



Structural Studies of some chelates of Cobalt(II), Nickel(II) and COPPER(II) metals with Tetra-Dentate schief base

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ABSTRACT

In this paper, we concern on structural studies of some chelates of cobalt (II), Nickel (II) and Copper (II) metals with tetra-dentate schief base which give extension some known results in the literature listed in the references.

Keywords : Reacts, structural, ligands, preserve, curable, incurable, fungicides, insecticides.

INTRODUCTION

Schiff bases, named after Hugo Schiff (1869) are developed if another primary amine interacts with an aldehyde or a ketone under particular conditions. Metal complexes derived from polydentate Schiff bases exhibit remarkable structural and magnetic properties. Pfeiffer and Pritzner were the first to study bis (Schiff base) as catenating ligand. The compound, Schiff base was discovered by H. Schiff in 1869 by the reaction of ethylene diamine on salicylaldehyde. It was found/coordination compounds/chelates with different transition metals in different oxidation states. At least research works has been carried out in the field of coordination chemistry with schiff bases as ligands which have heterocyclic ring in its molecule. So we have undertaken to carry out the research work with the schiff bases containing heterocyclic ring in its molecule. This research work has been undertaken to preserve the present knowledge and answer the questions framed above. A large number of people all over the world are suffering from curable/incurable diseases and they are not being given proper treatment in want of proper medicines. Formation of such chelates/complexes is an aid of human, animal and plant lives such as drugs, fungicides and insecticides.

Cobalt (II) :

Catalytical chain transfer agents for regulating the molecular weight of homopolymers and copolymers manufactured by using cobalt (II) chelates of vicinal imino-hydroxyimino compounds, dihydroxyimino compounds, diazadihydro-droxyimino-diacadienes, and diazadihydroxyimino-dialkylundecadienes.

Cobalt (II) chloride is a cobalt and chlorine inorganic compound, with the CoCl_2 formula. It's a crystal clear blue sky. $\text{CoCl}_2 \cdot n\text{H}_2\text{O}$ hydrates for $n = 1, 2, 6$ and 9 form many hydrates. There has been no proof of claims for the formation of tri- and tetrahydrates. Hexa Hydroxydrate is pink and purple. It is normally supplied with the $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ hexahydrate, which is one of the cobalt compounds most used during the laboratory. Cobalt chloride is a water indicator in desiccants, owing to the simple hydration/dehydration reaction and the consequent color alteration. Cobalt chloride has its niche applications in organic synthesis and in cobalt metal catalysing materials.



Nickel (II) :

Nickel, symbolically Ni and atomic number 28, are a chemical element. It's a subtly golden tinge of silvery white lustrous metal. Nickel is rigid and ductile and refers to the transition metals. Clean, powdered nickel exhibits a strong chemical response to raise the reactive region, but big components react slowly under typical air conditions, while the oxide layer forms on the surface in order to prevent further corrosion (passivation). However, only small numbers in Earth's crust are found, mostly in ultramagoritic rocks and in huge, unexposed meteorites of nickel-iron outside the world's atmosphere.

Nickel chloride(II) is a chemical compound NiCl_2 (or only nickel chloride). Yellow is anhydrous salt, but the more natural $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$ hydrate is orange. The most important source of nickel for chemical synthesis is nickel (II) chloride in different forms. Nickel chlorides are delicate and absorb humidity into a solution from the air. In cases of long-term toxicity to the inhalation, nickel salts were found to be carcinogenic to the lungs and nasal passages.

Copper (II) :

A chemical element is copper, Cu symbol and atomic numbers 29. A soft, malleable, and ductile metal, very high thermal and electrical conductivity. Newly discovered is the pure, rose-orange surface. Copper is used to produce energy and heat as building material, as well as for the calculation of the temperatures in close-knit gauges, for example sterling silver for joy, cupronickel for the manufacture of maritime rough- and silver coins;

Copper is one of the few in existence possible metals in a metallic shape that is directly functional (native metals). This contributed to early human use in many areas. A total of 8,000 BC. It was the first metal to be smelted with sulfide ores, a. The first metal to be moulded, b. Five thousand BC. 4000

BC; and the first metal to alloy to bronze knowingly, tin, c. 30,000 BC.

Copper was mainly excavation on Cyprus, which is the origin of the metal name, during the Roman period from aes cyprum, and later on cuprum (Latin). Coper and copper came from this, the latter spelling was used for the first time around 1530.

Tetra-Dentate :

Tetradentate ligands are ligands that bind to a coordinating complex four donor atoms. The number of atoms bound from donors is called dentitics which is the way ligands are labelled. In the type of chlorophyll that has the core ligand chlorine and hemes with a core ligand called porphyrin, the heme with core ligands are normal in nature. In plants and humans, they contribute more of the colour. Phthalocyanine is a tetradentate ligand artificial for the manufacture of blue and green pigments.

Schief Base :

The Schiff basis is a combination of the general structure $\text{R}_1\text{R}_2\text{C}=\text{NR}'$ ($\text{R}' = \text{H}$). (NR') Name after Hugo Schiff. They can be considered a sub-class of imines, which rely on their structure either on secondary ketimines or secondary aldimines The word is sometimes referred to as azomethin that directly refers to secondary aldimines (e.g. $\text{R}-\text{CH}=\text{NR}$, where $\text{R}' = \text{H}$). For these compounds, there are a variety of unique naming systems. A ship's base, for example, derived from aniline, where the R_3 is phenyl or a replaced phenyl, may be considered as aniline, while biscompounds are also called saline-type compounds.

The term Schiff is usually applied to these compounds as used as ligands for coordination with metal ions. Such complexes happen naturally, for example in the corrin, but most Schiff bases are artificial and are used to produce a vast variety of significant catalysts, including the catalyst Jacobsen.



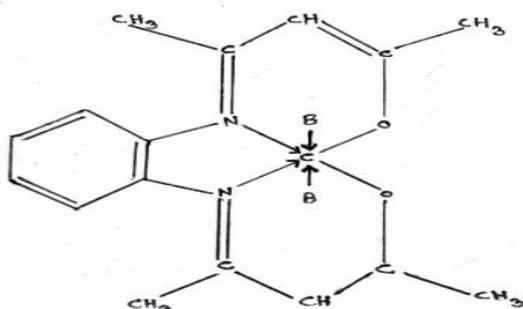


Figure- 1: The complexes of Co (II), Ni (II) and Cu (II) cations with o - (bis-acetylacetonato) phenylene diamine

Conclusion

The coordination in their tendency to form stable. Complexes cured due to chelation, importance in analytical chemistry to detect and estimate various metals, chelation tendency, future development and stability of the complexes have also been given to this chapter. This work has been undertaken to preserve the present knowledge. After extensive and intensive review work, it was found that a considerable work have been carried out. In this above it has been tried to furnish the important area.

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