, **3** and **5**) analysis. These complexes have been tested for the epoxidation of alkenes in the presence of 30% H_2O_2 and $NaHCO_3$ where latter one acts as an additive. Under optimized reaction conditions, a good conversion of alkenes along with their selective epoxidation and high turnover number was achieved.