Chapter 3

PYRAZOLE BASED LIGANDS: VERSATILE BUILDING BLOCKS

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ABSTRACT

Pyrazole and its derivatives are known for their versatile coordination chemistry due to the presence of two nitrogen donor sites in a five membered ring heterocycle. One nitrogen (>C=N−) is sp^2 hybridized whereas the other one (−NH−) is sp^3. When pyrazole acts as a neutral monodentate ligand, >C=N− of the five membered ring is involved in coordination with the metal. However, in anionic mode of ligation, deprotonated form of −NH− of heterocyclic ring forms a σ-bond with the metal. In addition to the neutral and anionic monodentate coordination mode, the pyrazole unit also acts as a bidentate anionic ligand with exo/endo modes of coordination. In addition to coordination chemistry of pyrazoles, the properties and a variety of applications of metal complexes of pyrazoles derivatives have been reported and found interesting. This chapter is focussed on synthesis and coordination chemistry of pyrazole based ligands and important applications of their metal complexes. Diversity in coordination properties of such

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