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Ni^{II},Pd^{II} and Pt^{IV} complexes of Heterocyclic ligands derived from 1,3,4Thiadiazole and Pentaerythritol tetra bromide, Synthesis, characterization and biological Study

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Abstract : The synthesis was carried out of type ligands from 5-amino- 1,3,4-thiadiazole-2-thiolwith pentaerythritoltetrabromide and 1, 3, 4-Thiadiazole-2, 5-dithiol with pentaerythritoltetrabromide through the condensation reaction, since the CS_2 was reacted with thiosemicarbazied to form the main precursor1. The ligand was obtained by the addition to precursor1 to pentaerythritoltetrabromide in **4:1** ratio. While the other ligand obtained via the reaction of hydrazine hydrate with two equivalent of (CS_2) to form the precursor2, the pentaerythritoltetrabromide treated with precursor2 resulted ligand2. The prepared ligands were characterised by ^1H- ^{13}C NMR, FTIR, UV-Vis and GC spectroscopies, as well as the physical properties. The Ni^{+2}, Pd^{+2} and Pt^{+4} complexes of these ligands were prepared through the reaction one equivalent of ligand to two equivalent of metal ions. The binuclear complexes were obtained and characterised by FTIR and UV-Vis spectroscopies, conductivity, magnetic susceptibility and melting point were measured. The biological activity of the prepared ligands and their complexes carried out with *staphylococcus aureus and E-coli* bacteria. The results showed the(15ppm) concentration of Pt^{+4} and Ni^{+2} of L^2 are the best one of them. From the spectral studies the suggested geometry of complexes as octahedral geometry for Ni^{+2} and Pt^{+4} ions, while square planer of Pd^{+2} ion.

Keywords : Thiadiazole derivatives, biological activity, Nickel Palladium Platinum Complexes.

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