**MS30-P33** Structural diversities of manganese(II) complexes based on benzenedicarboxylate ions and 2,2′-dipyridylamine

Jelena R. Rogan†, Lidija D. Radovanović‡, Dejan D. Poleti†, Marko V. Rodić†

1. Faculty of Technology and Metallurgy, University of Belgrade, Karnezićevo 4, 11000 Belgrade, Serbia
2. Innovation Centre of Faculty of Technology and Metallurgy, University of Belgrade, Karnezićevo 4, 11000 Belgrade, Serbia
3. Faculty of Sciences, University of Novi Sad, Trg Dostoje Obradovića 3, 21000 Novi Sad, Serbia

email: rogan@tmf.bg.ac.rs

In crystal engineering, the anions of benzenedicarboxylic acids (BDC) are commonly used building blocks as they offer a broad array of possible coordination modes to a metal centers. The coordination capacity of BDCs is ranging from mono- to octadentate, resulting in the formation of fascinating metal-organic structures of various dimensionality and potential applications in many fields [1].

In our continual synthetic strategy of ternary transition metal complexes with BDCs [2], a new ongoing challenge is design of Mn(II) complexes. Two novel compounds, [Mn(dipya)(pht)(H2O)]2, 1, and [Mn(dipya)(H2O)2][tpht], 2, with dianion of phthalic (pht) and terephthalic (tpht) acid and 2,2′-dipyridylamine (dipya) were hydrothermally prepared and characterized by single crystal X-ray diffraction, TG/DSC analysis and FT-IR spectroscopy.

1 crystallize in triclinic system, P-1 (a=8.361(2), b=9.126(2), c=11.855(2) Å, α=69.31(3), β=77.47(3), γ=79.89(3) °, R1[I>2σ(I)]=0.0458). 2 crystallize in monoclinic system, P21/c (a=7.617(2), b=23.827(5), c=11.087(2) Å, β=102.31(3) °, R1[I>2σ(I)]=0.028).

The coordination numbers of Mn(II) in 1 and 2 are 7 and 6, respectively. The major difference between 1 and 2 is in BDC coordination: the pht in 1 is coordinated as a bridging ligand with bis-chelate COO groups, while the tpht is only a counter ion in 2. In both structures there are strong non-covalent interactions. In the packing arrangement of 1, binuclear units are connected by intermolecular hydrogen bonds, forming layers parallel to the ac-plane and strengthened by face-to-face π-π interactions (at 3.689 Å). The discrete complex units of 2 are assembled in hydrophobic and hydrophilic pseudo-layers. The hydrogen bonds exist within the pseudo-layers and between them. Finally, 3D architecture is achieved through the π-π stacking interactions (at 3.896 Å) between dipya ligands from the adjacent layers.


**Keywords:** crystal structure, manganese(II) complex, phthalate ion, terephthalate ion, 2,2′-dipyridylamine