NOVEL Zn(II) BINUCLEAR AND Ni(II) 1D POLYMERIC COORDINATING COMPOUNDS BASED ON DIANILINEGLYOXIME AND DICARBOXYLIC ACIDS: SYNTHESIS AND STRUCTURE

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Abstract. Two coordination compounds $[Zn_2(DAnH_2)_2(1,3\text{-}bdc)_2(DMSO)_4]$ and $[Ni\ (DAnH_2)(1,4\text{-}bdc)(DMF)_2]_n$ were obtained based on dianilineglyoxime ($DAnH_2$), 1,3-benzenedicarboxylic acid ($1,3\text{-}bdcH_2$) and 1,4-benzenedicarboxylic acid ($1,4\text{-}bdcH_2$), where DMSO is dimethylsulphoxide and DMF is dimethylformamide. The molecular and crystalline structures were established by infrared spectroscopy (IR) and single crystal X-ray diffraction (XRD), and for (Zn(II) compound, additionally, by ^1H and ^{13}C NMR spectroscopy. The results show that the Zn(II) molecular complex is a binuclear compound and the Ni(II) is a 1D coordination polymer. In both compounds $DAnH_2$ ligand coordinates as neutral bidentate-chelate mode, but dianions $1,3\text{-}bdcH_2$ and $1,4\text{-}bdcH_2$ as bidentate bridge. The ligands are stabilized by intramolecular O-H···O hydrogen bonds, involving of the oxymic groups as proton donors and of the carboxylate anions as acceptors. The coordination polyhedra of the metal atoms in both compounds have octahedron environment.

Keywords: Dianilineglyoxime, nickel complex, zinc complex, 1,4-benzenedicarboxylic acid, 1D coordination polymer, X-ray crystallography.