

## Chapter 12

# MINERAL NUTRITION

### Role of macro and micronutrients:

#### Nitrogen:

Requires in large amount.

- Mainly absorbed  $\text{NO}_3^-$  and also as  $\text{NO}_2^-$  or  $\text{NH}_4^+$ .
- It's required by all parts particularly meristematic tissue and metabolically active cells.
- It is major constituent of protein nucleic acid vitamins, hormones.

#### Phosphorous:

Absorbed as phosphate ions ( $\text{H}_2\text{PO}_4^-$  or  $\text{HPO}_4^-$ ). It is constituent of cell membrane, certain proteins all nucleic acids and nucleotides. It is required for phosphorylation reactions.

#### Potassium:

Absorbed as  $\text{K}^+$ . Required in large quantities in meristematic tissue buds, leaves and root tips. It maintains anion – cation balance required in protein synthesis helps in opening and closing of stomata, activation of enzymes and maintain turgidity of cells.

#### Calcium:

Absorbed as  $\text{Ca}^{2+}$  required by meristematic tissue and differentiating tissue during cell division used to synthesis cell wall particularly as calcium pectate in middle lamella. It is involved in formation of mitotic spindle. It accumulate in older leaves requiring for normal functioning

of cell membrane, activate certain enzymes also maintain important metabolic activities.

**Magnesium:**

Absorbed as divalent  $Mg^{2+}$ . It activate enzymes of respiration, photosynthesis involved in synthesis of DNA and RNA. It is constituent of mg structure of chlorophyll helps to maintain ribosome structure.

