Crystal Structures and Stability of Two Bipyridyl Complexes of Metal Chloroacetates

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The complexes $Mn(Cl_3CCOO)_2(4,4'\text{-bpy})$ (**1**) and $[Cu_2(ClCH_2COO)(2,2'\text{-bpy})_2(OH)(H_2O)](NO_3)_2$ (**2**) (bpy = bipyridine) were generated under mild reaction conditions and characterized by IR spectra, thermogravimetric analysis (TGA), X-ray powder diffraction (XRD), and single crystal X-ray diffraction. Compound **1** exhibits a two-dimensional network with octahedrally coordinated Mn(II) atoms linked by 4,4′-bpy ligands and Cl_3COO^- ligands. Compound **2** features a supramolecular structure of binuclear complexes, with edge-sharing five-coordinated square-pyramidal units bridged by the $ClCH_2COO^-$ ligand, an OH^- group and a water molecule. Complex **1** crystallizes in the orthorhombic space group *Pbcn* with cell parameters: a = 16.5390(17), b = 11.6396(17), c = 9.9181(12) Å, V = 1909.3(4) Å^3, Z = 4, $wR2$ = 0.1576. Complex **2** crystallizes in the triclinic space group $P\bar{1}$ with cell parameters: a = 7.6190(15), b = 11.151(2), c = 16.640(3) Å, α = 73.13(3), β = 80.89(3), γ = 74.51(3)°, V = 1298.73(4) Å^3, Z = 2, $wR2$ = 0.1265.

Key words: Crystal Structures, Metal Chloroacetate Complexes, Thermal Behavior