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Synthesis and characterization nickel (Ii) complexes with the ligand, N-(4-Ethylphenyl)-1-(2-Pyridyl) Ethanimine

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Abstract
A series of Ni(II) complexes of the type $[Ni(MPimine)_2]X_2$ have been obtained. Where, X=Cl^-, Br^-, I^-, NO_2^- and MPimineis the Schiff base derived from 4-methylaniline and 2-acetylpyridine. Characterization has been done on the basis of elemental analysis, conductivity magnetic moment and spectral studies. Structure of the complexes has been found to be square planner.

Keywords: Schiff base, n(ii), spectral and biochemical studies

1. Introduction
Schiff base ligands and their complexes have involved the summit position within the field of coordination compounds due to flexibility and valuable applications. In different field such as nano-medicines, catalysis and opt electrical materials. Thus, within the present communication, synthesis and characterization of a series of nickel(II) complexes of the type, $[Ni(MPimine)_2]X_2$ is presented.

2. Experimental: There are many routes for the preparation of Schiff base ligands and their complexes such as: - traditional method, *'in situ'* method, Solvent free green trituration method and metal ion catalyzed template method.
In the present case, the metal ion catalyzed template method was used which gave better yield in smaller time in comparison to other methods. On the basis of elemental analysis (table-1) the formula of the complexes has been found to be of the type, $[Ni(MPimine)_2]X_2$.

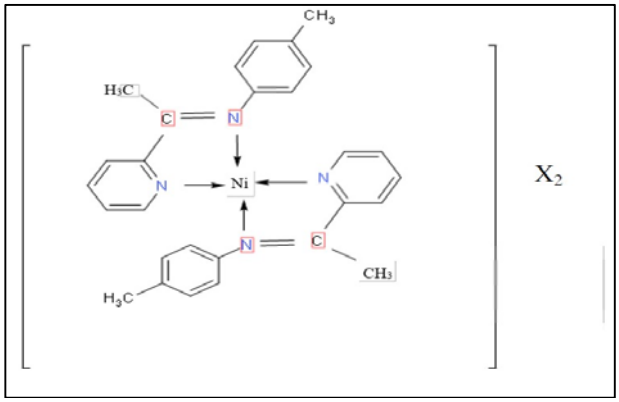
3. Spectral and Biochemical Study: IR Spectra of 4-methylaniline, 2-acetylpyridine, N-(4-ethylphenyl)-1-(2-pyridyl)ethanimine and metal complexes($[Ni(MPimine)_2]X_2$) (table - 2) on comparison provides evidence in favor of Schiff base condensation of (2-acetylpyridine) with 4 methylaniline to give the ligand MPimine. The evidence for coordination of azomethinic as well as pyridyl nitrogen to the metal ions comes from disappearance of $\nu_{c=o}$(1703 cm^{-1}) from spectra of 2-acetylpyridine, ν_{N-H} (2970 cm^{-1}) from the spectra of 4-methylaniline. Appearance of a new band in the spectra of MPimine due to $\nu_{C=N}$ (1650 cm^{-1}) and shift of $\nu_{C=N}$ (1614-1631 cm^{-1}) to lower region in the spectra of $Ni(MPimine)_2]X_2$ along with appearance of a new band in the far I.R. region due to ν_{M-N} (461-487 cm^{-1}) gave further support to the fact that coordination of the ligand takes place with the metal ions through pyridyl nitrogen and azomethinic nitrogen.

Table 1

Compounds	Found (Calculated)					Yield	Color	Λ_m $S.m^{-1}$
	C	H	N	Ni	X			
$C_{28}H_{28}N_4$	80	6.66	13.33	-	-	89	Yellow	10
$[Ni(C_{28}H_{28}N_4)Cl_2$	61.09	5.09	10.18	10.67	12.89	78	Blue	152
$[Ni(C_{28}H_{28}N_4)Br_2$	54.45	4.53	9.07	9.60	25.89	76	Violet	151
$[Ni(C_{28}H_{28}N_4)I_2$	45.83	3.81	7.63	8.00	34.62	80	Violet	137
$[Ni(C_{28}H_{28}N_4)(NO_2)_2$	55.72	4.64	13.93	9.73	-	80	Pink	139

Table 2

S. No.	Compound	Frequency(cm^{-1})		
		ν(C=N)	ν(C=C)	ν(M-N)
1	$C_{28}H_{28}N_4$	1650	1419	-
2	$[Ni(C_{28}H_{28}N_4)Cl_2$	1629	1401	471
3	$[Ni(C_{28}H_{28}N_4)Br_2$	1618	1409	464
4	$[Ni(C_{28}H_{28}N_4)I_2$	1618	1411	473
5	$[Ni(C_{28}H_{28}N_4)(NO_3)_2$	1609	1400	476



X= Cl^-, Br^-, I^-, NO_2^-

Fig 1

4. Conclusion

Magnetic moment, Λm (130-155 S.m-1) and electronic spectra also support the outcome of IR spectra. A square planar structure has been proposed for the complexes (Fig.1). Some of the complexes were also biochemically activity whose activity was higher then those ligands but lower in comprises to that of standard.

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6. References

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