

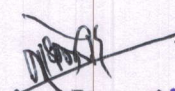
**UNIVERSITY GRANTS COMMISSION  
BAHADUR SHAH ZAFAR MARG  
NEW DELHI-110002**

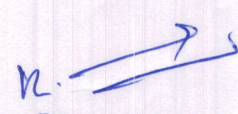
**STATEMENT OF EXPENDITURE IN RESPECT OF MAJOR RESEARCH  
PROJECT**

1. Name of Principal Investigator : **Dr. Kedar Nathrao Ankushrao**
2. Dept. of Principal Investigator : **Department of Chemistry**
3. University College : **Dayanand Science College, Latur**
4. UGC approval Letter No. and Date: **F. 42-323/2013 (SR) dated 25 March 2013**
5. Title of the Research Project : **“Synthesis and Characterization of Biologically active schiffs Bases its Some Complexes with Transition Metals”**
6. Effective date of starting the project: **01/04/2013**
7. a. Period of Expenditure From **01-07-2013 to 31-03-2017 (3 year st year extension)**
- b. Details of Expenditure:

Sr. No.	Item	Amount Approved (Rs.)	Amount Sanctioned (Rs.)	Expenditure Incurred (Rs.)	Additional amount of 10 % of the grant spent by the institute (Rs.)	Final expenditure incurred (Rs.)
<b>A.</b>	<b>Non-Recurring</b>					
	Books & Journals	20000	20000	20000	Nil	20000
	Equipment	200000	200000	200000	Nil	200000
<b>B.</b>	<b>Recurring</b>					
1.	Honorarium	Nil	Nil	Nil	Nil	Nil
2.	Project Fellow	528000	491600	491600	Nil	491600
3.	Chemicals /Glassware /Consumable	100000	100000	100000	Nil	100000
4.	Hiring Services	45000	50000	50000	Nil	45000
5.	Contingency	50000	50000	50000	Nil	50420
6.	Travel /Field work	30000	30000	30000	Nil	30059
7.	Special Need	Nil	Nil	Nil	Nil	Nil
8.	Overhead Charges	72800	72800	72800	72800	10525
	<b>Total</b>	<b>1045800</b>	<b>1014400</b>	<b>1014400</b>	<b>72800</b>	<b>947604</b>

Balance recurring charges (10 % of the total grant) of Rs. 9,47,604/- (Honorarium : , Chemical /Glassware /Consumable : 100000, Travel/Field work : 30000 and Contingency : 50000) need to be released by the UGC-major research project, New Delhi.

  
**Principal Investigator**  
**Major Research project**  
**D.S. College, Latur**

  
**PRINCIPAL**  
**Dayanand Science College**  
**LATUR**

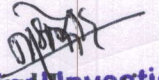
**C. Staff- I**


**I Mr. Digole Digambar N.**

Date of Appointment:11/07/2013

Sr. No.	Item	From	To	Amount Approved (Rs.)	Amount Sanctioned (Rs.)	Expenditure incurred (Rs.)
1.	Honorarium to PI (Retried Teachers) @ Rs. 18,000/- p.m.	-	-	-	-	-
2	*Project fellow : @Rs.14,000/- p.m. for initial 2 years and Rs. 16,000/- p.m. from third year onwards	11/07/2013	28/02/2016	497560	447804	447804
3	HRA@ 20%	-	-	-	-	-

1. It is certified that the appointment(s) have been made in accordance with the terms and conditions laid down by the Commission.
2. If as a result of check or audit objection some irregularly is noticed at later date, action will be taken to refund, adjust or regularize the objected amounts.
3. Payment @ revised rates shall be made with arrears on the availability of additional funds.
4. It is certified that the grant of **Rs. 9,47,604/- (Rupees- Nine Lakh Forty Seven Thousand Six Hundred Four Rupees only)** received from the University Grants Commission under the scheme of support for Major Research Project entitled **"Synthesis and Characterization of Biologically active schiffs Bases its Some Complexes with Transition Metals"** vide UGC letter No. F. 42-323/2013 (SR) dated 25 March 2013 (I-grant) and dated 29 Aug 2015 (II-grant). **Rs. 9,47,604/- (Rupees- Nine Lakh Forty Seven Thousand Six Hundred Four Rupees only)** has been utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions laid down by the University Grants Commission
5. Amount of **Rs. 9,47,604/- (Rupees- Nine Lakh Forty Seven Thousand Six Hundred Four Rupees only)** (Honorarium:-, Chemical/Glassware/Consumable: 1,00,000/-, Travel Field work: 30,000/- and Contingency: 50,000/-) under recurring charges has been spent by the institute in advance, and will be reimbursed by the institute once it is released by the UGC-MRP

