

B.Sc. II Semester

Paper: BBT 2002

Unit II

Mineral Nutrition in Plants

Lecture I

- Plant nutrition is the study of the chemical elements and compounds necessary for plant growth and reproduction, plant metabolism and their external supply.
- In its absence the plant is unable to complete a normal life cycle, or that the element is part of some essential plant constituent or metabolite.
- Plants takes up essential elements from the soil through their roots and from the air (mainly consisting of nitrogen and oxygen) through their leaves.

Essential Elements

- More than 60 elements are reported from the plants and of these 17 elements are essential elements.
- On the basis of quantity required by plants these elements are divided into

(i) Macro/Major elements (1-10mg/g dry wt.)
Include C, O, H, N, P, S, K, Ca, Mg

(ii) Micro/Minor elements (0.1mg/g dry wt)
Include: Fe, Mn, B, Zn, Cu, Cl, Ni, Mn

IAPP

According to the recommendations of the International Association of Plant Physiology the elements required by plants in concentrations greater than 0.5 mmol l^{-1} are referred to as macroelements and those in concentrations less than 0.5 mmol l^{-1} are microelements

Function

Some essential functions include

- ❖ Part of biomolecules (Structure)
- ❖ Part of energy producing compound (ATP)
- ❖ Activate or inhibit enzyme activity

Criteria for essentiality

By Arnon and Stout (1939)

- **Which is required for growth and reproduction in plants**
- **Must be specific in requirement**
- **Directly involve in metabolic reaction**

Follow Lecture II