



Novel  $N_2O_2$  Schiff base derived from  
1,2-Hydrazinededicarboximidamide and its complexes  
with Cu(II), Co(II), Ni(II), Mn(II) and Cr(III):  
Synthesis and characterization

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#### ABSTRACT

The synthesis of a (1,2-Hydrazinededicarboximidamide) was identified in this paper and condensing it with 2-Hydroxybenzaldehyde to form tetradentate ligand (L). This ligand used to prepare five metal complexes as chloride salts  $[Cu_2(L)Cl_2] \cdot (1)$ ,  $[Co_2(L)Cl_2] \cdot (2)$ ,  $[Ni_2(L)Cl_2] \cdot (3)$ ,  $[Mn_2(L)Cl_2] \cdot (4)$  and  $[Cr_2(L)Cl_2] \cdot (5)$  in an ethanolic medium. Dimethyl formamide (DMF) prepared complexes solutions to applied it as electrolytes. The structures were confirmed by several spectroscopic and analytical techniques indicating that metal complexes are more likely to have tetrahedral-coordinated geometry. Thus, these structures indicated the ligand show similar actions as tetradentate linked to metal ion by nitrogen (azomethine) and the negative charge of oxygen atoms from hydroxyl in 2-Hydroxybenzaldehyde.

#### INTRODUCTION

Metal complexes of azomethine ligands have acquired more attention due to their easy synthesis, their atereo-electronic structures, and outstanding biological activities<sup>1</sup>, catalytic activities<sup>2,3</sup>. Synthesis and design of transition metal ion complexes get together. Continued interest of Schiff base ligands consideration of the possibility of earning multiple structures scientific research involving catalysis<sup>4</sup>, material science<sup>5</sup>, optic applications<sup>6</sup>, medical chemistry<sup>7</sup>. Synthetic ingenuity leading to variety in structural arrangement

in space considered as the gateway factors, which attending wide deal of benefit to azomethine ligands in coordination chemistry. Furthermore, their individual self-assembling behavior, result to the modeling of different supramolecular structural design, have assisted them to have the status of special ligand configuration<sup>8</sup>. Schiff bases are believed to be "privileged ligands" due to their easy synthesis by the reaction between aldehyde and primary amine. The Ligands of Schiff base are eligible to linked with several metal ions and to confirm them in many oxidation states<sup>9</sup>. Tetradentate Schiff bases with a  $(N_2O_2)$  donation atoms