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Principal**  
Dayanand Science College  
LATUR

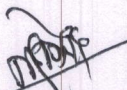
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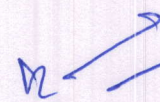
**STATEMENT OF EXPENDITURE INCURRED ON  
CHEMICAL /GLASSWARE/CONSUMABLES**

Name of Principal Investigator : **Dr. Kedar Nathrao Ankushrao**

Sr. No.	Description of the article	Bill No and date	Amount in Rs.	Name of the firm
1	Chemicals purchased for the UGC-Major research project	237 20.05.2014	100000	M/s. New Nagargoje Scientific House
2	Glassware purchased for the UGC-Major research project	-	-	-
3	Chemicals (consumables) purchased for the UGC Major research project	-	-	-
4	Chemicals purchased for the UGC-Major research project	-	-	-
5	Chemicals (glassware) purchased for the research project	-	-	-
6	Chemicals (consumables) purchased for the UGC-Major research project	-	-	-
7	Glassware for the UGC Major research project	-	-	-

Certified that the above expenditure is in accordance with the UGC norms for Major Research Projects.

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Principal**  
**PRINCIPAL**  
Dayanand Science College  
LATUR

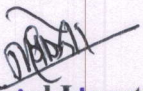
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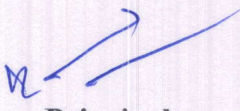
**STATEMENT OF EXPENDITURE INCURRED ON CONTINGENCY**

Name of Principal Investigator : **Dr. Kedar Nathrao Ankushrao**

Sr. No.	Description of the article	Bill No. & Date	Amount in Rs.	Name of the firm
1	Advertisement in daily Ekmat	1710 15.05.2013	1920	Ekmat News paper
2	Research Journal of Chemistry & Environment	4950 27.10.2013	10000	R.J.C.E.
3	Shantanu Xerox, paper Xerox, Sprial, Stamps	215 04.07.2015	2000	Shantanu Xerox
4	Publication Fees for articles in MIMJ	242/216 16.07.2016	8000	MIMJ
5	Quality Book Binding work	217 17.09.2016	15000	Quality Book Centre
6	Shardha Digital Photo Studio, Latur	456 17.08.2014	13500	Shardha Digital Photo Studio
		<b>Total</b>	<b>50000</b>	

Certified that the above expenditure is in accordance with the UGC norms for Major Research Projects.

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Principal**  
**PRINCIPAL**  
Dayanand Science College  
LATUR

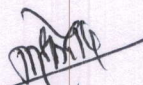
**UNIVERSITY GRANTS COMMISSION  
BAHADUR SHAH ZAFAR MARG  
NEW DELHI-110002**


**STATEMENT OF EXPENDITURE INCURRED ON TRAVEL/FIELD WORK**

Name of Principal Investigator : **Dr. Kedar Nathrao Ankushrao**

Sr. No.	Description of the article	Bill No. & Date	Amount in Rs.	Name of the firm
1	Nanded to Delhi	30199597 17.01.2013	1292	By Train
2	Delhi to Nanded	9295117 22.01.2013	456	By Train
3	Latur to Gulbarga	635 12.05.2013	3970	Atharva Travels
4	Latur to Hyderabad to Latur	634 06.11.2014	5490	Atharva Travels
5	Latur to Mumbai	851 12.05.2014	900	Amruta Travels
6	Latur to Hyderabad	- 06.06.2014	700	Pariwar Tours & Travels
7	Latur to Aurangabad	1000 09.12.2014	451	Varun Travels
8	Latur to Mumbai	73527 27.05.2015	800	Varun Travels
9	Latur to Mumbai	999 12.11.2015	900	Varun Travels
10	Latur to Mumbai	1230 02.06.2016	800	Varun Travels
11	Mumbai to Latur	1764 04.06.2016	700	Varun Travels
12	Latur to Pune	- 14.06.2016	600	Pariwar Tours & Travels
13	Aurangabad to Mumbai	46032202890 10.12.2014	1820	E-Ticket Pay world
14	Mumbai to Delhi	46032202892 10.12.2014	5406	E-Ticket Pay world
15	Delhi to Mumbai	46032202903 11.12.2014	4610	E-Ticket Pay world
16	Mumbai to Aurangabad	46032202904 11.12.2014	1164	E-Ticket Pay world
<b>Total</b>			<b>30059</b>	
<b>Rupees Three Thousand Fifty Nine Rupees only</b>				

Certified that the above expenditure is in accordance with the UGC norms for Major Research Projects.

