

## SYNTHESIS AND ANTI-INFLAMMATORY ACTIVITY STUDY OF SCHIFF BASES COMPLEXES

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(Received 27 January 2020, Revised 11 June 2020, Accepted 22 June 2020)

**ABSTRACT :** Schiff bases recently has many activities, they take interesting from many researchers. Two new Schiff bases were synthesized from 3-Phenyl-propenal (cinnamaldehyde) with amino acids (Tryptophan or Histidine) as ligands. Complexes synthesized from reaction of ligand with metal ion, copper sulphate were used for complexes preparation. The synthesized compounds identify by FT-IR and <sup>1</sup>HNMR spectra. Inflammation was induced by injection of fresh hen egg albumin in mice paw. Anti-inflammatory activity was estimated by measured thickness of mice paw, the complex that contain tryptophan show activity against inflammation compare with aspirin, which is used as standard drug. The activity may be attributed to tryptophan ring in the complex.

**Key words :** Anti-inflammatory, Schiff bases, tryptophan, histidine, complexes.

### INTRODUCTION

Schiff bases are compounds containing azomethine group (-HC=N-). Hugo Schiff described that "They are condensation products of ketones or aldehydes with primary amines" in 1864 (Xavire and Srividhya, 2014). They have recently received considerable observation according to their good performance in coordination chemistry, unique anti-bacterial, anti-cancer and other physical activities (Cozzi, 2004). Schiff base complexes gained from amino acids are discovery applications in the understanding of many biochemical reactions. An amino acid is a kind of important biological substrate, which contains several N and O atoms. Cancerous cells have a much greater demand for amino acids than normal cells. Hence, amino acids Schiff bases may deliver an anti-cancer base to cancerous cells, thereby increasing the selectivity of anti-cancer cells (Antony *et al*, 2016). L-Tryptophan (Trp) is an essential amino acid, which is required for the biosynthesis of proteins. Also, it has an important role in nitrogen balance and the maintenance of muscle mass for body weight in humans (Zhang *et al*, 2009). In biochemical system histidine found in complexes coordinate with metals ions, that is a main biochemical character in many proteins.

Histidine found in many proteins by structural determination studies in x-ray of metalloproteins like

carbonic anhydrase, carboxypeptidase, plastocyanin, or azurin among others have demonstrated. Moreover, in zinc metabolism the binding of histidine with zinc moiety in serum is necessary (Henkin, 1974).

Organic chemistry used Schiff bases widely, a large number of Schiff bases and their complexes were studied for their interesting and important properties. Schiff bases are compounds containing imine group (C=N) possessing a broad spectrum of biological activity (Al-Zoubi, 2013). The C=N bond is involved in several biological functions allowing the Schiff bases to behave, for illustration, as antimicrobial, anti-inflammatory, antitumor, or antiviral drugs (Aslam *et al*, 2012).

Inorganic elements play a central role in biochemical and biological medical processes, many organic compounds used in medicine do not only for the organic mode of action, some are activated or bio-transformed by metal ions metabolism. Incorporation of Schiff bases and metals in form of complexes showed some degrees of antibacterial and anti-inflammatory activity (Gupta *et al*, 1998; Yousif *et al*, 2018). The potential of these ligand-metal complexes as broad-spectrum antimicrobial agents, in-vitro will be verified a continuation of our researches in the field of bioorganic chemistry (Osowole *et al*, 2012a,b; Osowole *et al*, 2015). Schiff base derivatives complexation with several metals ions, showed capability