22nd Iranian Inorganic Chemistry Conference,
23-25 August, 2023
University of Kurdistan

Synthesis and study of zinc (II) and copper (II) complexes with mixed deferiprone and lamotrigine pharmaceutical ligands

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In this work, zinc (II) and copper (II) complexes with a mixture of lamotrigine (L) and deferiprone (D) as pharmaceutical ligands with chemical formulas $[Zn_2D_2L_2(OH_2)_2].(NO_3)_2$ and $CuDL_2.NO_3$ were synthesized. The characteristics of these complexes were identified by infrared and ultraviolet-visible absorption spectroscopy techniques and their structure was determined by single-crystal X-ray crystallography. The results of X-ray crystallography show that in these complexes, lamotrigine is coordinated to the central atom as a mono dentate ligand through nitrogen atom. In the di-nucleic zinc complex, the deferiprone ligand binds to the zinc centers through two oxygen atoms by losing the proton of the hydroxyl group. One oxygen atom is coordinated to a zinc center and the other oxygen atom is coordinated as a bridge to both zinc atoms. Deferiprone is coordinated to the copper atom through oxygen atoms by losing the hydrogen atom of hydroxyl groups. The metal centers have near square pyramidal coordination geometry according to the geometrical parameter τ_5 [1-3].

Keywords: Lamotrigine, Deferiprone, Zinc complex, Copper complex, X-ray diffraction

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