

## SYNTHESIS OF COMPLEX OF CU (II) WITH CINNAMALDEHYDE & 4-METHYL ANILINE SCHIFF BASE

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### ABSTRACT

Schiff bases and their metal complex have been widely studied. For used as antibacterial agents, antifungal agent, antitumor drugs, catalyst, and in coordination chemistry. Metal complex of Cu ions with Schiff base ligand (E)-4-methyl - N (E)-3- phenylallylidene aniline derived from condensation of cinnamic aldehyde with 4-methyl toluidine was prepared. The Schiff base ligand and metal complex were isolated from the reaction in the solid form and characterized by solubility and IR. Schiff base metal complex and their applications showed for the understanding of this type of compound and especially dedicated to the copper complexes. 1:1 (metal : ligand ) ratio was suggested for formation of metal complex.

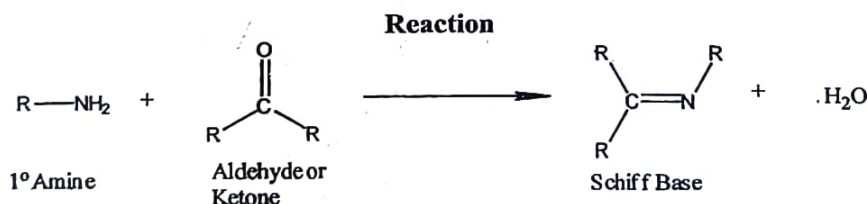
In this study, new Schiff base complex of Copper have been prepared by the condensation reaction of  $\text{CuCl}_2$  and newly produced Schiff based. The complex have been characterized by IR spectroscopy technique and solubility test. The synthesized complexes have very poor solubility in water and carbon tetrachloride and completely soluble in DMSO (Dimethyl sulphoxide) and benzene.

**Keywords:** Schiff base, Metal complex of Schiff base, IR Spectroscopy, Cinnamic aldehyde, 4- methyl aniline

### Introduction

Schiff bases derived from substituted aromatic aldehyde and 4-substituted aniline and their Cu (II) complex have been synthesized and characterized by their solubility, IR and NMR. Sorenson observed complexes of some anti inflammatory and non-anti inflammatory ligand. [1] in recent years, there has been interest in the chemistry of transition metal complex of Schiff bases, because they are becoming increasingly important as biochemical, analytical and antimicrobial reagents. Schiff bases derived from a large

number of carbonyl compounds and amines have been used. [2] In 1884, German chemist Hugo Schiff developed a new class of organic compound. This group of compounds, imines or azomethine, which is commonly known as Schiff bases in his honor, Schiff bases and their metal complex have been widely studied. For used as antibacterial agents, antifungal agent, antitumor drugs, catalyst, and in coordination chemistry. [3] Schiff base is usually form by condensation of an aldehyde or ketone with a primary amine or aniline as shown in the following reaction:



Amino acid based Schiff bases are very effective metal chelators and their metal complexes are models for a number of important biological system. [4] Generally Schiff bases are insoluble in water, because they are weak bases and are readily hydrolyzed by dilute mineral acids, but not by aqueous alkalis. [5] The aliphatic Schiff base is unstable, which can hydrolyzed to carbonyl

compound and amine in acid condition but the aromatic Schiff base compound is more stable for its aromatic ring can form big  $\pi$ - bond with imines groups. [6] Recently, physical properties, such as thermal properties of Schiff base compounds in the crystalline state have been studied. [7] Schiff bases which are easily form stable complexes with most transition metal ion, since it has been recognized that