FUNDAMENTAL RESEARCH
A MONTHLY MULTIDISCIPLINARY PEER REVIEWED RESEARCH JOURNAL
© FR, VOLUME- 05, ISSUE-08 AUGUST: 2015, ISSN: 2454-5775

A NEW SERIES OF COMPLEXES OF PB^{II} WITH TETRADENTATE SCHIFF-BASE

SHARAT SRIVASTAVA

DEPT. OF CHEMISTRY, D. V. COLLEGE, ORAI.

EIVED: 09.03.2015 REVIEWED: 21.07.2015 ACCEPTED: 01.08.2015

ABSTRACT

A new series of co-ordination compounds of PbX_2 with tetradentate Schiff-base ligands [$MX_2.L$] [M= Pb^{II}, X= Cl or Br or I, L= bis (glyoxal) 1, 2, 4, 5 Phenylenediamine] have been prepared. The complexes have been characterized on the basis of elemental analysis, conductivity, IR and x-ray photoelectron spectra. Tetrahedral structures have been proposed for all the prepared mental complexes.

Keywords : Metal complexes, X-Ray photoelectron spectra.

duction :

The occurrence of N as donor atom for metals is known[1]. It acts as a very good ligating atom when the Schiff base.

Schiff-base ligands prepared from aromatic hyde and ketone (Benzaldehyde, cinnamaldehyde, ophenone with ethylenediamine have been synthesized.

Tetradentate Schiff-bases are well known to co- ate with various metal ion and have attracted a great of interest in recent years due to their rich co-ordination mistry.[2]

This paper deals with synthesis and charaterization Pb(II) metal complexes with tetradente ligand having iff-base as the donor i.e. L= bis (glyoxal) 1, 2, 4, 5 nylenediamine.

Result and Discussion :

These newly syntherized Pb^{II} complexes were light yellow solid and stable at room temperature. The elemental analysis were within ± 0.5% from C, H, N, Pb, X. The low molar conductance data in DMF (20-30 ohm^{-1} cm^2 mol^{-1}) of these complexes indicates that all these are non-electrolytes.[3]

All the prepared ligands show $\nu_{C=N}$ bands at 1610-1620 cm^{-1} which shifted towards higher side in all prepared these Pb^{II} metal complexes (1635-1670 cm^{-1}). [4, 5]

The presence of new bands in metal complexes in the region 305-330 cm^{-1}.[6]

The Pb2p and N1s binding energies (eV) data of PbX_2 and $PbX_2.L$ (where X= Cl, Br, I, L= bis (glyoxal) 1, 2, 4, 5 phenylenediamine are listed in table. It may be seen that Pb2p photoelectron peaks binding energy values.

Table : Pb2p, N1s binding energies (eV) in PbX_2 and $PbX_2.L$ complexes.

S.No.	Ligands, Salts, and Complexes	Pb2p	N1s	
			Ligand or uncord	Cord
1	Ligand L		400.6	
2	$PbCl_2$	764.8		
3	$PbCl_2.L$	764.6	400.6	403.8
4	$PbBr_2$	764.8		
5	$PbBr_2.L$	764.4	400.6	403.8
6	PbI_2	764.4		
7	$PbI_2.L$	763.2	400.6	403.8

N1s photoelectron peaks was also observed which ve shown higher binding energy value that PbX_2, ggesting co-ordination of N with Metal.

Experimental :

All solvents were reagents grade and purified before use ligand L= bis (glyoxal) 1, 2, 4, 5 phenylenediamine were prepared as given in literature.[7]