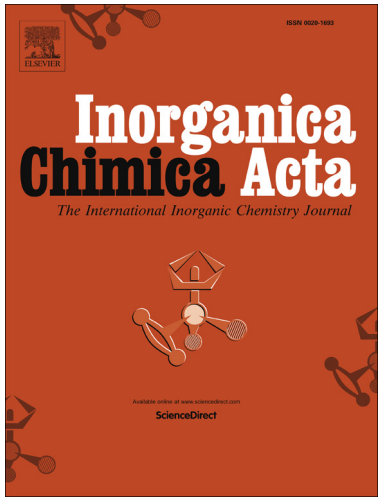

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Abstract

1D manganese carboxylates $[Mn(mfa)_2(H_2O)]_n$ (**1**) and $\{[Mn_3(mfp)_6(CH_3OH)_2]\cdot 2CH_3OH\}_n$ (**2**) (Hmfa = 2-(9-methyl-9H-fluoren-9-yl)acetic acid, Hmfp = 3-(9-methyl-9H-fluoren-9-yl)propanoic acid) were synthesized by reactions of $Mn(ClO_4)_2\cdot 6H_2O$ and the corresponding carboxylate. In compound **1**, the Mn(II) ions are bridged by two carboxylate groups in μ_2-η^1,η^1 and μ_2-η^2,η^1 bridging modes into one uniform chain. Compound **2** has a distinctive chainlike structure contrast to compound **1**, that are constructed alternatively from mononuclear Mn(II) and dinuclear $[Mn_2(mfp)_2(CH_3OH)_2]$ units by two μ_2-η^1,η^1-carboxylates and one O atom from the third carboxylate ligand. Magnetic susceptibility measurements revealed a weak antiferromagnetic coupling for both complexes. The magnetic data were fitted by using uniform chain and -AF1-AF1-AF2- antiferromagnetic chain models for **1** and **2**, respectively.

Keywords: Manganese; Fluorenylcarboxylate; Magnetic property

Introduction

Manganese/carboxylates have been well studied for their potential applications in the fields of biomimic chemistry, catalysis and magnetism [1]. Monocarboxylic acids RCO_2H (R = alkyl, aryl) are one class of ligands that are always employed to construct manganese-based complexes [2]. For example, clusters $[Mn_{12}O_{16}(O_2CR)_{16}(H_2O)_4]$ [3], 3D $[Mn_3(HCOO)_6]$ [4] and $[Mn(PhCO_2)_2]_n$ [5] were constructed with the corresponding ligands. The structural diversity stem from the type of carboxylic acid and reaction conditions [6]. The magnetic property study indicates that clusters show single-molecule magnet behavior, while $[Mn_3(HCOO)_6]$ exhibits long-range magnetic ordering