

## STANDARD X BIOLOGY CLASS 23

### CHAPTER 3 CHEMICAL MESSAGES FOR HOMEOSTASIS

#### Chemical messages for communication

##### Pheromones.

- Chemical substances that are secreted by certain animals to the surroundings to facilitate communication are called pheromones.
- There is no specialized glands to produce pheromones.

##### FUNCTIONS:

- Attracting mates, informing the availability of food, determining the path of travel, signalling dangers etc.
- The chemical messages of pheromones help honey bees and termites to live in colonies.
- The reason behind the movement of ants in a line along a particular trail is due to the production of pheromones.

##### Examples for pheromones

The muscone in the musk deer, the civetone in the civet cat, bombykol in the female silk worm moth etc.

##### Artificial Pheromones

- Artificial pheromones are used for pest control in agricultural fields.

##### Plant hormones

- Plant hormones control and coordinate life activities in plants.

These are also called plant growth regulators

##### Plant hormones and their functions:

### Auxin

Cell growth, cell elongation, promoting the growth of terminal buds, fruit formation.

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Auxin



## Gibberellin

Stimulates break down of stored food to facilitate germination, sprouting of leaves



## Cytokinin

Cell growth, cell division, cell differentiation.



## Abscisic acid

Dormancy of embryo, dropping of ripened leaves and fruits.



## Ethylene

Ripening of leaves and fruits, excess amount of ethylene causes dropping of leaves and fruits.



## Artificial Plant Hormones

➤ Plant hormones are synthesized artificially by identifying the chemical structure of the hormones. Use of such hormones has contributed a lot to the progress of the agricultural sector.

### Auxins

➤ It is used in the agricultural field to prevent the dropping of premature fruits, for the sprouting of roots and as a weedicide.



### Gibberellins

➤ It is used for increasing fruit size in grapes and apple and also for preventing ripening of fruits to assist marketing.



### Ethylene

➤ Ethylene is used for the flowering of pineapple plants at a time and for the ripening of tomato, lemon, orange etc. Ethephon, a chemical which is available in liquid form, gets transformed into ethylene, when used in rubber trees and it increases the production of latex.



### Abscisic acid

➤ It is used for harvesting fruits at the same time.



## DEERITS OF ARTIFICIAL HORMONES:

- The uncontrolled use of these chemicals causes many health and environmental issues.
- Complete the following table

Plant hormones	Function
Auxin	
Abscisic acid	
	break down of stored food in the seed
	helps in the ripening of fruits

- WRITE A NOTE ON MERITS AND DEMERITS OF ARTIFICIAL PLANT HORMONES.