

## Synthesis, Spectroscopic Study and XRD of a Transition Metal Complex Derived from the Acyl-Hydrazone Schiff Bottom Ligand

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**Abstract :** Nowadays, low-schiff acyl-hydrazone ligands are highly sought after due to their wide applications in various fields of biology, coordination chemistry and catalysis. They are studied for their antioxidant, antibacterial and antiviral properties. The complexes of transition metals and the lanthanide they derive are well known for their magnetic, optical and catalytic properties. In this work, we present the synthesis of an acyl-hydrazone (H<sub>2</sub>L) Schiff base and its 3d transition complexes. The ligand (H<sub>2</sub>L) is characterized by IR, NMR (<sup>1</sup>H; <sup>13</sup>C) spectroscopy. The complexes are characterized by different physico-chemical techniques such as IR, UV-visible, conductivity, and measurement of magnetic susceptibility. The study of XRD allowed us to elucidate the crystalline structure of the manganese (Mn) complex. The asymmetric unit of the complex is composed of two molecules of the ligand, one manganese (II) ion and two coordinate chloride ions; the environment around Mn is described as a pentagonal base bipyramid. In the crystal lattice, the asymmetric unit is bound by hydrogen bonds.

**Keywords :** synthene, acyl-hydrazone, 3d transition metal complex, application

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