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The growing interest on the coordination compounds of copper with various N-donor ligands, comes mainly from their capability of combining characteristic structural flexibility, mimicking of protein active sites, easy of preparation and stabilization of both oxidation states of the metal usual in biological systems. Considerable interest in various N and O donor ligands especially Schiff bases and their transition metal complexes have also grown in the areas of chemistry and biology due to biological activities, such as antiviral, antitumor, antibacterial and antifungicidal properties[1-2].

In this study, a new azo-azomethine dye, (nx-ipaH) and its Cu (II) complex, [Cu (nx-ipa )₂] were synthesized and characterized by the analytical and spectroscopic methods such as elemental analyses, infrared, ¹H, ¹³C NMR and mass spectra. Single crystals suitable for X-ray diffraction studies were obtained for both the ligand and metal complex. In the structure of the ligand, there is an intramolecular phenol-imine hydrogen bond (O1...N1) with a distance of 2.580 (3) Å. There are also weaker intermolecular hydrogen bond type interactions CH-·O and CH·-N=N stabilising the structure. In the structure of the complex, the central metal atom is coordinated to two phenolate oxygen atoms and two imine nitrogen atoms of two azo-Schiff base molecules in a distorted square-planar geometry.

Figure 1. The structure of Cu (II) complex

Thermal properties of the prepared compounds were investigated by TGA. Electrochemical properties of the ligand and its copper (II) complexes were investigated in the 1x10⁻³-1x10⁻⁴ M DMF and CH₃CN solvents at different scan rates. The ligand and its copper (II) complex showed both reversible and irreversible processes.

REFERENCES