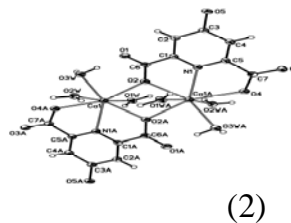
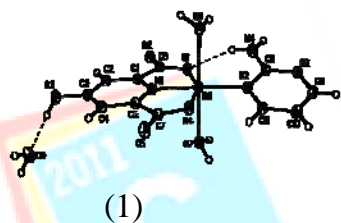


**Two novel mononuclear and binuclear complexes of Ni(II) and Ca(II) atoms containing 4-hydroxy-pyridine-2,6-dicarboxylic acid, 2-aminopyrimidine, and 2,4,6-triamino-1,3,5-triazine ligands: Synthesis, X-ray crystal structure and thermal property**

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The reactions of the 4-hydroxy-pyridine-2,6-dicarboxylic acid (for short H<sub>3</sub>hypycd), 2-aminopyrimidine (for short 2-apym), and 2,4,6-triamino-1,3,5-triazine (for short tata) with nickel(II) chloride and calcium(II) nitrate in distilled water medium produce block green crystals of [Ni(hypycdH)(2-apym)(H<sub>2</sub>O)]<sub>2</sub>·H<sub>2</sub>O (**1**) and block colourless crystals of (tataH)<sub>2</sub>(tata)<sub>2</sub>[Ca<sub>2</sub>(hypycd)<sub>2</sub>(H<sub>2</sub>O)<sub>6</sub>].2H<sub>2</sub>O (**2**), respectively. Both crystal structures were thoroughly characterized by CHN elemental analyses, FTIR spectroscopy, TGA, and SXRD methods. **1** and **2** crystallize in the space group  $P\bar{1}$  of the triclinic systems, where the final *R* values for **1** and **2** are 0.0222 for 3876 reflections collected and 0.0550 for 4113 reflections collected, respectively. The unit cell dimensions for **1** are: *a* = 8.5146(3) Å, *b* = 9.2662(4) Å, *c* = 10.1009(4) Å and  $\alpha$  = 79.304(1)°,  $\beta$  = 65.206(1)°,  $\gamma$  = 84.064(1)° and for **2** are *a* = 8.6444(7) Å, *b* = 9.5486(8) Å, *c* = 14.4025(12) Å and  $\alpha$  = 105.296(2)°,  $\beta$  = 95.745(2)°,  $\gamma$  = 108.241(2)°. The Ni(II) atom is coordinated by four oxygen and two nitrogen atoms of the (hypycd)<sup>2-</sup>, (2-apym) and H<sub>2</sub>O ligands and each Ca(II) atom is coordinated by six oxygen and one nitrogen atoms of the (hypycd)<sup>3-</sup> and H<sub>2</sub>O ligands. The coordination geometry around Ni(II) and Ca(II) centres are distorted octahedron and distorted pentagonal bipyramid, respectively.



**Key words:** Ca(II) binuclear complex; 4-Hydroxy-pyridine-2,6-dicarboxylic acid; 2-Aminopyrimidine; X-ray Crystal structure; TGA.

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