

Thesis Title: “Exploration of coordination chemistry and applications involving different aminoquinoline based organic ligands”

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Abstract

NNO or NNN donor Schiff base ligands along with various polyatomic bridging anions are excellent combinations to produce various structural architectures and play an important role in the development of modern coordination chemistry and have various applications in the field of magnetism, catalysis, medicinal chemistry, gas storage, electron transport processes and sensing. The examples of application based metal compounds derived from different aldehydes and aminoquinolines based organic ligands are limited in literature. Therefore, designing and synthesis of such type of blocking ligands and its respective metal complexes are the present motive of this thesis.

Out of six chapters, **chapter 1** introduces the brief scientific survey on various application based coordination compounds involving either NNO or NNN donor based Schiff base ligands. Moreover, importance and different applications of 8-aminoquinoline based metal complexes are also decorated in this chapter. **Chapter 2** presents two ferromagnetic Ni(II) compounds involving 8-aminoquinoline based chelating ligands. **Chapter 3A** describes two Ni(II) based multifunctional coordination polymers. The investigation on metamagnetic behaviour with electrical property of these compounds has been revealed in this chapter. **Chapter 3B** contains another aminoquinoline based magnetic materials with Ni(II) metal centre. Multi-application (i.e., conductance and explosive material detection) oriented three coordination polymers involving Cd(II) metal ion have been included in **Chapter 4**. **Chapter 5** deals with another conductive Cd(II) based coordination polymer involving 8-aminoquinoline unit in ligand part. **Chapter 6** presents four Zn(II) based compounds. Structural diversity, MEP analysis and CT DNA binding study have been included in this chapter.

Amrita Saha. 24/8/22.

Signature of the Supervisor

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