MANGALORE UNIVERSITY

DEPARTMENT OF CHEMISTRY

M.Sc. CHEMISTRY

CH P 557: INORGANIC CHEMISTRY PRACTICALS – IV

COURSE OUTCOME:

- The students will have practical experience in determination of Na, K, Li and Ca by Flame photometry, Solvent extraction of Ni(II) and UO_2(II),
- Preparation and analysis of complexes, Measurement of Magnetic susceptibility,
- Determination of composition of complexes by Job's method, Mole ratio method, Slope ratio method,
- Determination of stability constants by Turner Anderson method, Bejrrums method and Polarographic method.

1. Colorimetric determination of Ti(IV) and Zr(IV)
2. Simultaneous colorimetric determination of two metal ions – Mn and Cr.
3. Flame photometric determination of Na, K, Li and Ca individually and in mixtures.
4. Electrogravimetric determination of (a) Cu-Ni alloy and (b) Pb in Type Metal.
5. Solvent extraction of Ni(II) and UO2(II).
6. Preparation of any three of the following complexes, checking the purity of the prepared samples by chemicals analysis, structural study of the prepared complexes using conductance and magnetic susceptibility measurements, recording the electronic and infrared spectra:

   i) Chloropentamminecobalt(III) chloride, ii) Hexamminecobalt(III)chloride.

   iii) Potassium trisoxalatoferrate(III) and iv) Potassium hexathiocyanatochromate(III)

   v) K3Cr(OX)3.3H2O vi) Cu(tu)3Cl vii)Zn(tu)3OSO3

7. Determination of composition of complexes:
   a) Job's method: Fe-phenanthroline complex
   b) Mole ratio method: Zr-Alizarin red S complex,
   c) Slope ratio method: Cu ethylenediamine complex,
   d)Limiting logarithmic method:Uranyl-sulphosalicyclic acid complex.

8. Determination of stability constants
   a) Turner Anderson method : Fe-Tiron system,
   b) Bejrrums's method : Cu – sulphosalicyclic acid system,
   c) Polarographic method :Cu-glycinate or Pb -oxalate system.

References:

1. J. Rose, Physicochemical Experiments
2. Vogel's Text Book ofQuantitative Chemical Analysis(5th Ed), G.H.Jeffrey, J. Bassette, J. Mendham and R.C. Denny, Longman, 1999.