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Principal**  
Dayanand Science College  
LATUR

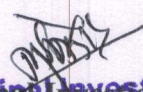
**PROFORMA FOR SUPPLYING THE INFORMATION IN  
RESPECT OF THE STAFF APPOINTED UNDER THE  
SCHEME OF MAJOR RESEARCH PROJECT**

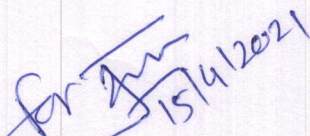
UGC File No. : F. 42-323/2013 (SR) dated 25 March 2013  
Title of the project : "Synthesis and Characterization of Biologically active Schiff's Bases and its Some Complexes with Transition Metals"

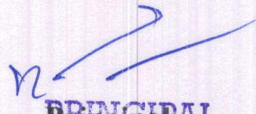
1.	Name of Principal Investigator	Dr. Kedar Nathrao Ankushrao			
2.	Name of Department / University	Department of Chemistry D.S. College Latur SRTMU, Nanded			
3.	Name of the Research Personnel appointed	Digole Digambar N.			
4.	Academic qualification	Sr. No.	Qualification	Year	Marks (%)
		1	M.Sc.	2012	66.33%
		2	Project Assistant	11/7/2013-30/5/2017	
		3	Ph.D.	-	
5.	Date of joining	11/07/2013			
6.	Date of birth of the research personnel	15/05/1989			
7.	Amount of HRA if drawn	Nil			
8.	Number of candidates applied for the post	03			

**Certificate**

This is to certify that all the rules and regulations of the UGC Major Project outlined in the guidelines have been followed. Any lapse on the part of the University will be liable to terminate of said UGC project.

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Head of Department**  
**HEAD**  
& U.G. in Chemistry  
Dayanand Science College  
LATUR

  
**Principal**  
Dayanand Science College  
LATUR

**UNIVERSITY GRANTS COMMISSION  
BAHADUR SHAH ZAFAR MARG  
NEW DELHI-110002**

**FINAL REPORT OF THE WORK DONE ON THE MAJOR RESEARCH PROJECT**

1. Project report number : Final
2. UGC File No. : F. 42-323/2013 (SR) dated 25 March 2013
3. Period of report : 01-07-2013 to 31-03-201
4. Title of the project : **“Synthesis and Characterization of Biologically active Schiff's Bases and its Some Complexes with Transition Metals”**
5. (a) Name of Principal Investigator: Dr. Kedar Nathrao Ankushra  
(b) Department : Department of Chemistry  
(c) University /College where the project was undertaken : Dayanand Sci. College, Latur
6. Effective date of starting of the project :
7. Grant approved and expenditure incurred during the period of the report:
- a) Total amount approved Rs. 10,50,800/-
- b) Total amount allocated Rs. 10,50,800/-
- c) Total amount released Rs. 9,47,604/-
- d) Total expenditure Rs. 9,47,604/-
- e) Total amount to be release Rs. 9,47,604/-
- f) Final Total expenditure Rs. 9,47,604/-
- g) Report of the work done

i.	Objective of the project	i) To study experimental techniques ii) To synthesize and characterization of Schiff's bases. iii) Synthesis of complexes with transition metals. iv) Biological activity of Schiff's bases & the metal complexes
ii.	Work done so far	There are many for approaches for studying the synthesis and characterization & Biologically active Schiff's bases and its some complexes with transition metals namely. Synthesis of Schiff's bases and its characterization was carried out by using spectral analysis. Synthesis of Schiff's bases complex with transition metal and

