Synthesis and characterization of homobimetallic molybdenum(VI) complexes of a dihydrazone as efficient catalysts for the synthesis of hexahydroxyquinolines *via* multicomponent Hantzsch reaction

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Abstract

Four homobimetallic molybdenum(VI) complexes $[(MoO_2)_2L(D)_2]$ (**1-4**) (where D= methanol (**1**), dimethylsufoxide (**2**), imidazole (**3**) and pyridine (**4**)) derived from a multidentate hydrazone ligand, 1,4-bis(3-ethoxy-2-hydroxybenzaldehyde-carbohydrazonato)butane, H_4L were synthesized by the reaction of the same with bis(acetylacetonato)dioxidomolybdenum(VI) in 1:2 ratio in presence of methanol, DMSO, imidazole and pyridine. The dihydrazone and the complexes synthesized are characterized by elemental analysis, various spectroscopic techniques (like FT-IR, UV-Vis and ^{1}H-NMR) and TGA analysis. The structure of complex **2** was elucidated by single crystFal X-ray diffraction analysis. The complexes **1**-**4** are suggested to have six-coordinate octahedral stereochemistry around molybdenum(VI) centres. Moreover, the molybdenum complexes have been successfully utilized as catalysts for the synthesis of hexahydroxyquinolones *via* multicomponent Hantzsch reaction. Generally, decent conversions have been obtained.

Keywords: Homobimetallic complex, Hydrazone, X-ray diffraction analysis, Hexahydroxyquinolone, Hantzsch reaction

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