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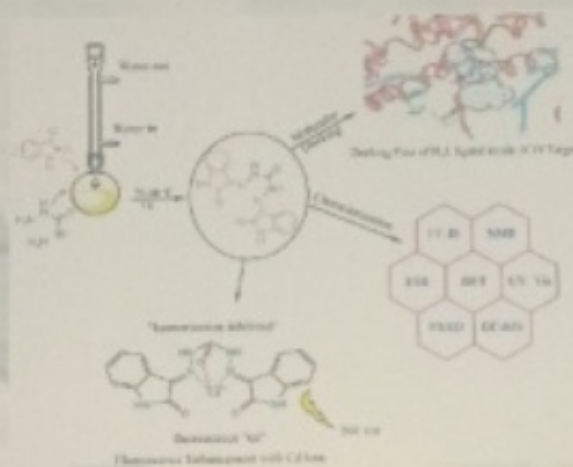
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STUDIES OF SCHIFF BASE LIGANDS, ITS COMPLEXES WITH MERCURY (II) AND THEIR APPLICATIONS- A REVIEW



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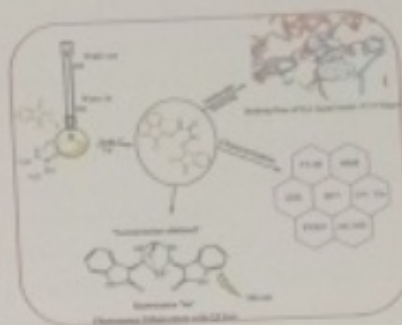
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ABSTRACT:

A variety of Schiff bases have been investigated. Mercury(II) with Schiff base ligands formed as supramolecular frameworks or multifunctional coordination polymers coordination geometry. Mercury (II) are also formed asymmetrical as well as nitrogen, sulphur and oxygen as donor Schiff-base complexes. Sometime mercury (II) are formed as donor Schiff-base complexes by non covalent linkages. The Schiff-base supramolecular complexes are biologically active substances, dyes, liquid crystals, luminophores and polymer stabilizers. The applications these Schiff-base complexes such as antimicrobial, antitumor, antidepressants, nematocide, antiphlogogistic and other medicinal significants. Another applications in the paper industry and as preservative, fluorescent lamps, sensors and batteries. The Schiff-base are used to simultaneous detection and removal of mercury (II) ions from water.



KEYWORDS- Schiff base, supramolecular complexes, mercury(II), detection and removal.

INTRODUCTION

The heavy and transition metal ions are very attractive because of their extremely toxic effect on the environment and biological systems. Among of these, mercury one of the most poisonous and toxic pollutants that are serious to health problems. The mercury and its salts find wide applications in industrial processes and products as such paints, electrical equipments and batteries. The mercury has different forms in environment such as Hg^0 , Hg^{2+} , and CH_3Hg^+ . The mercuric ion is neurotoxin as methyl mercury. The methyl mercury easily enter the environment and food chain of aquatic organisms and environment with mining, transportation and processes of mercury ores, dumping of industrial wastes into rivers and lakes, combustion of fossil fuels, pulp and paper industry, wood pulping, oil refining, solid waste burning, coal and gold mining, rubber processing, fertilizer industries, the use of mercury compounds as seed dressings in agriculture.^{1,2,3} The inorganic mercury may be change into organic mercury like methyl mercury, which are more toxic than inorganic mercury. Methyl mercury triggers several serious problems for humans such as allergic reactions, brain and neurological damage. For determination and identification of mercury compounds are generally used optical chemical sensors (optodes). Essential steps in fabrication of optical sensor is immobilization of ionophores on transparent membranes. The ionophore immobilized are physical entrapment, sol-gel, multilayered films or chemical bonding methods.⁴

The combination of inorganic mercury with natural component in soils, sediments or water is forming the complexes, specially amino or sulfide groups, which are change the toxicity of respective ion.⁵



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