

**Synthesis ,Characterization and Theoretical Treatment Of Sandwich Schiff Base Complexes Derived from Urea and Thiourea with some Transition Metals and Study of its Biological Activity**

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**ABSTRACT**

*This research consists of the synthesis of some Schiff bases as ligands. The ligands are – L1, 1, 3 - Bis - (2-hydroxy-benzylidene) - thiourea and L2, 1, 3 – Bis - (2-hydroxy-benzylidene) – urea, ). These ligands are complexed with transition metal ions of  $Mn^{+2}$ ,  $Co^{+2}$ ,  $Ni^{+2}$ . The prepared transition metal complexes have been characterized by elemental analysis, IR, UV-VIS, and atomic absorption methods. The molar conductivity measurement and melting point of prepared complexes were also measured. From the results obtained by different techniques, it was found that the proposed structures of the prepared complexes have octahedral structure. A theoretical treatment of the formation of complexes was studied. This was done using the HYPERCHEM-6 program for the Molecular mechanics and Semi-empirical calculations. The free ligand and its complexes have been tested for their antibacterial activities against two types of human pathogenic bacteria -Staphylococcus aureus and Escherichia coli. The first groups are Gram positive while the second groups are Gram negative (from diffusion method). Finally, it was found that that compounds show different activity of inhibition on growth of the bacteria.*

**Keywords:** Sandwich Schiff bases, Synthesis, Characterization, Biological activity

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