

Poster Presentations

[MS25-P05] Structural study of Co(II) and Ni(II) center complexes with N-O chelating 3-aminopyrazine-2-carboxylate ligand

Sofiane Bouacida^{a,b*}, Rafika Bouchene^a, Ratiba Belhouas^b, Hocine Merazig^b

^aDépartement SM, Université LBM, Oum El Bouaghi, Alegria.

^bUnité de recherche CHEMS, Université Constantine, Algeria.

E-mail : Bouacida_sofiane@yahoo.fr

3-amino-2-pyrazinecarboxylate (APZC) has been extensively studied as excellent bridging ligand in the coordination chemistry research due to its N-O chelating ability [1-5]. Structural study of its divalent metal (M) ion complexes has shown that the structures of Co(II) and Ni(II) complexes consist of $ML_2(H_2O)_2$ monomer molecules (L= APZC) where M(II) is N,O-chelated by two 3-aminopyrazine-2-carboxylate anions and bonded to the O atoms of two aqua molecules. Based on single-crystal X-ray diffraction study, the metal center of each has a distorted octahedral geometry and water solvent molecules take place in Ni(II) complex structure. $[Co(C_5H_4N_3O_2)_2(H_2O)_2]$ complex crystallizes in C2/c monoclinic space group, the metal ion lies on a twofold rotation axis and the ligands adopt a *cis* configuration. The crystal setting is dominated by intermolecular O—H...O, O—H...N and N—H...O hydrogen bonding involving the aqua molecules and amino groups as donors and carboxylate O atoms, as well as the non-coordinating heterocyclic N atoms as acceptors, resulting in a three-dimensional network. A *trans* arrangement is shown in the $[Ni(C_5H_4N_3O_2)_2(H_2O)_2] \cdot 2H_2O$ compound with the aqua molecules occupying the axial sites. This second studied structure crystallizes in P2₁/c monoclinic space group and Ni(II) metal center ion is positioned on an inversion center. In the crystal packing, O—H...O, N—H...O and O—H...N hydrogen bonds involving the solvent water molecules, aqua and APZC ligands form a three-dimensional network.

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