

CLASS 10

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SUBJECT BIOLOGY

TEACHER Nidhi Rana

CHAPTER - 7 CHEMICAL COORDINATION IN PLANTS

TROPIC MOVEMENTS - The movement of plant parts in direct response to external stimuli.

Tropic movements are directional growth movements occurring in plants in response to external stimuli. These movements are either towards the stimulus or away from it (i.e. directional).

Different types of tropic movements -

- (i) PHOTOTROPISM - Growth movement of plant parts in response to stimulus of light. Shoots bend towards the source of light and roots grow away from it. Thus shoots are positively phototropic and roots are negatively phototropic. Auxins play an important role in phototropism. Auxins help in bending of a shoot towards the source of light by getting accumulated in the region of the shoot which is not facing the light. This results in rapid cell elongation (growth) in this side, thus causing the shoot to bend growth towards the source of light.

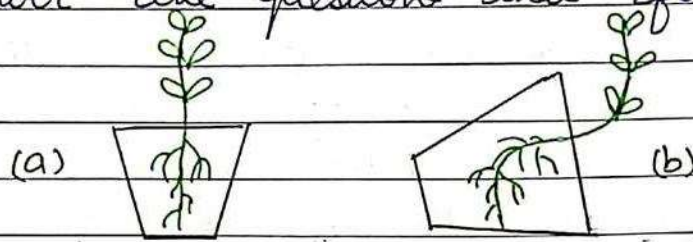
Activity 1

[Read the activity from text book Pg 85]

Assignment 1

- Q1 What is the aim of the experiment?
- Q2 Which is the phenomenon demonstrated in the activity?
- Q3 What is the stimulus in the experiment?
- Q4 What is the observation and why?
- Q5 Which hormone is responsible for the phenomenon? What is the role of the hormone in bringing out this phenomenon?

GEOTROPISM means growth movement of plant parts in response to gravity. Plant organs that move towards the gravity are positively geotropic and those that grow away from gravity are negatively geotropic. Carefully observe the diagram shown below and answer the questions that follow -



Assignment - 2

- Q1 Which phenomenon is observed in the above activity?
- Q2 Which plant part shows positive and which shows negative tropic movement shown above?
- Q3 What is the observation and why?

Activity 3

Assignment - 3

Read the activity 3 given in text book at Pg 86. and answer the following questions -

- Q1 What phenomenon is observed in the activity?
- Q2 Name the instrument that is used to demonstrate the phenomenon.
- Q3 What is observed as a result of the activity? Why?

HYDROTROPISM - Growth movement of plant parts in response to water/moisture. Plant part that grows towards water (i.e. roots) is called positively hydrotropic and the plant part that grows away from water (i.e. stem) is called negatively hydrotropic. Growth of roots towards water ensures that roots

will be near the source of water and will continuously receive water for growth.

THIGMOTROPISM Growth movement of plant parts in response to stimulus of touch. For eg - tendrils in Cuscutta, vines, sweet pea etc coil around other plants in response to one sided contact/touch. Thus the tendril of a weak stemmed plant twines around the support, showing thigmotropism.

ACTIVITY 4 Assignment 4.

Read the activity given on Pg 87 of your text book and answer the following questions -

- Q1 What is the aim of the activity?
- Q2 Which 2 phenomenon are observed in the activity?
- Q3 What is observed as a result of the activity?
Why?
- Q4 Which two stimulus are acting on the roots?
Which of the two stimuli is stronger?

CHEMOTROPISM is the growth movement of plant parts in response to chemicals. Eg -

- (i) The movement of pollen tube towards sugars and peptones secreted by neck cells of the female gametophyte
- (ii) The movement of fungi growing towards the areas richer in food
- (iii) The movement of tentacles in Drosera towards the source of nutrition

HELIO TROPISM Phenomenon of young sunflower's heads following the sun across the sky as it moves from east to west directions. This is due to presence of auxins which are sensitive to sunlight. Auxins migrate from the plant part in sunlight to the shaded region of stem.

Auxins eventually stimulate the growth of cells in shaded region of the stem, so the flowers end up bending in the opposite direction i.e. towards the sun.

NOTE FOR STUDENTS

Kindly go through the chapter as discussed in the text book as well as in the given notes. Give multiple readings to grasp the topics completely.

HOME ASSIGNMENTS

Q1 Students are required to write down the answers to the questions given in Assignment 1, 2, 3, 4 (given in these notes) in their notebooks.

Q2 Do the following questions in the notebooks from Review questions -
D Structured / Application / Skill type
Q No. 3 and 4 in the notebooks.