



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

The thesis originates from our interest to understand the basic chemistry involved in the binding to and activation of NO_x ($x = 1$ and 2) by transition metal ions. Amongst the first row transition metal ions, iron and copper have been studied well towards NO binding and activation. However, nickel and cobalt have not been studied to that extent, though both of these are known to exhibit interesting activity towards NO. In this context, as continuation of our study, first chapter deals with the general aspects of NO and NO_2 . In chapter two, two Co(II)-nitrosyl complexes with salen type of ligand have been synthesized. In later stage the reactivity of those metal-nitrosyls towards KO_2 has been investigated and ended up with formation of two Co(III) nitrate complexes *via* the formation of peroxynitrite intermediate. Next chapter of this thesis deals with NO reactivity Ni(II) center. Successively, the redox behaviour of the coordinated NO and its disproportionation to N_2O have been studied. In the next two chapters, relatively less explored reactivity of NO_2 with Ni(II) complexes have been discussed. In these cases, reduction of Ni(II) center by NO_2 and oxo transfer reactions from NO_2 to the metal coordinated nitrite (NO_2^-) ion have been observed.