

PHOSPHORUS AND PHOSPHATE

M.Sc. IV SEM

Reenu mishra

PREPARATION OF SOIL SAMPLE

- Soil sample was collected from the spot.
- Five samples are collected.
- Soil sample were transferred to polythene begs and labeled.
- In lab the soil sample were air dried, grass and any external objects were removed.

EXTRACTION OF SPIL SAMPLE-

- 50 gm of soil sample were weighed , transferred to 250 ml of stopper conical flask and shaken with 50 ml of distilled water. The shaking was done by mechanical shaker for exactly 10 min. leaved the sample for 30 minutes for getting equilibrium, the sample were filtered and centrifuge.
- The extraction for phosphate determination were done by 50 ml of NaHCO_3 AT Ph 8.5, because phosphate donot leach from the soil but are retained in forms that may be removed only by extraction with various salt, acids and alkaline solutions.

ANALYSIS OF PHOSPHATE-

- EXTRACTION SOL.-
- 42 g of sodium bicarbonate was dissolved and was adjusted to Ph of 8.5 with 50% NaOH and acetic acid.
- Mixed reagents-
- 1. STANDARD SOL.- Sool of ammonium molybdate was prepared by dissolving 7 g of salt in 250 ml of distilled water.
- 2. Antimony potassium tartrate was prepared by dissolving 0.291 g in 100 ml of dist. Water.
- 3. both of the dissolved reagents (1 and 2) were added into 1000 ml of 5N H₂SO₄ ,mixed thoroughly made to 2000 ml with dist. Water and were stored in a Pyrex glass bottle in a dark compartment.

COLOR DEVELOPING REAGENTS

Ascorbic acid was prepared by dissolving 2.625g in distilled water and diluting to 500ml.

- STOCK PHOSPHATE SOL.
- 4.3937 g of the over dried KH_2PO_4 salt was dissolved in dist water. 1 ml of concentrated H_2SO_4 was added and the solution was diluted to 1L in a volumetric flask.

INTERMEDIATE PHOSPHATE SOL.-

It was prepared by diluting 25 ml of the stock solution up to 100 ml using redistilled water.

- STANDARD PHOSPHATE SOL.-
- It was prepared by diluting 10 ml of intermediate phosphate sol. Up to one liter with extracting sol.
- Phosphate concentration can be observed by using spectrophotometer.

Method

10 ml aliquot was placed in a 50 ml measuring flask and added amount of dist. Water 10 ml of the color developing reagents was added stirred stand for 15 min then added at 880 nm by using Spectronic 21 D UV/Visible Spectrophotometer and glass cell.

- PREPARATION OF STANDARD CALIBRATION CURVE-
- By taking volumes of 0.00 to 16 ml from the standard solution of KH_2PO_4 into 50 ml volumetric flasks and treated as above.

References

- Samira A. Ben Mussa et al, “Determination of Available Nitrate, Phosphate and sulphate in Soil Sample”, international journal of Pharm Tech Research, vol-1, No.3, pp598-604, july-sep 2009