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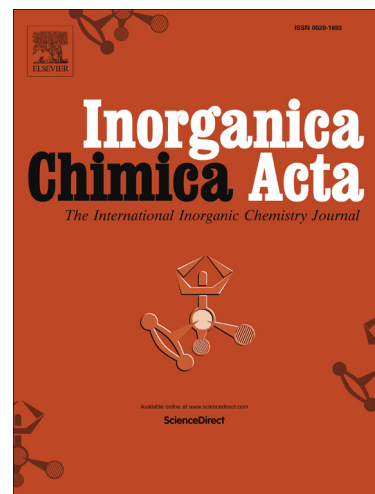
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Article

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, $[\{\text{Mn}(\text{L})(\text{H}_2\text{O})\}_2\{\text{Mn}(\text{L})\}\{\text{Fe}(\text{CN})_6\}_2]\cdot 9\text{H}_2\text{O}$ (**1**) and $[\text{Mn}(\text{L})(\text{H}_2\text{O})_2]_2[\{\text{Mn}(\text{L})(\text{H}_2\text{O})\}_2\{\text{Fe}(\text{CN})_6\}][\{\text{Mn}(\text{L})\}_2\{\text{Fe}(\text{CN})_6\}_3]\cdot 13\text{H}_2\text{O}$ (**2**) [L = 2,6-diacetylpyridine bis(phenylhydrazine)] 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 $\{\text{Mn}_2\text{Fe}_3\}$, trinuclear $\{\text{Mn}_2\text{Fe}\}$ 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

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