		characterization carried out. Microbial activities of Schiff's bases and metal complexes is carried out.
iii.	Publications, if any, resulting from the work	<ol style="list-style-type: none"> <li>1. Synthesis and characterization of monomeric complexes with copper (II) with 3-Methyl-4 (2-arylhydrozono)-1H Pyrazol-5-(4H) one, ISSN 2277-8381, Vol. II, Issue IV, Sept. 2013.</li> <li>2. Complexes of Copper (II) Nickale (II) with 1-(2-amino phenyl)-3-Methyl Pyrazolone-ISSN 2278-8204, Vol. II, Issue VII, Akshardeep, January 2014.</li> </ol>
iv.	Has the progress been according to original plan of work and towards achieving objectives if not, state reasons.	Yes
v.	Please indicate the difficulties, if any, experienced in implementing the project.	Second installment of the grant was not released in time
vi.	If project has not been completed, please indicate the approximate time by which it is likely to be completed.	Project has been completed
vii.	If the project has been completed, please enclose a summary of the findings of the study. One bound copy of the final report of work done may also be sent to University Grants Commission.	A summary of the work done for the period (Annual basis) may please be sent to the Commission on a separate sheet.
viii.	Any other information which would help in evaluation of work done on the project. At the completion of the project, the first report should indicate the output, such as (a) Manpower trained (b) Ph.D. awarded (c) Publication of results (d) other impact, if any.	<ol style="list-style-type: none"> <li>a) Manpower trained 3 Research Students carried out their Research Work on the topics related to the MRP and were trained in the project.</li> <li>b) Ph.D. Two candidate registered for Ph.D.</li> <li>c) Publication : 1 papers published</li> <li>d) Other impact : Findings from this project will be utilized as preliminary data by PI for further research in the area and in writing next grant (s).</li> </ol>

Principal Investigator  
Major Research project  
D.S. College, Latur

Head of Department  
HEAD  
& U.G. in Chemistry  
Dayanand Science College  
LATUR

Principal  
Dayanand Science College  
LATUR



UNIVERSITY GRANTS COMMISSION  
BAHADUR SHAH ZAFAR MARG  
NEW DELHI-110002

**PROFORMA FOR SUBMISSION OF INFORMATION AT THE TIME OF SENDING  
THE FINAL REPORT OF THE WORK DONE ON THE PROJECT**

1. **TITLE OF THE PROJECT** : “Synthesis and Characterization of Biologically active Schiff's Bases and Some Complexes with Transition Metals”
2. **NAME AND ADDRESS OF THE PRINCIPAL INVESTIGATOR**  
Dr. Kedar Nathrao Ankushrao  
Department of Chemistry  
Dr. Kedar Nathrao A.,  
Om Step II, Sham Nagar,  
Ambajogai Road,  
Latur-413512 (MS)
3. **NAME AND ADDRESS OF THE INSTITUTION:**  
Dayanand Science College, Latur  
Dist. Latur-413512 (MS)
4. **UGC APPROVAL LETTER NO. AND DATE** : F. 42-323/2013 (SR) dated 25 March 2013
5. **DATE OF IMPLEMENTATION** : 14/05/2013
6. **TENURE OF THE PROJECT** : 3 years +1 year extension (25-03-2013 to 31-03-2017)
7. **TOTAL AMOUNT ALLOCATED** : **RS. 10,50,800/-**
8. **TOTAL AMOUNT RECEIVED** : **RS. 9,47,800/-**
9. **TOTAL AMOUNT RELEASED** : **RS. 9,47,604/-**
10. **TOTAL EXPENDITURE** : **RS. 9,47,604/-**
11. **TOTAL AMOUNT TO BE RELEASED** : **RS. 9,47,604/-**
12. **TITLE OF THE PROJECT** : “Synthesis and Characterization of Biologically active Schiff's Bases and Some Complexes with Transition Metals”

### 13. OBJECTIVES OF THE PROJECT :

- To study experimental techniques
- To synthesize and characterization of Schiff's bases.
- Synthesis of complexes with transition metals.
- Biological activity of Schiff's bases & the metal complexes

### 14. WHETHER OBJECTIVES WERE ACHIEVED :

Yes.

In the first objective of the project apparatus used for the experimental work were coring glass 'A' grade burette and pipettes were used, volumetric flasks are used chemicals of good quality (AR) grade were used throughout experimental work. An analytical balance manufacture by K Roy Varanasi 0.1 mg sensitivity was used, PHmeter M/s Merck Ltd is used the solution conductivities of the metal complexes in DMSO were measured on digital conductivity bridge at room temperature. C, H, N analysis of ligands and complexes were carried out by micro combustion method using CHNSO elemental analyser.

- The second objective was to synthesis Schiff's base and its characterization is carried out by using spectral studies.
- In the present work following procedure is followed.

Hydrazine monohydrate (0.1m) was dissolved in methanol water (1:1) mixture (20 ml) and cooled to 0-5° C in an ice bath.

