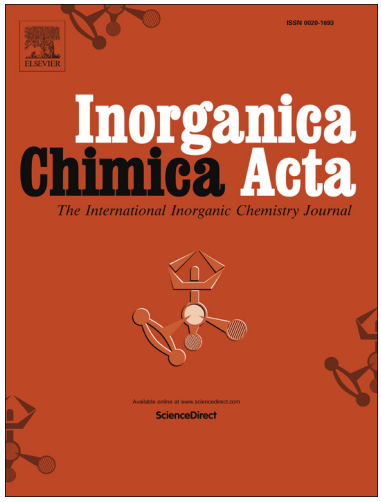

Research paper

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Article

Cyano bridged heterometallic Mn(II)-Fe(III) aggregates: synthesis, structure and magnetic properties

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Abstract: Syntheses, structures and magnetic properties of two new cyano bridged heterometallic complexes, $[\{Mn(L)(H_2O)\}_2\{Mn(L)\}\{Fe(CN)_6\}_2].9H_2O$ (**1**) and $[Mn(L)(H_2O)_2]_2[\{Mn(L)(H_2O)\}_2\{Fe(CN)_6\}][\{Mn(L)\}_2\{Fe(CN)_6\}_3].13H_2O$ (**2**) [L = 2,6-diacetylpyridine bis(phenylhydrazone)] are reported. Although the pentanuclear cyano bridged structural morphology observed in **1** is prevalent, complex **2** represents a hitherto unknown cyano bridged decanuclear species where pentanuclear $\{Mn_2Fe_3\}$, trinuclear $\{Mn_2Fe\}$ and mononuclear complex ions are present. Investigation of magnetic properties reveal that both the complexes **1** & **2** have irregular spin state structures and antiferromagnetic interactions are operative between the adjacent spin carriers.

Keywords: Cyano bridge; heterometallic; magnetic properties