The investigation on the chemistry of chromium embodied in this thesis has been carried out in the Inorganic Chemistry Laboratories, T.B. College, Jaunpur and in Chemical Laboratories Atarra Post Graduate College, Atarra (D.N.D.A.).

The inception of nitrosyl Chemistry starts with the isolation of nitropuszside in 1849. But the knowledge of nitrosyl chemistry of chromium in monovalent oxidation state is very scarce until now and the present study involves the chemistry of nitrosyl complexes of chromium in this oxidation state. New series of complex compounds of monovalent chromium have been prepared and described in this thesis including penta- and hexacoordinated non-electrolyte species using cyanide, thiocyanate, diethylthiocarbamate, acetylaceton and a few mono and bidentate ligands, some of which are quite novel containing cyano bridging. Structural aspects of some of the representative type of complexes have been undertaken with the help of magnetic, infrared, electronic, electron spin resonance, x-ray photoelectron and mass spectral studies.

The references cited in this thesis are covered up to the year 1978 and the part of the work presented in this thesis has been published in some journals of Chemistry.

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