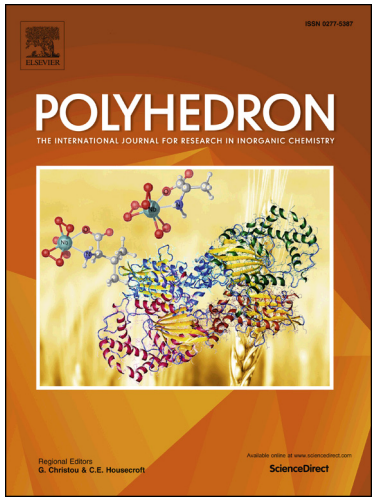

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Synthesis, Characterization and Properties of nicotinamide and isonicotinamide complexes with diverse dicarboxylic acids

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Abstract

Five nicotinamide and isonicotinamide complexes with diverse dicarboxylic acids, $\{[Cu(\mu_2\text{-ida})(na)]\cdot H_2O\}_n$ (**1**), $[Cu(oda)(H_2O)_2(ina)]$ (**2**), $[Zn(oda)(H_2O)_2(na)]$ (**3**), $[Zn(oda)(H_2O)_2(ina)]\cdot H_2O$ (**4**) and $[Zn(tda)(H_2O)_2(ina)]\cdot 2H_2O$ (**5**), [ida: 2,2′-iminodiacetate, $NH(CH_2COOH)_2$, oda: 2,2′-oxydiacetate, $O(CH_2COOH)_2$, tda: 2,2′-thiodiacetate, $S(CH_2COOH)_2$, na: nicotinamide and ina = isonicotinamide] were synthesized and characterized by elemental analysis, IR spectroscopy and single crystal X–ray diffraction. In all complexes, ina and na ligands connected to metal centers from pyridyl nitrogen atom. In complex **1**, ida ligand acts as a bridging ligand to form 1D chain while in the other complexes, oda and tda act as chelating ligands. In all complexes, three dimensional (3D) supramolecular network are generated through the O–H···O and N–H···O hydrogen bonds. Moreover, thermal, photoluminescence and optical absorption properties were studied.

Keywords: Isonicotinamide; nicotinamide; iminodiacetate; oxydiacetate; thiodiacetate.

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1. Introduction