To this added (Ethyl acetoacetate) (0.10m) gradually with magnetic stirring and external cooling to maintain the temp at 5-10°C. After this addition (5-10 Min.) a white crystalline PPT was formed. The compound was filtered at the pump and washed with ice cold water & recrystallized from ethanol yield & MP was noted.

#### **Diazotization of Schiff's base Ligand**

To a well stirred solution of aromatic amine (0.01 mol) in 2 M HCl was cooled in an ice bath salt and diazotized with (20 ml) sodium nitrite solution (0.10 mol). The cooled diazonium solution was added slowly to a well stirred solution of 3-methyl-5-pyrazolone in ethanol (100 ml) containing sodium hydroxide (10 gms). The reaction mixture was stirred for one hour at room temperature, then acidified with diluted HCl to neutralize the reaction mixture. The product was recrystallized from ethanol to give 4-aryldiazo-3-methyl-1H-pyrazol-5(4H)-one -3-methyl-4(2-arylthiohydrazone)-1H-pyrazol-5(4H)-one as orange to reddish orange crystals. The purity was, ascertained by TLC and melting point.

- In the third objective in the present work

Metal complexes can be synthesized by employing various methods. In the present work they are synthesized by refluxing the methanolic solution of ligand and metal chloride in 2:1 m ratio and precipitated by addition of alcoholic ammonia

### **Experimental**

0.02 M of ligand was taken in Round bottom flask containing 30 ml Methanol and refluxed for few min. 0.01 M of Metal Salt Dissolved in 20 ml Methanol was added drop wise in hot solution of ligand. The content refluxed the four hrs. the PPT complex was digested for 1 hr. the complex formed was filtered it was washed with alcohol and followed by ether and dried in vacuum desiccator over  $\text{CaCl}_2$  yield M.P. noted and take spectral characterization.

- In the last objective we have check the microbial activity of schiff's base as well as metal complexes and we have seen that the metal complexes wide range pharmacological application life Antifungal, antibacterial, anticancer, antivasculant spectra.

## **15. ACHIEVEMENTS FROM THE PROJECT**

The current study provides the first depiction of the metal complexes are in catalysis material synthesis, photo chemistry and biological systems, medicinal in organic chemistry, can exploit the unique properties of metal ions for the designs of new drugs. The use of metal and there salts for medicinal purpose has been present throughout history.

### **Catalysis material**

Transition metal are either because of the ability to change oxidation state or in the case of metals to absorb other substaience on there surface and activate than in the process. Metallic element such as iron that have valence electron in two shells instated of only one. A valence electron referrers to a single electron that is responsible for the chemical property of the item, transition metal are good metal catalysts because they easily lend to take electron from other molecules.

### **Design of New Drugs**

Metal containing drugs are important for a few medical applications including diagnosis and treatment metal applications. Platinum based compound have been shown to specifically affects head and neck tumor. Zinc can been used to typically to heal wounds. Gold salt complexes have been used to treat rheumatoid arthritis. Mercury complex are used to antiseptic and diuretics. Cobalt III Complexes of macrocyclic polyamines have been patented for use as anti-inflammatory due to their super oxide coordination chemistry which is in effect anti-oxidant behavior.

### **Metal Complexes and medicine A Successful Combination**

Metal complexes have become an emerging tool in drug discovery beings widely used as therapeutic compounds to treat several human diseases such as carcinoma, lymphomas, infection control, diabetes, anti-inflammatory & neurological disorders. The three metals are used in modern medicine Iron, Zinc and Platinum.

### **Super conductors of heat & Electricity**

Transition metal superior conductors of heat as well as electricity they are malleable which means they can be shaped in to sheets and ductile which means they can be shaped in to wires they have high M.P. & B.P. & all are solids at Room temperature except Hg which is liquid.

## **16. Summary of the Finding**

Co-ordination chemistry is the most dynamic area of inorganic chemistry in the field of research. It has gained awareness in experimental and also thorough theoretical management, structural studies and nature of bonding in Co-ordination compounds.

Co-ordination or complex compounds are formed by attachment of ligand with metal through covalent and/or Co-ordinate bond. The bonding is observed between electron donor atoms of ligand and metal ions. Usually, the donor atoms of ligands are oxygen, nitrogen and sulphur.

