PAPERS PUBLISHED AND PRESENTED

List of papers published

1. **"Luminescence Studies and Intercomponent Energy Transfer in Some Schiff Base Complexes"**

   Sami A. Zabin, C.R.Jejurkar and K.P.Dhake; Oriental Journal of Chemistry ; Vol.9. No.4 (1993) 286-291

2. **"Fluorescence Behaviour in Some Complexes of Cu^{2+}, Ni^{2+} and zn^{2+} ions"**

   Sami A.Zabin , K.P. Dhake and C.R.Jejurkar; Journal of Luminescence; (Communicated.)

3. **"Schiff Base Metal Complexes of Some Amino Acids & Their Applications"**

   Same A.Zabin and C.R.Jejurkar; Bull. Chem. Soc. Japan ; (communicated).

* List of Papers Presented at International Conferences

1] **LUMINESCENCE STUDIES AND INTERCOMPONENT ENERGY TRANSFER IN SOME SCHIFF BASE COMPLEXES.**

SAMI A. ZABIN, C.R. JEJURKAR and K.P. Dhake

10th International symposium on the photochemistry and photophysics of coordination compounds (10th ISPPCC) Sendai (JAPAN), July 25-30, 1993, Abstract No. P-23, page 62

ABSTRACT

The Salicylaldehyde, o-Vaniline and 2-Hydroxy-1-naphth -aldehyde in turn, alongwith m-Phenylenediamine, $_p$-Phenylene diamine and Benzidine have been used to synthesise the nine Organic Schiff base Ligands. From these, twenty seven metal complexes of Cu(II), Ni(II) and Zn(II) have been isolated. The isolated complexes have been characterised by all usual methods. The luminescence measurements for all these isolated complexes were carried out. Some of the representative specimens treated thermally as well as mechanically were also studied.

All the schiff base ligands and complexes exhibit good luminescence. The intensity pattern was found to depend on the distance between two azomethine groups. The presence of the peripheral groups also had the effect on intensities. The preheatreated specimens show no change in the position of the emission band but an appreciable enhancement in the intensity. An attempt has been made here to explain the intensities on the basis of the intercomponent energy transfer.

21 FLUORESCENCE BEHAVIOUR IN SOME COMPLEXES OF Cu^{2+}, Ni^{2+} AND Zn^{2+} IONS

SAMI A. ZABIN, C.R.JEJURKAR and K.P. Dhake

The 1993 International Conference on Luminescence (ICL'93) Connecticut (U.S.A.), August 9-13, 1993. Abstract No. Th_4-83

ABSTRACT

Three hydrazone compounds of Salicylaldehyde, O-vaniline and 2-hydroxy-1-naphthaldehyde were synthesised in our laboratory. Nine metal complexes made from them using the Cu^{++}, Ni^{++} and Zn^{++} ions were isolated. They were characterised by using the usual methods.

The luminescence measurements were carried out on most of these complexes. The specimens were also studied after the mechanical deformation.

All the hydrazone compounds and their metal complexes show good fluorescence. The intensity patterns are explained on the basis of charge transfer transitions. The quenching intensity for the mechanically deformed specimens is due to the steric interaction resulting from the reduced separation between two azomethine groups on compression. Because of the absence of the π bonding in the present compounds, the intensities have been observed to be diminished compared to those containing aromatic azomethine groups.

3] SCHIFF BASE METAL COMPLEXES OF SOME AMINO ACIDS & THEIR APPLICATION

SAMI A. ZABIN AND C.R. JEJURKAR

"The First International Conference in Chemistry and its Applications" Doha (QATAR), December 7-9, 1993; page 290.

ABSTRACT

Three organic Schiff bases are synthesised from Terephthaldehyde & Glycine or DL-Alanine or L-Histidine. Their six complexes of Cu(II) and Ni(II) have been isolated. The complexes are characterised by elemental analysis, IR. magnetic measurement and X-ray diffraction studies. The complexes are also studied for their pigmentation properties.

The results show that the complexes are binuclear in nature with the formula $[ML.2H_2O]_2$. All the six complexes are reported to be paramagnetic in character. The X-ray analysis shows that the number of molecules per unit cell n=9 for organic Schiff bases, while complexes are found to be amorphous.

The pigmentation study shows that all the complexes possess good pigmentation properties for synthetic, silk & cotton fabrics. The rubbing and light fastness is found to be in the considerable range between 4 to 5.

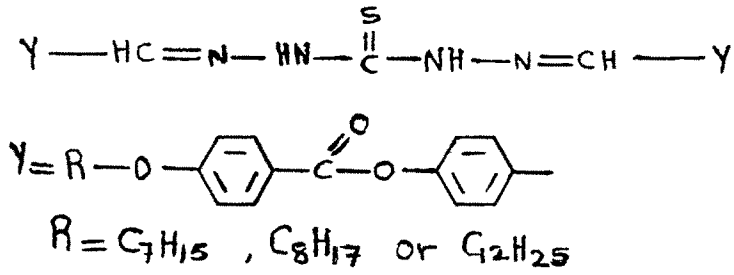
An attempt has been made to describe this character with the help of structural elucidation.

