Appendix
APPENDIX

- 1-Amino-2-naphthol-4-sulphonic acid
  0.5g 1-amino-2-naphthol-4-sulphonic acid dissolved in 195ml 15% sodium bisulphite solution to which 5ml 20% sodium sulphite solution was added.

- Alkali iodide azide reagent
  50g sodium hydroxide and 15g potassium iodide diluted to 100ml with double distilled water (DDW). 1g sodium azide dissolved in 4ml of DDW and added to the above solution.

- Ammonium acetate solution (1N)
  Dilute 57ml glacial acetic acid to 800ml DDW and neutralize to pH 7.0 with concentrated ammonium hydroxide and final volume made upto 1000ml.

- Ammonium chloride-ammonium hydroxide buffer
  (a) 16.9g ammonium chloride dissolved in 143ml concentrated ammonium hydroxide
  (b) 1.179g of dissolved EDTA and 0.780g magnesium sulphate dissolved in 50ml DDW. Both (a) and (b) solutions mixed and dilute to 250ml with DDW.

- Ammonium molybdate solution (2.5%)
  (a) 25.0g ammonium molybdate dissolved in 175ml DDW
  (b) Add 280ml concentrated H₂SO₄ to 400ml DDW and cool. Mix the two solutions (a) and (b) and final volume made upto 1 litre with DDW.

- Ammonium purpurate
  150mg ammonium purpurate dissolved in 100g ethylene glycol.

- Conditioning reagent
  50ml of glycerol mixed in a solution containing 30ml concentrated HCl + 300ml DDW + 100ml 95% ethyl alcohol and 75g sodium chloride.

- Dickman and Bray’s reagent
  15g ammonium molybdate dissolved in 300ml warm DDW (about 60°C) cooled and filtered, if necessary. To this, 400ml 10N HCl was added and final volume was made upto 1000ml with DDW.

- Diphenylamine indicator
  0.5g diphenyl amine dissolved in a mixture of 20ml DDW and 100ml concentrated H₂SO₄.

- EDTA (0.01M)
  3.723g disodium salt of ethylene diamine tetra acetic acid dissolved in DDW and diluted to 1000ml.
• **Eriochrome black T indicator**
  0.4g Eriochrome black T grind with 100g powdered sodium chloride.

• **Ferrous ammonium sulphate (0.5N)**
  196g ferrous ammonium sulphate dissolved in DDW, to this 20ml concentrated
  H₂SO₄ was added and the final volume made upto 1000ml.

• **Ferrous ammonium sulphate solution (0.1N)**
  39.2g ferrous ammonium sulphate dissolved in DDW. 20ml of concentrated
  sulphuric acid was added and volume made upto 1000ml.

• **Folin phenol reagent**
  100g sodium tungstate and 25g sodium molybdate dissolved in 700ml DDW to
  which 50ml 85% phosphoric acid and 100ml concentrated hydrochloric acid were
  added. The solution was refluxed on a heating mantle for 10 hrs. At the end, 150g
  lithium sulphate, 50ml DDW and 3–4 drops liquid bromine were added. The
  reflux condenser was removed and the solution was boiled for 15 minutes to
  remove excess bromine, cooled and diluted upto 1000ml. The strength of this
  acidic solution was adjusted to 1N by titrating it with 1N sodium hydroxide
  solution using phenolphthalein indicator.

• **Hydrochloric acid (0.01N)**
  0.86ml pure hydrochloric acid mixed with DDW and final volume made upto
  1000ml.

• **Hydrochloric acid (0.1N)**
  8.62ml hydrochloric acid mixed with DDW and final volume made upto 1000ml.

• **Hydrochloric acid (0.2N)**
  17.24ml HCl mixed with DDW and final volume made upto 1000ml.

• **Isopropanol solution (5%)**
  5ml isopropanol mixed with 95ml DDW.

• **Liquid ammonia (1:1)**
  Ammonia having 0.88 specific gravity diluted with equal volume of DDW.

• **Manganous sulphate solution**
  108g manganous sulphate dissolved in boiled DDW and volume made upto
  200ml.

• **Methyl orange indicator (0.05%)**
  0.5g methyl orange dissolved in 100ml DDW.

• **Molybdic acid reagent (2.5%)**
  6.25g ammonium molybdate dissolved in 75ml 10N sulphuric acid. To this
solution, 175ml DDW was added and maintained the total volume 250ml.

- **Murexide indicator**
  0.2g ammonium purpurate grind with 100g powdered sodium chloride.

