A decorative border with floral and vine motifs framing the page. The border consists of a thin black line with ornate floral designs at the corners and midpoints of each side. The floral designs include leaves and what appear to be small flowers or buds.

***PREFACE***

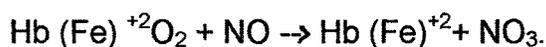
# P R E F A C E

There are many methods prescribed in literature, for the determination of transition metal ions. But studies of transition metal ions are still area of current interest.

The determination and extraction of Bivalent Transition Metal Complexes in Organic Solvent using "ISONITROSOTHIO CAMPHOR" reagent in visible region.

"NO" is a unique stable odd molecule and reversibly reacts with metal ion forming complexion "s" and "p" block element, such complexes have been described Tetra thionyl Chromium [Cr(NO)<sub>4</sub>] is an interesting example of the formally "Zero Valency" elements.

Transition metal exist in variable oxidation state and the energy of transition between these states is often small depending on the surrounding atoms. The formation of "metal – NO" complexes, can be associated with concomitant intermolecular redox reaction. At low 'NO' concentration, the metal ion is often one electron oxidizer or (less often) reducer thus enabling the formation of an even product in a reaction with a common even metabolite. Hence nitrite and thionitrites (S – nitrosothiols), which are even metabolites of nitrogen in the oxidation state +3, can be formed during one electron oxidation of "NO" by a transition metal ion without utilizing another "NO" molecule. The Oxygen hemoglobin complex forms nitrate and met hemoglobin in reaction with "NO".



This is first order reaction for the "NO" and it is very rapid. Details of Nitroso complex Chemistry have been revived by Mc Cleverly, and this review is still of current interest even though it as published in 1979.

The thesis contains five Chapters. A brief account of each Chapter is given below:

The introductory Chapter (Chapter – I) consist of detail survey of work, that has been done on the related title.

The second Chapter consists, determination of Cobalt (ii) by spectrophotometer in visible region. Some calculations are carried out to check the accuracy of the results and structure of the complexes are proposed with the help of infrared spectra.

The third Chapter consists of determination of Copper (ii) and work is repeated as mentioned in Chapter – II.

The Chapter fourth consists of determination of Nickel (ii) and work is repeated as mentioned in Chapter II.

The Chapter fifth consists; determination of Zinc (ii) and the work are repeated as mentioned in Chapter – II.