Pyrazole and its derivatives, a class of well known nitrogen containing heterocyclic compounds, occupy an important position in medicinal and pesticide chemistry with having a wide range of bioactivities such as antimicrobial, anticancer, anti-inflammatory, antidepressant, anticonvulsant, antihyperglycemic, antipyretic, antibacterial, antifungal activities, CNS regulants, and selective enzyme inhibitory activities.

Pyrazolone derivatives attracted the researcher for synthesis of metal complexes due to their biological activity, pharmaceuticals significance and importance in dye industries and also their use in extraction of metal.

Unsubstituted pyrazol-5-one has two donor atoms (N and O), It coordinate with metal ion either by N of pyrazole ring or by O atom of Co group. Substituted pyrazol-5-ones display different coordination modes due to phenomenon of tautomerism.

This thesis is presented into five chapters.

## **Introduction: Importance of pyrazolone and their metal complexes**

This chapter briefly describes pyrazolone, the applicational importance of pyrazolone and their metal complexes. A brief review of literature on previous studies on metal complexes of pyrazolone and the derivatives of pyrazolone pertaining to the present work has been incorporated. The aim of present investigations has been outlined at the end of this chapter.

## **Experimental techniques**

All the solvents and chemicals used in the present investigation were AR grade.

The metal and chloride were determined by standard methods. Magnetic moments were measured by the Gouy's method using Hg (Co(CNS)<sub>4</sub>] as the calibrant. The solution conductivities of the complexes were recorded on digital conductivity bridge at room temperature.

X-ray diffraction data of the selected metal complexes were recorded on Philips PW 1050/70 X-ray machine attached with diffractogram. The ESR spectra of the Cu (II) complexes were recorded on JEOL ESR at room temperature. The Mass spectrum of selected ligands was recorded on mass spectrometer. Infrared spectra of the ligands and metal complexes were taken as KBr pellets on FTIR-4100 spectrophotometer. NMR spectra of ligands were recorded at IICT, Hyderabad.

## **Chemistry of Ligands**

This chapter deals with synthesis and characterization of ligands. The following ligands are synthesized and characterized on the basis of Infrared, NMR and mass spectra. The synthesized ligands (L1 to L6) are as follows.

1. 3-methyl-4-(phenyldiazenyl)-1H-pyrazol-5(4H)-one (L<sub>1</sub>)
2. 3-methyl-4-(p-tolyldiazenyl)-1H-pyrazol-5(4H)-one (L<sub>2</sub>)
- 4-((4-methoxyphenyl)diazenyl)-3-methyl-1H-pyrazol-5(4H)-one (L<sub>3</sub>)
- 4.4-((4-ethoxyphenyl)diazenyl)-3-methyl-1H-pyrazol-5(4H)-one (L<sub>4</sub>)

5.4-((4-chlorophenyl)diazenyl)-3-methyl-1H-pyrazol-5(4H)-one (L<sub>5</sub>)

6. 4-((4-bromophenyl)diazenyl)-3-methyl-1H-pyrazol-5(4H)-one (L<sub>6</sub>)

All the ligands are stable to air and moisture and soluble in methanol, DMF, DMSO

### **Study of transition metal complexes of Schiff's bases.**

This chapter presents the synthesis and characterization of Cu(II), Ni(II), Zn(II), Cd(II) and Hg(II) complexes. The complexes were characterized by elemental analysis, electronic spectra, Infrared spectral study, magnetic susceptibility measurements, molar conductance, XRD and ESR spectral study of selected complexes.

Experimental data of magnetic susceptibilities, electronic absorption spectra of Cu(II), Ni(II), Zn(II), Cd(II) and Hg(II) complexes of Schiff bases are presented and discussed in this chapter. The discussion of magnetic susceptibilities and electronic absorption spectra of metal complexes is in relation to their probable stereochemistry, in light of ligand field theory and information available in the literature on similar compounds.

Infrared spectra of ligands and their metal complexes are discussed mainly from the point of view of locating coordination position in the metal complexes. The assignment for different groups are empirical and tentative and are based on information available on similar transition metal complexes.

All the metal complexes are intensively coloured, non-hygroscopic and thermally stable. They decompose in the range 320-410°C without melting indicating that they are thermally stable with a strong metal-ligand bond. They are insoluble in water but soluble in more polar solvents like DMSO and DMF.

### **Studies of Biological Activity**

Introduction to fungi and their economic importance is given briefly. The chapter comprises the comparative study of antifungal activity of the ligands and the metal complexes prepared in the present work.

