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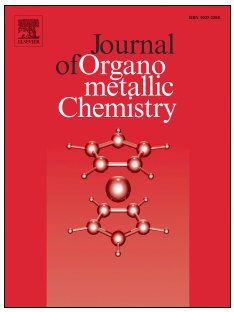

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Performance of chiral tetracarbonylmolybdenum pyrindanyl amine complexes in catalytic olefin epoxidation

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ABSTRACT

Tetracarbonylmolybdenum(0) complexes of the type *cis*-[Mo(CO)$_4$(L)] containing chiral 7-(1-pyrindanyl) amine ligands were prepared and found to be effective precatalysts for the epoxidation of achiral (*cis*-cyclooctene) and prochiral (DL-limonene and *trans*-β-methylstyrene) olefins at 55 ºC. Epoxides were the only products formed from *cis*-cyclooctene (100% yield) and *trans*-β-methylstyrene (100% selectivity at 82-85% conversion), and the main products formed from DL-limonene (80-82% 1,2-epoxide selectivity at 85% conversion). Characterization of recovered catalysts revealed that the precatalysts were transformed *in situ* to stable polyoxomolybdate salts containing the β-octamolybdate anion [β-Mo_8O_{26}]$^{4-}$, which was responsible for the catalytic reaction.

Keywords: Molybdenum; Tetracarbonyl complexes; Olefin epoxidation; Chiral ligands; 1-pyrindane derivatives; Oxidative decarbonylation