ABSTRACT

A careful analysis of the different reports made in the literature on the use of organic compounds as analytical reagents in the spectrophotometric determination of metal ions suggest that, the organic compounds with certain groups are specific for specific metals or group of metals. These organic compounds are acts as chelating agents to form stable and colored complexes with metal ions.

Among these organic compounds thiosemicarbazones or semicarbazones characterized by the presence of the atomic group (>C=N-N<) seems to offer advantageous over other. A large number of such thiosemicarbazones find applications as spectrophotometric analytical reagents in the determination of various metal ions like cobalt, copper and nickel.

Schiff bases also possess similar atomic groupings as present in the thiosemicarbazones. These are the derivatives of carbonyl compounds formed in the reaction with amino compounds constitute an important class of organic analytical reagents. Since the discovery of the first schiff base salicylidene aniline and its methyl derivative, many such reagents have been synthesized. These bases are characterized by the presence of >C=N- group capable of coordinating with the metal ion. Many poly-dentate ligands having de-localized orbitals gained importance because of their use as model compounds for biological systems. Schiff bases yielding bi-nuclear and bridged
complexes occupy a special place in the spectrophotometric determination of metal ions.

**Research methodology followed:**

- Synthesis and characterization of new organic reagents.
- To investigate the analytical properties of new reagents.
- Aimed to develop sensitive zero order and derivative (second and third derivative) spectrophotometric methods for the determination of metal ions by employing organic reagents.
- Aimed to develop derivative methods for the simultaneous determination of two metal ions present in admixture without need for previous separation or extraction and simultaneous equations.