

One Liner Shots (Plant Hormone)

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What are plant hormones?

Plants require natural elements like sunlight, oxygen, water and minerals for their growth and development. These elements are external factors. Other than this, some internal factors regulate the growth of plants. These are called plant hormones. Plant hormones are often known as “**Phytohormones**”.

The basic functions of the plant hormones are:

- Hormones influence the growth of a plant
- It also affects the development of plants
- In plants, hormones promote cell division and initiate tissue formation.
- Processes like germination, vernalization, phototropism, etc, are also promoted by hormones.

There are majorly **5 types** of hormones found in plants. These are:

1. Auxin
2. Gibberellin
3. Cytokinin
4. ABA
5. Ethylene

Auxin

- Auxin is derived from the Greek 'auxein' which means to grow.
- The term 'auxin' is applied to the indole-3-acetic acid (IAA), along with other natural and synthetic compounds having certain growth-regulating properties.
- It is generally produced by the growing apices of the stems and roots, from where they migrate to the regions of their action.
- Auxins have been used extensively in agricultural and horticultural practices.
- They help to initiate rooting in stem cuttings.
- Auxins are massively used for plant propagation.
- It saves crops from falling at early stages and prevents leave separation.

Gibberellins

- Gibberellins are denoted as GA1, GA2, GA3 and so on.
- The first Gibberellin discovered was Gibberellic acid (GA3).
- All GAs are acidic. These produce various physiological responses in plants.
- Gibberellin turns a dwarf tree into a long tree.
- Gibberellins cause fruits like apples to elongate and improve their shape.
- It also helps in flowering.
- Activity in the cambium is caused by Gibberellin.

Cytokinin

- It sanctions in coordination with Auxins.
- Natural cytokinins are synthesized in regions where rapid cell division takes place.
- It helps to produce new leaves, chloroplasts in leaves, lateral shoot growth and adventitious shoot formation.
- Cytokinins help to overcome apical dominance.
- It breaks seed dormancy.

Ethylene

- Ethylene is highly effective in **fruit ripening**.
- It enhances the respiration rate during ripening of the fruits.
- Ethylene promotes rapid internode/petiole elongation in deep-water rice plants.

- It helps to raise the number of female flowers.
- Ethylene also promotes root growth and root hair formation.
- The gas used for artificial fruit ripening is either ethane or ethylene.

Abscisic Acid (ABA)

- ABA is against growth, keeping seeds and buds in dormant condition.
- It delays flowering.
- ABA stimulates the closure of stomata and increases the tolerance of plants to various kinds of stresses. Hence, it is called the **stress hormone**.
- In plants, seed development, seed maturation and dormancy are caused by ABA.

