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Question 1:

What are plant hormones?

Answer 1:

Plant hormones or phytohormones arenaturally-occurring organic substances. These are synthesized in one part of the plant body (in minute quantities) and are translocated to other parts when required. The five major types of phytohormones are auxins, gibberellins, cytokinins, abscisic acid and ethylene.

- *Gibberellins* help in the growth of the stem.
- *Auxins* help in the growth of the stem.
- *Cytokinins* promote cell division.
- *Abscisic acid* is one example of a hormone which inhibits growth.

Question 2:

How is the movement of leaves of the sensitive plant different from the movement of a shoot towards light?

Answer 2:

- The movement of leaves of the sensitive plant, *Mimosa pudica* or "touch me not", occurs in response to touch or contact stimuli. This is done by plant cells by changing the amount of water in leaves. This movement is independent of growth.
- The movement of shoot towards light is known as phototropism. This type of movement is directional and is growth dependent.

Question 3:

Give an example of a plant hormone that promotes growth.

Answer 3:

Examples of plants growth hormones:

- *Gibberellins* help in the growth of the stem.
- *Auxins* help in the growth of the stem.
- *Cytokinins* promote cell division.

Question 4:

How do auxins promote the growth of a tendril around a support?

Answer 4:

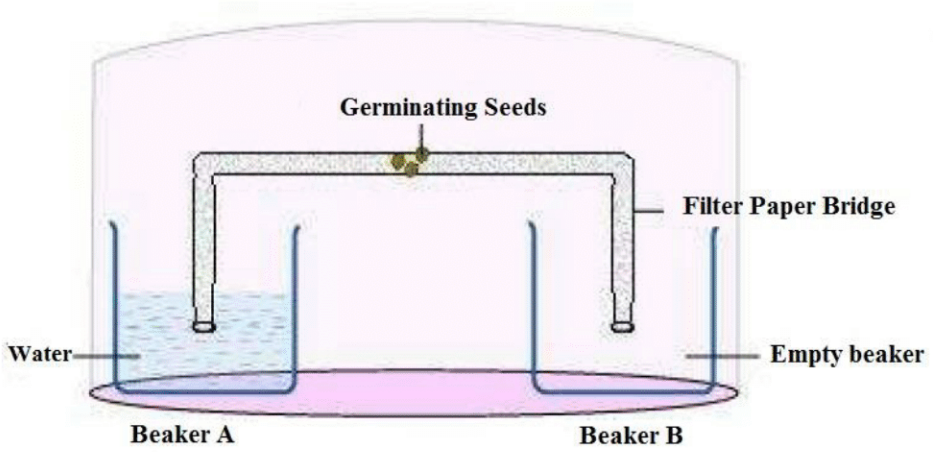
These tendrils are sensitive to touch. When they come in contact with any support, auxin (a growth hormone) diffuses from the part of the tendril in contact with the object to other side, which is not in the contact. Therefore the part of the tendril in the contact with the object does not grow as rapidly as the part of the tendril away from the object. This causes the tendril to circle around the object and thus cling to it.

Question 5:

Design an experiment to demonstrate hydrotropism.

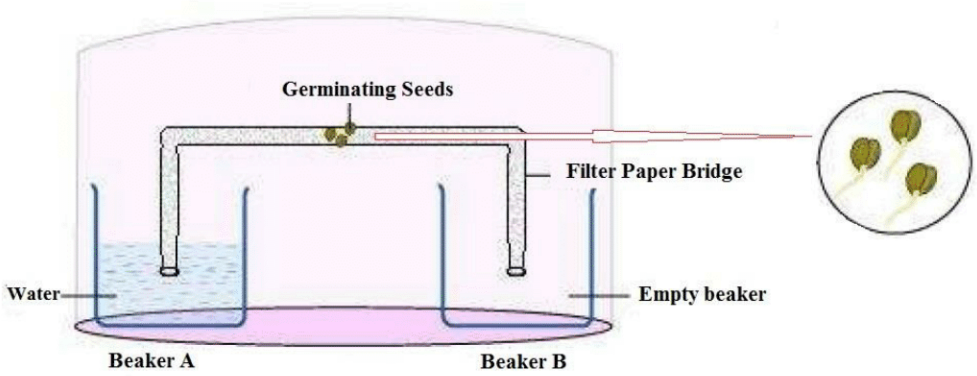
Answer 5:

Take two small beakers and label them as A and B. Fill beaker A with water. Now make a cylindrical-shaped roll from a filter paper and keep it as a bridge between beaker A and beaker B, as shown in the figure. Attach few germinating seeds in the middle of the filter paper bridge. Now, cover the entire set-up with a transparent plastic container so that the moisture is retained.



Observation:

The roots of the germinating seeds will grow towards beaker A.



This experiment demonstrates the phenomenon of hydrotropism