

CLASS XII BIOLOGY

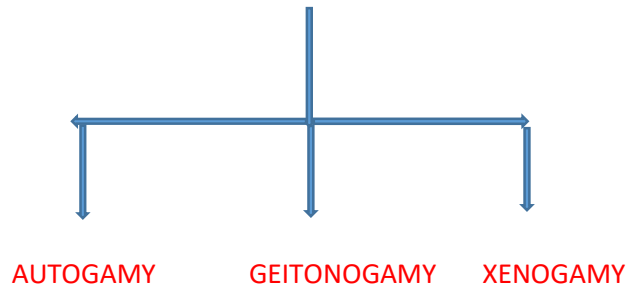
CHAPTER 2: SEXUAL REPRODUCTION IN FLOWERING PLANTS.

TOPIC: POLLINATION – KINDS OF POLLINATION AND AGENTS OF POLLINATION.

POLLINATION

Pollination is the process of transfer of pollen grains from anther to stigma of a flower

TYPES OF POLLINATION



AUTOGAMY

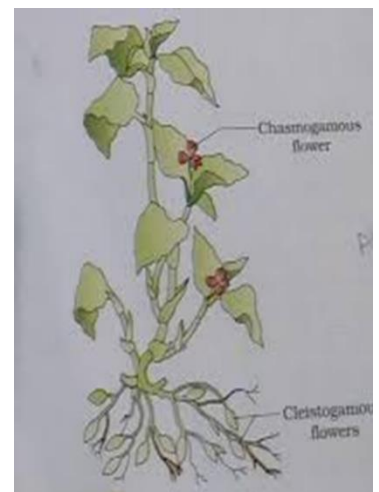
- ▶ Transfer of pollen grains from anther to stigma of the **same flower**.
- ▶ Flowers with exposed anthers and stigma requires synchrony in pollen release and stigma receptivity for autogamy.
- ▶ The anthers and stigma should lie close to each other so that autogamy can occur.

CHASMOGAMOUS FLOWERS

- ▶ Flowers with **exposed anthers and stigma**
- ▶ Flowers open at maturity.
- ▶ Flowers are colourful, large and with nectar.
- ▶ Eg: pea, beans etc

CLEISTOGAMOUS FLOWERS

- ▶ Flowers which **do not open at all**.
- ▶ Anthers and stigma lie close to each other.
- ▶ When anthers dehisce in the flower buds, pollen grains come in contact with stigma to effect pollination.
- ▶ Cleistogamous flowers produce assured seed set even in the absence of pollinators.
- ▶ **Cleistogamous flowers are invariably autogamous.**
- ▶ Eg: Viola, Oxalis etc



GEITONOGAMY

- ▶ Transfer of pollen grains from anther to the stigma of **another flower of the same plant**.

- ▶ Geitonogamy is functionally cross- pollination but genetically autogamy since the pollen grains come from same plant.

XENO GAMY

- ▶ Transfer of pollen grains from **anther to the stigma of a different plant.**
- ▶ During this process genetically different types of pollen grains fall on the stigma.

AGENTS FOR POLLINATION

ABIOTIC AGENTS

- ▶ Wind:- Common in grass and cereals
- ▶ Water:- in some aquatic plants.

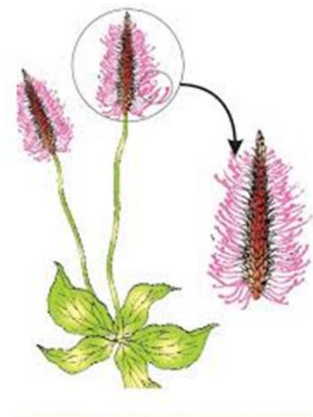
BIOTIC AGENTS

- ▶ Insects:- bees, moths, wasps
- ▶ Birds
- ▶ Bats
- ▶ Reptiles
- ▶ Mammals

ADAPTATIONS IN FLOWER FOR POLLINATION

WIND POLLINATION (ANEMOPHILY**)**

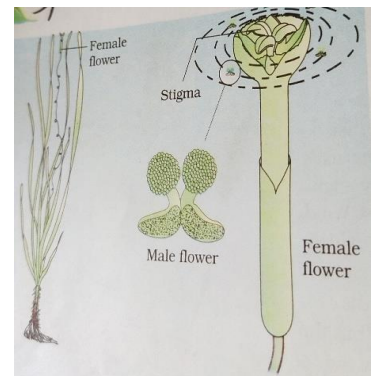
1. Pollen grains are transferred with the help of wind.
2. Pollen grains are light and non- sticky
3. Stamens are well exposed.
4. Large and feathery stigma.
5. Flowers have a single ovule in each ovary and many flowers are packed in to an inflorescence.
6. Eg: corn cob.



WATER POLLINATION (HYDROPHILY**)**

1. Very rare in flowering plants.
2. In Vallisneria, the female flowers reach the surface of water and the pollen grains are released on the surface of water. They are carried by water currents.
3. Pollen grains have a mucilaginous cover to prevent wetting.
4. Flowers are not very colourful and do not produce nectar.

Eg: Vallisneria, Hydrilla



INSECT POLLINATION (ENTOMOPHILY)

1. Flowers are large , colourful, fragrant and rich in nectar
2. Flowers are clustered in to inflorescence when the flowers are small.
3. Flowers provide rewards to the animals in the form of nectar and edible pollen grains.
4. Pollen grains are generally sticky in nature.
5. Eg: Rose, Jasmine