4] **LIQUID CRYSTALLINE SCHIFF'S BASE COMPLEXES OF Cu(II) AND Ni(II) AND THEIR FLUORESCENCE BEHAVIOUR.**

Sami A. Zabin and C. R. Jejurkar

30th International Conference on Coordination Chemistry, Kyoto (JAPAN), July 24-29, 1994 (Accepted).

Some new Liquid Crystalline Schiff's base Complexes with Copper(II) and Nickel (II) have been prepared by using the Ligand I.



(I)

Microscopic observations and D.S.C. measurements showed broad nematic mesophases for the ligands and their complexes.

The isolated complexes were characterised by elemental analysis, conductometric, magnetic, electronic and I.R. Spectral studies.

X-ray diffraction study was also carried out to determine the geometry of the molecules.

The ligands and their complexes were also studied for their fluorescence behaviour. Both ligands and their metal complexes showed good fluorescence properties. It is observed that there is a change in the position of emission bands and peak intensities of metal complexes compared to that of the ligands. This might be due to Metal to Ligand Charge Transfer (MLCT).

Key words : Liquid Crystalline, Schiff's Bases Fluorescence.

5] **22-Membered Macrocyclic Quardidentate Schiff Base Ligands and Their Mononuclear Metal Complexes.**

Sami A Zabin and C.R. Jejurkar

XIX International Symposium on macrocyclic chemistry, Kansas (U.S.A.), June 12-17, 1994 (Accepted).

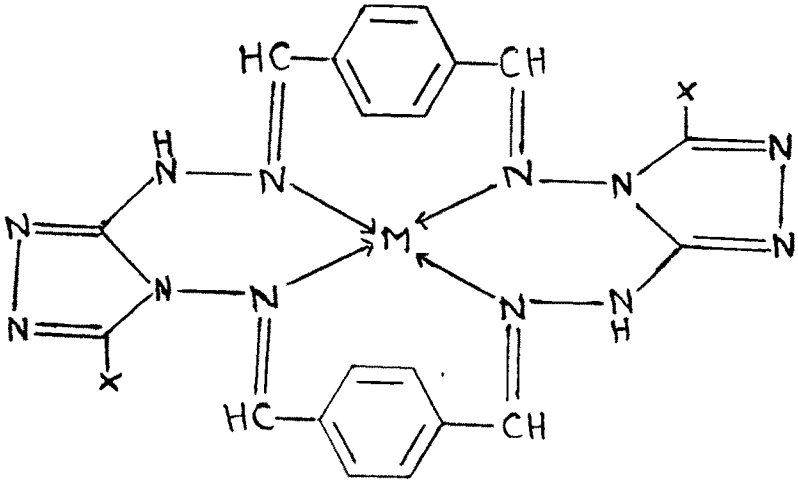
ABSTRACT

Two 22-membered macrocyclic quardidentate organic schiff base ligands have been synthesised by the condensation of terephthaldehyde and 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole or 4-amino 3-hydrazino-5-hydroxy-1,2,4-triazole and their six macrocyclic complexes of Cu(II), Ni(II) and Zn (II) are isolated.

The isolated complexes have been charcterised by elemental analysis, magnetic measurements, x-ray diffraction electronic spectral and I.R. Spectral studies.

X-ray structural studies show the familiar but distorted equitorial MN_2N_2 mononuclear unit involving four imino nitrogen of 22-membered coordinating ligands in all six complexes.

Metal atom occupies the inner N_2N_2 site with a coordination geometry which has marked tetraheded twist away from the anticipated square planer. The progressive deviation from co-planarity of Skeltal atoms forming the inner compartment gave a twisted butterfly shape to the quardidentate ligands.



X = -SH or -OH ; M = Cu(II), Ni(II) or Zn(II)

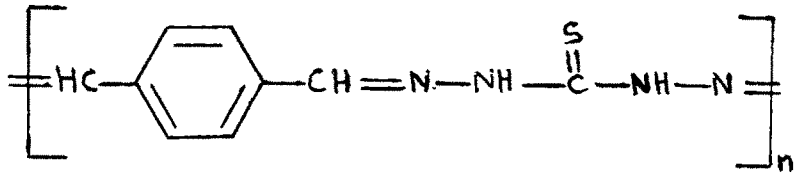
6] FLUORESCENCE BEHAVIOUR OF SOME COORDINATION POLYMERS OF Cu(II), Ni(II) AND Zn(II).

Sami A. Zabin and C. R. JEJURKAR

35th International Symposium on Macromolecules (MacroAkron'94) Akron, (U.S.A.), 1994 (Communicated).

Coordination polymers containing schiff's base derived from terephthaldehyde and thiocarbohydrazine (Figure I) have been synthesised.

(Figure I)



The polymers found to be of [ML]n type (where L = Schiff's base, M = Cu(II), Ni(II) and Zn(II) and n = Degree of polymerisation).

Analytical, I. R., Electronic, Magnetic, TGA and X-ray diffraction studies were carried out. The Fluorescence studies of the polymers and their thermally and mechanically treated specimens were carried out.

The Fluorescence intensity was found to be increased in case of preheat-treated specimens. An attempt has been made to explain Fluorescence behaviour on the basis of intercomponent energy transfer.