

Chemical Coordination in Plants

- Plants respond to stimuli by showing movement.
- Examples of movements in plants
 - When you touch a sensitive plant such as *touch-me-not* (*Mimosa pudica*), the plant folds its leaves and droops.
 - When a seed germinates, the root grows down in the soil and the stem grows up in the air.
- In the first example, the plant shows movement by folding its leaves and there is no growth involved. So, it is a **Growth-independent movement**.
- In the second example, the seed germinates and shows directional movement. The movement of the seedling is caused by growth. If the seedling is prevented from growing, then it will not show any movement. Thus, it is a **Growth-dependent movement**
- **Movement in Plants**
- Plants show tropic movement and nastic movement.
- In tropic movement plant either moves towards or away from the stimulus. The movement could be phototropic (towards/away from light), geotropism (gravity stimulated), thigmotropism (touch stimulated) or hydrotropism (moisture stimulated)
- Nastic movements occur in response to environment stimulus but they are different from the tropic movements since the direction of response is not dependent on the direction of stimulus.
- Nastic movements may be classified as thigmonastic, thermonastic and photonastic.

Tropic movement

- Directional movement of a specific part of the plant in response to an external stimulus
- Phototropism- response to light
- Geotropism- response to gravity
- Hydrotropism- response to water
- Chemotropism- response to chemicals
- Thigmotropism- response to touch

Hormones in plants

- Growth and development in plants is possible because of plants hormones or phytohormones
- Auxin-growth of stem
- Gibberellin- promote stem elongation
- Cytokinin- promote cell division
- Absciscic acid- promotes seed dormancy
- Ethylene- regulates fruit ripening