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## SYNTHESIS OF 5-METHYL-1,2,4-TRIAZOLE-3-CARBOXYLIC ACID AND ITS COPPER (II) COMPLEX

*This article describes the method of synthesis of 5-methyl-1,2,4-triazole-3-carboxylic acid (H<sub>2</sub>L). Ligand was obtained by standard methodic. For protection of carboxylic group was used ethyl ester of 5-methyl-1,2,4-triazole-3-carboxylic acid. It was shown that the interaction of (H<sub>2</sub>L) with copper (II) nitrate formed complex [Cu(HL)<sub>2</sub>·2H<sub>2</sub>O]. The structure of the complex proved by X-ray analysis. The complex is mononuclear, coordination polyhedron – elongated octahedron. Coordination occurs through nitrogen atom of triazole ring (N3-Cu 1.9487 Å) and an oxygen atom (O1-Cu 2.0064 Å) of carboxyl group. The carboxyl group of the complex is in deprotonated state that compensates the positive charge of the central atom of copper. The result is stable five-membered metallacycle that are in the equatorial plane of the complex. In axial positions are coordinated water molecules. Complex has triclinic crystal system P-1 (2), the parameters of a cell: a=6.8428(11) Å b=7.099(2) Å c=7.2001(11) Å α=79.31(2)° β=83.252(14)° γ=64.08(2)° V=308.85(10) Å<sup>3</sup> Z=2. In the crystal molecules are linked by hydrogen bonds formed by proton H1 of triazole cycle and oxygen O2 by coordinated water molecules bond length of H1-O2 are 2.0707 Å.*

**Keywords:** Copper (II) complex, 1,2,4-triazole, mononuclear complex.