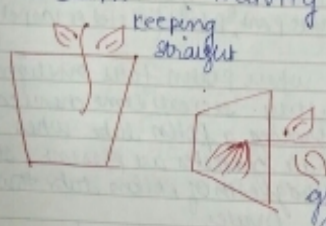


The part of stem touching the stem has less auxin as compared to the part that is not touching. Hence elongation will be more in the area where auxin is present more and bends towards the stem & touches the bamboo.

Geotropism

Stem → roots
-ve stem

Activity



horizontally to the ground

we will find a plant is growing upwards & roots downwards.

PHOTOTROPISM

Stem: +ve
roots -ve

Take a plant and keep it in a room where light is coming from one side only. After a few days, the plant starts bending towards the area having light. As auxin has tendency to move towards dark so stem has bend towards light.

PLANT HORMONES
(Phytohormones)

⇒ Auxins
⇒ Gibberellins
⇒ cytokinins
⇒ Abscisic acid

Auxin:- 1) cell enlargement, 2) cell differentiation. It also promotes 3) stem, root growth.

Gibberellins:- 1) They also help in cell enlargement, 2) differentiation 3) promote fruit growth induce 4) Parthenocarpy → development of seedless fruits

Cytokinins:- 1) responsible for cell division. A cell divides under the following conditions
grows.

⇒ Cell division
⇒ Cell enlargement
⇒ Cell differentiation

2) It is also responsible for opening of stomata
3) It also breaks the dormancy (when the conditions are not favourable for the seed to germinate) of seeds & buds.

Abscisic acid:- 1) Helps in closing of stomata
2) Induces the dormancy of seeds & buds
3) Falling of leaves.

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• Breathing Centre of Brain

Faster & deep breathing

more oxygen in blood & faster removal of CO₂

• Muscles

Contracts them

ready for tense, jerking movements

• Arterioles of Skin

constricts them

less blood to the skin

Stings more to the muscles

• Arterioles of Digestive tract

constricts them

less blood to the digestive tract

more to the muscles

ORGAN	EFFECT	ADVANTAGE	SENSATION
HEART	more breathing rate & higher blood pressure	More O ₂ & CO ₂ to the muscles	Thumping
Breathing Centre of Brain	faster & deeper breathing		

Amine Hormones

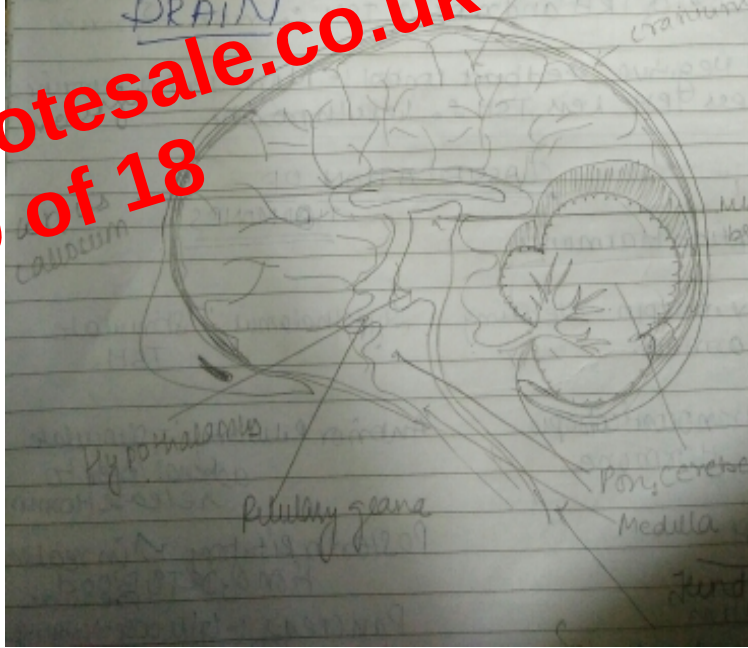
Epinephrine :- Adrenal Medulla

Thyroxine :- Thyroid

Steroid Hormones

Glucocorticoid, Mineralocorticoids, Oestrogen, Progesterone, Testosterone.

BRAIN



COORDINATION IN PLANTS

It is divided into Nastic movements & Tropic movements
Nastic movements are divided into 2 parts
:- Autonomic
:- Paratonic

Autonomic :- It is due to internal changes. It is caused due to the bulliform cells present at the lower layer of epidermis that causes the folding and unfolding of leaves due to change in turgor pressure.
Ex:- Indian Telegraph plant or Demonidium gracilis

Paratonic is further divided into:-
1) Hydronasty
2) Thigmonasty
3) Chemonasty
4) Nyctinasty
5) Seismonasty

HYDRONASTY :- It is caused by the bulliform cells present in the lower layer of grass that regularly lose and gain water.

THIGMONASTY :- It is the variation in the movement of plant due to stimulus only of touch like Mimosa.

CHEMONASTY :- It is caused variation caused by chemical stimulus like Diosma.

NYCTINASTY :- It is the sleep movements that are caused in response to change in light and darkness. The unfolding happens in the night and the folding during the day eg: Legumes sp.

SEISMONASTY :- It is caused due to shock, injury or electric shock. For Eg:- Touch-me-not plant folding of leaves.

TROPIC MOVEMENTS

1) Phototropism
2) Geotropism
3) Hydrotropism
4) Chemotropism
5) Thigmotropism

Phototropism :- Caused by sunlight. Stem grows towards light, while roots grow away from light.
Stem:- +ve
Root:- -ve

GEOTROPISM :- Caused by unilateral pull of Earth.
Root:- +ve
Stem:- -ve

HYDROTROPISM :- Caused by H₂O.
Root:- +ve
Stem:- -ve

CHEMOTROPISM :- Caused by chemical stimulus. Eg: growth of pollen tube towards ovule.