

# Synthesis ,characterization and biological study for some complexes based on Co(II) and Fe(III) with Schiff base ligands derived from(2-hydroxy-1-naphthaldehyde)

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## Abstract

Two new Schiff base ligands ( $L_1$ ,  $L_2$ ) have been prepared from the reaction of 4-amino phenol and 4-amino antypyrine with 2-hydroxy-1-naphthaldehyde. These Schiff bases were synthesized and characterized by infrared ,ultra violet-visible ,  $^1\text{H}$ ,  $^{13}\text{C}$ NMR, and mass spectra in addition to elemental analysis (C.H.N). The Schiff bases have been used as ligands to prepare a number of metal complexes with Co(II), Fe(III). The prepared complexes were characterized by Infrared ,Ultra violet-visible spectra, elemental analysis (C.H.N), flame atomic absorption technique, as well as magnetic susceptibility and conductivity measurement. Antibacterial and antifungal activity of the ligands and their complexes were evaluated. They have significant antimicrobial activity.

## Introduction

Schiff bases have been known since 1864 when Hugo Schiff reported the condensation of primary amines with carbonyl compound<sup>(1)</sup>. Schiff bases have been widely used as ligands because of stability of their coordination compounds<sup>(2)</sup>. Schiff-base ligands are an interesting class of compounds which have played a key role in the development of coordination chemistry<sup>(3)</sup>. Schiff-bases and their complexes have a variety of applications in the biological systems and industry. Furthermore, Schiff-bases are very important materials for inorganic chemists as these are widely used in medicinal inorganic chemistry due to their diverse biological, pharmacological, antitumor activities and their excellent chelating ability<sup>(4)</sup>. Schiff-bases have gained much importance in catalysis, biomimetic modelling applications, designing molecular magnet molecules, and in liquid crystals<sup>(5)</sup>. Schiff-bases and their complexes have another applications as in organic synthesis and high technology areas like lasers, liquid crystalline displays, electro-optical devices ink-jet printers ,catalysts, fluorescence properties<sup>(6-8)</sup>. The aim of this study to prepare some Schiff base complexes and their identification by different physical and analytical methods then study of their biological activity.