- **Naphthylethylenediamine dihydrochloride (NED–HCl) solution (0.02%)**
  20mg naphthylethylenediamine dihydrochloride dissolved in sufficient DDW and final volume maintained upto 100ml with DDW.

- **Nessler’s reagent**
  3.5g potassium iodide dissolved in 100ml DDW to which 4% mercuric chloride solution was added with stirring until a slight red precipitate remained. Thereafter, 120g sodium hydroxide with 250ml DDW was added. The volume was made upto 1 litre with DDW. The mixture was filtered twice and kept in an amber coloured bottle.

- **Olsen’s reagent**
  42.0g sodium bicarbonate dissolved in 1000ml and DDW. The pH was adjusted to 8.5 with the addition of small quantity of sodium hydroxide.

- **Phenol disulphonic acid**
  This was prepared by taking 25g pure phenol (C₆H₅OH, crystal white) in a conical flask (500ml) to which 150ml concentrated H₂SO₄ and 75ml fuming sulphuric acid were added and kept on boiling water bath for 2 hours. After cooling, it was stored in an amber coloured bottle.

- **Phenolphthalein indicator**
  0.5g phenolphthalein dissolved in 50ml of 95% ethanol and add 50ml DDW. Add 0.05N CO₂ free NaOH solution drop wise until the solution turns faintly pink.

- **Phosphate buffer (0.1M) for pH 7.5**
  (a) 13.6g potassium dihydrogen ortho phosphate dissolved in sufficient DDW and final volume made upto 1000ml with DDW (b) 17.42g dipotassium hydrogen ortho phosphate dissolved in sufficient DDW and final volume maintained upto 1000ml with DDW. 160ml of solution (a) and 840ml of solution (b) were mixed for getting phosphate buffer.

- **Potassium chromate indicator (5%)**
  5g potassium chromate dissolved in DDW and final volume made upto 100ml.

- **Potassium dichromate solution (1N)**
  49.04g potassium dichromate dissolved in 1000ml DDW.

- **Potassium dichromate solution (0.25N)**
  12.259g potassium dichromate dissolved in DDW and final volume made upto 1000ml.
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- **Potassium nitrate solution (0.2M)**
  2.02g potassium nitrate dissolved in sufficient DDW and final volume maintained upto 100ml with DDW.

- **Reagent A**
  0.5% copper sulphate solution and 1% sodium tartarate solution mixed in equal volumes.

- **Reagent B**
  50ml 2% sodium carbonate solution mixed with 1ml reagent ‘A’.

- **Silver nitrate solution (0.02N)**
  3.4g silver nitrate dissolved in DDW and diluted to 1000ml.

- **Sodium hydroxide solution (0.1N)**
  4g sodium hydroxide dissolved in 1000ml DDW.

- **Sodium hydroxide solution (1N)**
  4g NaOH dissolved in DDW and final volume made upto 100ml.

- **Sodium hydroxide solution (2.5N)**
  100g sodium hydroxide dissolved in 1000ml DDW.

- **Sodium hydroxide solution (6N)**
  24g NaOH dissolved in sufficient DDW and final volume made upto 100ml.

- **Sodium thiosulphate solution (0.025N)**
  6.2g sodium thiosulphate dissolved in 1000ml DDW.

- **Stannous chloride solution**
  10g crystalline stannous chloride dissolved in 25ml concentrated HCl by warming, and then stored in an amber coloured bottle, giving 40% stannous chloride stock solution. Just before use, 0.5ml was diluted to 66ml with DDW.

- **Starch indicator**
  1g starch dissolved in 100ml warm (80-90°C) DDW and a few drops of formaldehyde solution were added.

- **Sulfanilic acid solution**
  600mg sulfanilic acid dissolved in 70ml warm DDW. After addition of 20ml concentrated HCl, the volume was made upto 100ml.

- **Sulphanilamide solution (1%)**
  1g sulphanilamide dissolved in 3N 100ml hydrochloric acid.
• **Sulphuric acid (0.01N)**
  0.272ml sulphuric acid diluted in DDW and final volume made upto 1000ml.

• **Sulphuric acid (0.02N)**
  0.544ml sulphuric acid added to DDW and the final volume made upto 1000ml.

• **Sulphuric acid (7N)**
  190.4ml concentrated sulphuric acid added to DDW and the final volume made upto 1000ml

• **Sulphuric acid solution**
  500ml concentrated H₂SO₄ added to 125ml DDW and cooled.