## **CONTRIBUTION TO THE SOCIETY**

- Transition metal are used as catalysts in many ways we use metal surface with oxides to make ammonia. This is the most economical way to produce ammonia & is highly used in fertilizers. The metal surface can absorb elements & compounds into itself.
- Transition metal are key components numerous enzymes and electron transport-proteins as well as the oxygen transport proteins hemoglobin and hemocyanin many essential metals are needed to activate enzyme molecule with important jobs in the body and metals have many other essential roles as well as it also helps to regulate blood pressure & blood sugar and enables muscles to contract nerves to send message, blood to clot and enzyme to work.
- Metal iron are required to keep the human body healthy because several critical biological functions in human depend upon their presence and their absence or scarcity may lead to diseases. Metal presence is crucial for survival. Among the metals that are currently known to be essential for normal biological functions in human are sodium, potassium, magnesium, calcium, cobalt, iron, copper, zinc, nickel. Deficiency of Fe and Co leads to anemia that of Cu leads to brain & heart diseases & anemia that of Zn leads to growth retardation & skin changes Ca leads to bone deterioration.
- Transition metal is widely used in construction materials, tools, vehicles and as a catalysts in the manufacture of ammonia, titanium often used in fighter aircrafts artificial hips and pipes in nuclear power stations copper as good conductor of electricity it is often used in electricity cables.
- The work in planed only be considering its attempt not done at international level, it is applicative in construction of new drug molecules and also in interest of chemistry the outcome of the study will be for welfare of society at national & international level.

### **17. Whether any Ph.D. Enrolled /Produced out of the project**

#### **Yes**

- Miss. Atkare Shubhangi N.
- Mr. Nagargoje Ganpat R.
- Mr. Panchal Rajendra S.

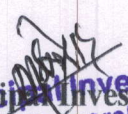
#### **Enrolled**


- Mr. Chavan Kamlesh

- Mr. Jadhav Rahul

**18. No. of Publications out of the project :**

- Heterocyclic compounds and its biological activity a reviews- ISSN 2278-2812, E ISSN 2249-8109, Vol. 19, Issue 2016
- Synthesis of Mesoporous Molecule and Activated Carbon From Bagasse and Rice Husk Ash and Their  $\text{CO}_2$  Adsorption Capability, International Online Multidisciplinary Journal, ISSN 2249-894X, Vol. 4, Issue 5 Feb. 2015
- Synthesis of 3-Cynocoumarin by KCR Over Cesium Modified Mesoporous Material, International Recognition interdisciplinary Journal, ISSN 2221-5488, Vol. 3, Issue 7 Jan. 2016
- Agro-waste Rice Husk Ash-A Sustainable Source for The Synthesis of Value Added Mesoporous Silica , International Online Multidisciplinary Journal, ISSN 2249-894X, Vol. 7, Issue 3 Dec. 2017
- Chemistry of Derivatives of Q-2-Carbaldehyde With Malononitrile and Creation of Indolizines , International Online Multidisciplinary Journal, ISSN 2249-894X, Vol. 8, Issue 3 Dec. 2018
- Studies On Compounds Consisting Quinoline And 2-Pyridone Heterocycles, International Online Multidisciplinary Journal, ISSN 2249-894X, Vol. 8, Issue 3 Dec. 2018
- Synthesis of Quinoline Derivatives And Its Applications To Some Reactions By Supported Heteropoly Acids (HPAS), International Online Multidisciplinary Journal, ISSN 2249-894X, Vol. 8, Issue 3 Dec. 2018
- Synthesis of new-4-Substituted amino pyrido [2, 3-d] pyrimidine derivatives Under Solvent-free Conditions, International Journal of Recent Trends in Science and Technology, ISSN 2277-2812, E-ISSN, 2249-8109, Volume 19, Issue 3, 2016
- Chemistry & Biology Interface, Review paper, ISSN 2249-4820, Vol. 10 (5), Sep. Oct. 2020

  
Principal Investigator  
Major Research Project  
D.S. College, Latur

  
PRINCIPAL  
Dayanand Science College  
LATUR





**Annexure- V**  
**UNIVERSITY GRANTS COMMISSION**  
**BAHADUR SHAH ZAFAR MARG**  
**NEW DELHI-110 002**

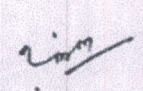
**Utilization Certificate**

Certified that the grant of **Rs. 9,47,604/- (Rupees- Nine Lakh Forty Seven Thousand Six Hundred Four Rupees only)** received from the University Grants Commission in two installment (1<sup>st</sup> installment of Rs. 2,75,804 and 2<sup>nd</sup> Installment of Rs. 6,71,800) under scheme of support for Major Research Project entitled **“Synthesis and Characterization of Biologically active schiffs Bases its Some Complexes with Transition Metals”** vide UGC Letter No. F. 42-323/2013 (SR) dated 25 March 2013 has been utilized for the purpose for which it was sanctioned and in accordance with terms and conditions laid down by the University Grants Commission.

