

SYNTHESIS OF COMPLEXES OF Cu (II) CATIONS WITH THE LIGAND OF α -(P-NITRO BENZYLIDINE) IMINO ACETO HYDROXAMIC ACID.

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Key words : Cations, Base, Ligand, Complex, Octahedral.

The complexes of Cu(II) cations with the Ligand of α -(p-Nitro benzylidene) imino aceto hydroxamic acid has been prepared. The elemental analysis shows that the expected general formula is $[Cu(L)_2(B)_2]$. The complexes have been found to be coloured, amorphous in nature and octahedral in geometry.

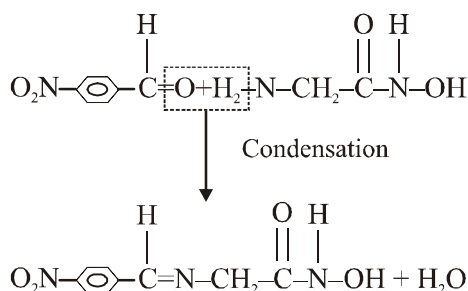
INTRODUCTION

In this paper, the synthesis of complexes of Cu(II) cations with Ligand of α -(P-Nitro benzylidene) imino aceto hydroxamic acid has been reported by the reaction of acetate/chloride of Cu(II) cations with the Ligand in the presence of bases like water, ammonia and pyridine.

Previous works are extensive to be cited (Vidarthi *et al.*, 2008; Thakur *et al.*, 2012a and 2012b; Costes *et al.*, 1998 and Holm *et al.*, 1971).

MATERIALS AND METHODS

Synthesis of α -(P-Nitro benzylidene) imino aceto hydroxamic acid was synthesised by the condensation of P-Nitro benzylidene and α -amino aceto hydroxamic acid under reflux at room temperature. (Vogel, 1991).

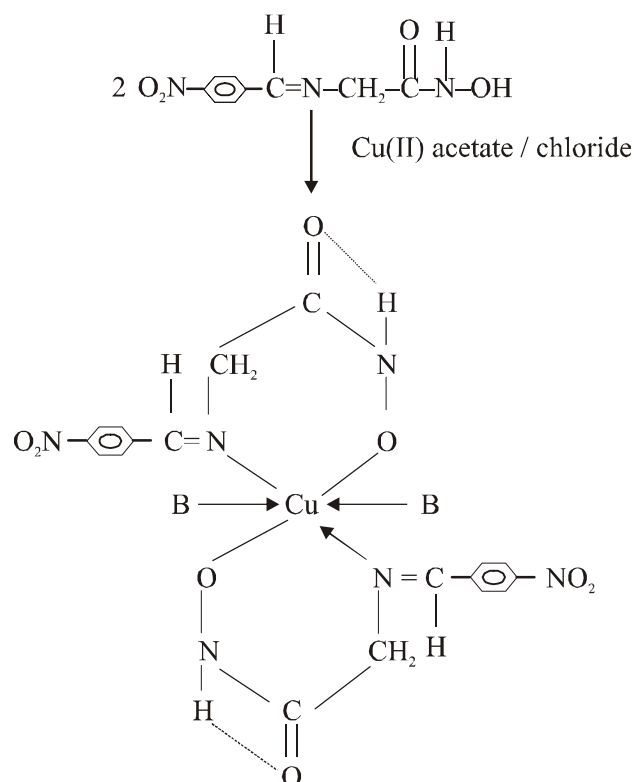


Our usual method of synthesising these Ligands was to take a dry and cold solution of 15.1 g (0.1 mole) of P-Nitro benzylidene in ethanol and was allowed to react with the ethanolic solution of 9.00 g (0.1 mole) of α -amino-aceto hydroxamic acid in equimolar proportion under the reflux on a water bath for several hours at room temperature. During course of reflux, the whole solution was shaken well more than three times. The resulting solution on cooling under ice bath produced a faint orange coloured solid which was separated by filtration, washed with absolute ethanol and dried in an electric oven at 100°C.

On the basis of elemental analysis, the compound was found to contain : C = 48.32%, H = 4.06% and N = 18.83% which correspond with the expected Molecular formula : C₉H₉N₃O₄.

Then, the ethanolic solution of Cu (II) acetate / chloride (0.01 mole) and the Ligand (0.01 mole) in molar proportion of 1:2 respectively was allowed to react under reflux on water bath for about two hours at room temperature. The resulting solution on crystallization produced the crystal of faint green colour. The solid was then separated by filtration, washed with absolute ethanol and dried in an electric oven at 100°C. The complexes Cu (II) cations with the Ligand were synthesised separately in the presence of bases like water, ammonia and pyridine.

Here, B = Water, Ammonia & Pyridine



RESULTS AND DISCUSSION

The elemental analysis shows that the complex corresponds to the general formula $[Cu(L)_2(B)_2]$. The analytical data of $[Cu(L)_2(B)_2]$ complexes are presented in percentage (Table-1).

TABLE -1 : Analytical data of $[\text{Cu}(\text{L}_2)(\text{B}_2)]$

Complexes	Metal	C	H	N
$[\text{Cu}(\text{C}_9\text{H}_8\text{N}_3\text{O}_4)_2(\text{H}_2\text{O})_2]$	11.60 (11.68)	39.62 (39.74)	3.72 (3.76)	15.52 (15.45)
$[\text{Cu}(\text{C}_9\text{H}_8\text{N}_3\text{O}_4)_2(\text{NH}_3)_2]$	11.65 (11.72)	39.76 (39.88)	4.10 (4.06)	20.76 (20.68)
$[\text{Cu}(\text{C}_9\text{H}_8\text{N}_3\text{O}_4)_2(\text{C}_9\text{H}_5\text{N})_2]$	9.46 (9.54)	50.40 (50.48)	3.94 (3.90)	16.88 (16.82)

ACKNOWLEDGEMENTS

The author is highly thankful to Dr. S. N. Vidyarthi, Univ. Prof. of Chemistry, Former H.O.D. and Dean, Faculty of Science, J. P. University, Chapra for his valuable suggestion during the writing of this research paper.

The author expresses his deep gratitude to Dr. Md. Firoz Alam, Principal, P. M. Science College, Patna for providing laboratory facilities.

Author is also thankful to Dr. S.N. Thakur, Associate Prof. of Chemistry, B.R.A. Bihar University, Muzaffarpur for giving suggestions during the course of experimental work.

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