Synthesis, characterization and biological activities

Of transition metal complexes of schiff base derived

From 2, 4 dimethylaniline and 2, 4dihydroxybenzaldehyde

BY

Syeda Omaima Younus

ID: 15004140014

SUPERVISOR

Dr. Khurram Shahzad Munawar

DEPARTMENT OF CHEMISTRY

SCHOOL OF SCIENCE (SSC)

UNIVERSITY OF MANAGEMENT AND TECHNOLOGY LAHORE, PAKISTAN

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Syeda Omaima Younus

ID: 15004140014

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UNIVERSITY OF MANAGEMENT AND TECHNOLOGY LAHORE, PAKISTAN

DECLARATION CERTIFICATE

I Syeda Omaima Younas D/O Syed Muhammad Younas hereby certify that my research titled, synthesis, characterization and biological activities of transition metal complexes of Schiff base derived from 2,4 dimethylaniline and 2,3dihydroxybenzaldehyde which I now submitted for assessment on the programme MS chemistry is entirely my own work. I have done reasonable care to ensure that written work is original and does not to the best of my knowledge breach any law of copy right, printed, published and submitted as research work in any university of Pakistan or abroad.

Dated:________________ ________________

Syeda Omaima Younas

RESEARCH COMPLETION CERTIFICATE

It is certify that the research work obtained in this thesis titled **“Synthesis, characterization and biological activities of transition metal complexes of Schiff base derived from 2,4 dimethylaniline and 2,3 dihydroxybenzaldehyde”** has been carried out and completed by **Syeda Omaima Younas, ID:15004140014**. The worth and quality of work of work obtained in this thesis is adequate for the reward of degree of MS.

____

Supervisor,

Dr. Khurram Shahzad Munawar

Assistant professor,

Department of chemistry,

UMT, Lahore

____

External Examiner

____

Dr Sammia Shahid

Chairperson,

Department of chemistry,

UMT, Lahore

____

Dr. M. Azhar Iqbal

Dean,

School of Sciences,

UMT, Lahore

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Syeda Omaima Younas

ABSTRACT

A novel Schiff base ligand (HL) has been synthesized by condensation of substituted aldehyde and amine in methanol. Transition metal complexes have been prepared by using ligand (HL) and these complexes have showed their suitable bonding with ligand molecule. The synthesized ligand and its complexes have been characterized by FT-IR, UV-Vis and conductance measurement. All complexes have tetrahedral geometry except CuL_2 which has octahedral geometry due to involvement of water molecules proved by FT-IR. UV-spectral studies have confirmed the transitions according to λ max of prepared complexes. Conductance data estimated that the polarity of synthesized complexes have negligible values. All compounds were considered best in inhibitory action i.e confirmed by performing biological activity with Alkaline Phosphatase assay (ALP).

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HL	Ligand
ML_2	Metal complex
$CuL_2.(H_2O)_2$	Copper complex
NiL_2	Nickel complex
CoL_2	Cobalt complex
ZnL_2	Zinc complex
ALP	Alkaline phosphatase assay
DMANB	*N*,*N*-Dimethyl aniline borane

1.Introduction

Schiff base have a covalent organic network. It is formed by condensation of one or more carbonyl containing groups and primary amine. During the Schiff base formation C=O group of aldehyde and ketone is replaced by C=N-R. The general scheme of this reaction is given in Equation 1.1.