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SYNTHESIS OF NEW SCHIFF BASE OF CIPROFLOXACIN DERIVATIVE WITH ITS CU(II), AG(I) AND PT(IV) COMPLEXES AND EVALUATION OF ANTIBACTERIAL ACTIVITY

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ABSTRACT : Synthesis of new Schiff base ligand (L') from previous prepared ligand (L) with 2-amino pyridine in mole ratio 1:1. The metal complexes were synthesized by the reaction of $CuCl_2.2H_2O$, $AgNO_3$ and k_2PtCl_6 with Ligand (L') in mole ratio 2:1 (L':M). The characterization of all synthesized compounds carried out by spectral methods such as infrared (FT-IR) , ultra violet and visible radiation (UV-Vis), proton nuclear magnetic resonance (^{1}H-NMR) , thermal analyses (TG and DTG) and flame atomic absorption (AAS). Also, melting point (m.p.) measurement , micro elemental analysis (CHN) , magnetic susceptibility measurement and determination of chloride. The suggested geometries of complexes were square planar of copper complex , tetrahedral of silver complex and octahedral of platinum complex .All complexes were electrolyte and only copper complex were paramagnetic while the silver and platinum complexes were diamagnetic .All synthesized compounds were evaluated as antibacterial agents against (*Pseudomonas auroginosa* (G-), *E. coli* (G-), *Bacillus* (G+) and *Staphylococcus aurus* (G+)) for all synthesized compounds.

Key words : Schiff base, 2-amino pyridine, ciprofloxacin.

INTRODUCTION

The quinolone antibiotics refers to a group of synthetic antibiotics with bactericidal effects, excellent bioavailability and good oral absorption (Hooper, 1998; Appelbaum and Hunter, 2000). Quinolones are bactericidal agents that inhibition the replication and transcription of bacterial DNA, causing rapid cell death (Cozzarelli, 1980; Mitscher, 2005). Also quinolone has been recognized as an important source of anticancer drugs, they showed dissimilar effects on cancer biological functions, such as growth inhibition associated with cell cycle arrest, apoptosis, inhibition of angiogenesis, arrest of cell migration and modulation of nuclear receptor responsiveness (Crousse *et al,* 2000).

Ciprofloxacin is1-cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-7-(1-piperazinyl)-3-quinolinecarboxylic acid (Lok and McMahon, 2009). It is an antibiotic that belongs to the family of the fluoroquinolones and relatively nontoxic, with broad spectrum activity against Gram negative aerobic bacilli and against Gram positive bacteria (Sipsas *et al*, 2007).

2-Amino pyridine is organic compound with the formula $H_2NC_5H_4N$.It is a colorless solid that is used in the production of the drugs piroxicam, sulfapyridine, tenoxicam, tripelennamine (Nagashree *et al*, 2012). 2-Amino pyridine has antibacterial activity against Gram positive bacteria (*Bacillus* and *Staphylococcus aurous*) and Gram-negative bacteria (*Xanthomonas campestris* and *Escherichia coli*), antifungal activity against *Candida albicans* (Nagashree *et al,* 2012). Also, 2-Aminopyridine has the anticancer activity against the colon cancer cell lines HT-29 and Caco-2, whilst not showing significant toxicity against white blood cells (Dahan *et al,* 2011).

In the present work, we are synthesis the Schiff base ligand from anew derivative of Ciprofloxacin (our previous work will be publishing soon) with 2-Aminopyridine to improve the biological activity .As well as we are synthesis the metal complexes of this new Schiff base with Cu (II), Ag (I) and Pt(IV) metal ions. Characterization of all synthesized compounds by physicochemical and spectral analysis and evaluation of their biological activity.

MATERIALS AND METHODS

The chemical and apparatus : All chemicals were as received without further purification.

Micro elemental analyses (CHN) were recorded by CHN Elemental Analyzer EuroEA 3000/Italy. The melting