Amount of Rs. 4,91,600/- (Rupees – For Lakh Ninety One Thousand Six Hundred Rupees Only) Project Fellow, Chemical, Glassware / Consumable : 1,00,000/-, Travel /Filed work : 30,059/- and Contingency : 50,420/- (10% of the total grant amount which has been withheld by University Grants Commission under recurring charges has been spent by the institute in advance for the purpose of the Project and will be reimbursed by the institute once it is released by the UGC-MRP.

  
**Principal Investigator**  
Major Research project  
D.S. College, Latur

  
**Principal**  
**Dayanand Science College**  
**LATUR**

  
Signature of Chartered Accountant  
with Seal

**For T. R. BORA & CO.**  
CHARTERED ACCOUNTANTS

CA T. R. BORA  
PARTNER  
FIRN. 101562W M.No. 8412

Annexure-X

UNIVERSITY GRANTS COMMISSION  
BAHADUR SHAH ZAFAR MARG

NEW DELHI -110 002

ASSESSMENT CERTIFICATE

It is certified that proposal entitled "Synthesis and Characterization of Biologically active Schiff's Bases & Its Some Complexes with Transition Metal" by Dr. Kedar Nathrao Ankushrao Dept. Of Chemistry has been assessed by the three member committee consisting the following members for submission to the University Grants Commission. New Delhi for financial support under the scheme of Major Research Projects: (file no. 42-323/2013(BR) DT. 25-3.2013)

Details Of Expert Committee:

*R. M. Tigote 12/04/2021*  
1. Dr. Radhakrishnan M. Tigote  
Ex. Director & Head, Asst.  
Prof. Dept. Of Chemistry  
Dr. BAMU Aurangabad  
Subcampus, Osmanabad.

*N.A. Kedar*  
3. Dr. N.A. Kedar  
Asst. Professor  
Dept. Of Chemistry  
D.S.C.L Latur

*S. D. Dhage*  
2. Dr. Suresh D. Dhage  
Head & Asst. Professor SSJES,  
Arts, Commerce & Science College  
Gangakhed Dist. Parbhani 431514

The Proposal is as per the guidelines.

*N. - 12/04/21*  
Principal  
Principal  
Dayanand Science College  
LATUR - 418 531

Annexure - XI

**Final Report Assessment / Evaluation Certificate**

(Two members expert Committee net Belonging to the Institute of Principal Investigator)

It is certified that the final report of Major Research Project (F.No. 42-323/2013(SR.) entitled "Synthesis and Characterization of Biologically active Schiff's Bases its Some Complexes with Transition Metal" by Dr. Kedar Nathrao Ankushrao Dept. Of Chemistry Dayanand Science College Latur has been assessed by the committee consisting the following members for final submission of the report to the UGC, New Delhi under the scheme of Major Research Project. (File no. 42-323/2013(SR) Dt - 25.3.2013)

Comments /Suggestion of the Expert Committee :

- As per UGC XII plan guidelines, the Annexure III, IV, VIII, IX is need for the Assisment of the MRP.
- In the Evaluation, the regular methodology is studies satisfactorily.

Name & Signature of Exports with Date :

**Name of Exports**

**University /College Name**

**Signature**

**1. Dr. Radhakrishanan M. Tigote**

Ex. Director & Head, Asst.  
Prof. Dept. Of Chemistry  
Dr. BAMU Aurangabad  
Sub-capus, Osmanabad.

R.M. Tigote 12/04/2021

**2. Dr. Suresh D. Dhage**

Head & Asst. Professor SSJES  
Arts, Commerce & Science College,  
Gangakhed Dist. Parbhani 431514

S.D. Dhage

It is also certified that final report, Executive summary of the report, Research documents monograph academic papers provided under Major Research Project have been posted on the website of the College.

N. 12/04/21

Principal

Principal

Dayanand Science College  
LATUR - 418 531