Research & Reviews: Research Journal of Botanical Sciences ISSN: 2320-0189

Metabolism and Functions of Plant Nutrition

Simon Poole*

Department of Plant Science, Arba Minch University, Southern Nations, Ethiopia

Opinion Article

Received: 13-Sep-2022, Manuscript No. JBS-22-68568; **Editor assigned:** 16-Sep-2022, PreQC No. JBS-22-68568 (PQ); **Reviewed:** 30-Sep-2022, QC No. JBS-22-68568; **Revised:** 7-Oct-2022, Manuscript No. JBS-22-68568 (R); **Published:** 16-Oct-2022, DOI: 10.4172/2320-0189.11.6.004.

***For Correspondence:** Simon Poole, Department of Plant Science, Arba Minch University, Southern Nations, Ethiopia

E-mail: poolesim@gmail.com

DESCRIPTION

Research of the chemical compounds and elements involved in plant metabolism, development, and reproduction is known as plant nutrition. The element may be an essential element of a plant constituent or metabolite if the plant cannot complete a regular life cycle without it.

The seventeen various elements make up the total required plant nutrients include carbon, oxygen, and hydrogen, which are absorbed from the air, while other nutrients like nitrogen are often picked up from the ground.

These substances are absorbed by plants as ions because they remain in the soil as salts. The macronutrients are absorbed in greater amounts; on a dry matter weight basis, Carbon, Hydrogen, Oxygen, and Nitrogen account for approximately 95% of a plant's total biomass. Micronutrient concentrations in plant tissue are measured in parts per million (ppm), or less than 0.02% dry weight, and range from 0.1 to 200 ppm.

The important nutrients that plants require from their development medium are:

The macronutrients: Carbon (C), Oxygen (O), Hydrogen (H), Calcium (Ca), Sulphur (S), Magnesium (Mg), Phosphorus (P), Potassium (K), Nitrogen (N), and Phosphorus (P). Iron (Fe), Boron (B), Chlorine (Cl), Manganese (Mn), Zinc (Zn), Copper (Cu), Molybdenum (Mo), and Nickel (Ni) are the micronutrients (or trace minerals).

Nutrient deficiency:

A nutrient deficiency can cause a variety of symptoms, such as a slightly slowed rate of growth or more apparent stunting, deformity, discoloration, distress, and even death. Visual clues can occasionally be discerned clearly enough to aid in identifying a deficiency. Most of the deficiencies are numerous. While a single nutrient deficiency is uncommon, Nitrogen is frequently the nutrient that is in the shortest quantity.

Foliage chlorosis is not usually caused by a lack of minerals or nutrients. Solarization can have consequences that are seemingly comparable to those of mineral deficiencies, although neither causes premature defoliation nor lowers nitrogen concentration.

Macronutrients:

The most typical effects of nitrogen deficiency are chlorosis, slow development, and growth retardation. Due to an accumulation of anthocyanin pigments, plants with low nitrogen levels will also have colored stems, petioles, and leaf axils. Similar to nitrogen deficiency, phosphorus deficiency can cause symptoms like a light greenish coloration or a reddening of the leaves due to a lack of chlorophyll. The leaves of the plant may become dehydrated and exhibit signs of death if it is suffering from severe phosphate deficits. Occasionally, a buildup of pigment may cause the leaves to appear purple. "Contrary to nitrogen deficit, phosphate deficiency is extremely difficult to detect, and crops may experience drought without displaying any obvious symptoms."

Without a continuous stream of calcium to continuously producing cells, the root system is less effective. Even short interruptions in the calcium supply can have an adverse effect on cellular processes and root function. Folding of the leaf toward the veins or the middle of the leaf is a typical sign of calcium shortage in leaves. This might frequently look skewed as well.

If some calcium-deficient crops experience a massive increase in humidity, the tips of the leaves may seem burned and cracking may happen. Phloem-fed tissues may experience calcium insufficiency, which can lead to bitter apple pits, empty peanut pods, and blossom end rot in melons, chilies, and tomatoes.

In enclosed tissues, a calcium imbalance can rise in "brown heart" in greens like collard greens and "black heart" in celery. Researchers discovered that the fatty acid content of phosphatidyl choline in Brassica napus L. plants was unaffected by partial deficits of K or P. On the other hand, calcium deficiency did result in a significant decline of polyunsaturated compounds, which would be expected to have detrimental effects on the integrity of the plant membrane and could affect some properties like its permeability. Polyunsaturated compounds are also required for the ion uptake activity of the root membranes.