

Pollination and its Mechanism

Pollination is the act of transferring pollen grains from the male anther of a flower to the female stigma. The goal of every living organism, including plants, is to create offspring for the next generation. One of the ways that plants can produce offspring is by making seeds. Seeds contain the genetic information to produce a new plant.

“The process by which pollen grains are transferred from anthers to stigma is referred as pollination”.

How does pollen get from one flower to another? Flowers must rely on vectors to move pollen. These vectors can include wind, water, birds, insects, butterflies, bats, and other animals that visit flowers. We call animals or insects that transfer pollen from plant to plant “**pollinators**”.

Type of Pollination -

- A. Self Pollination or Autogamy
- B. Cross Pollination or Allogamy
- C. Often cross pollination

A. Self pollination – Generally it is two type-

a) **Autogamy**- Transfer of pollen grains from the anther to the stigma of same flower is known as autogamy or self pollination.

- ❖ Autogamy is the closest form of inbreeding.
- ❖ Autogamy leads to homozygosity.

Eg- Tomato Brinjal, Okara, Soybean, Potato.

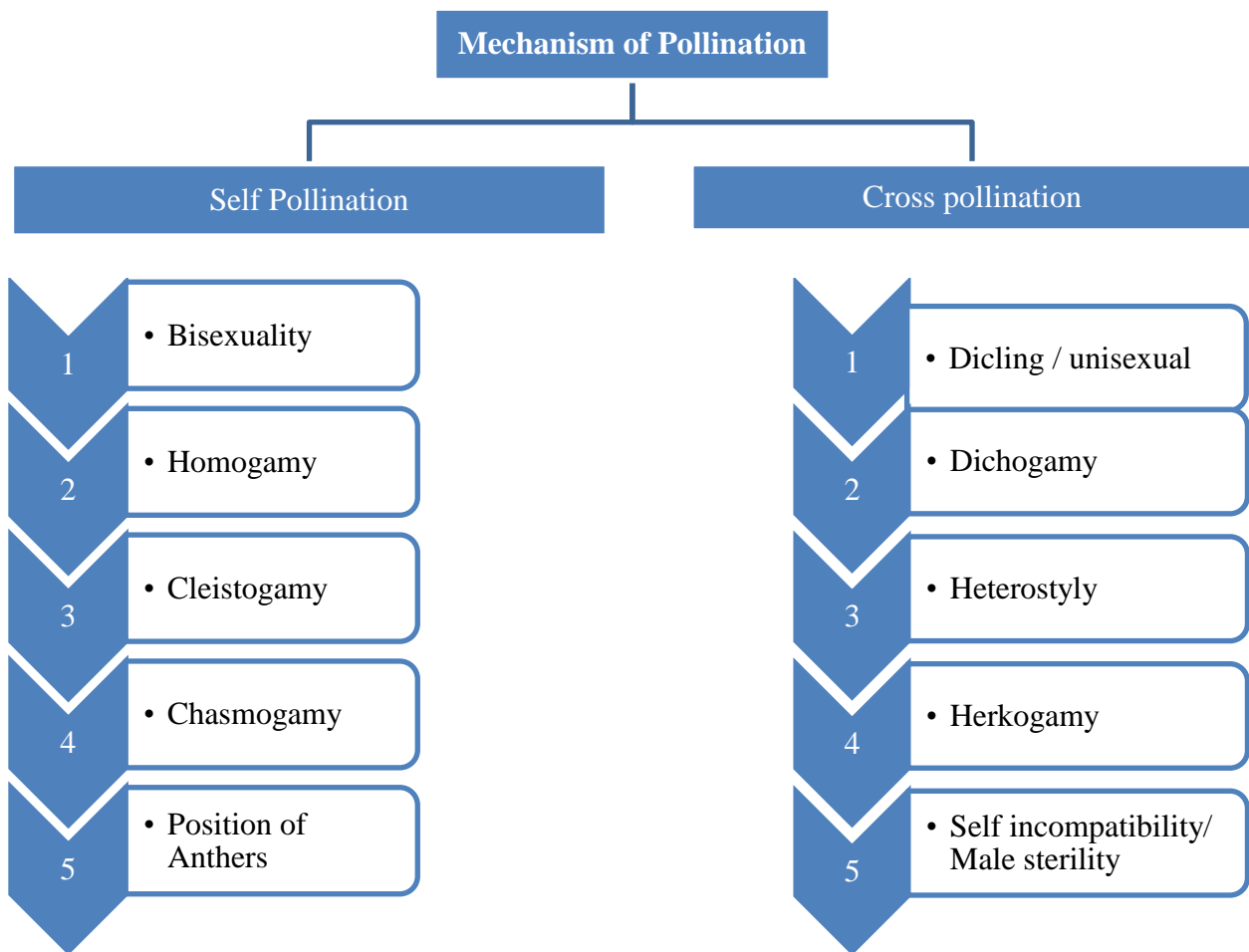
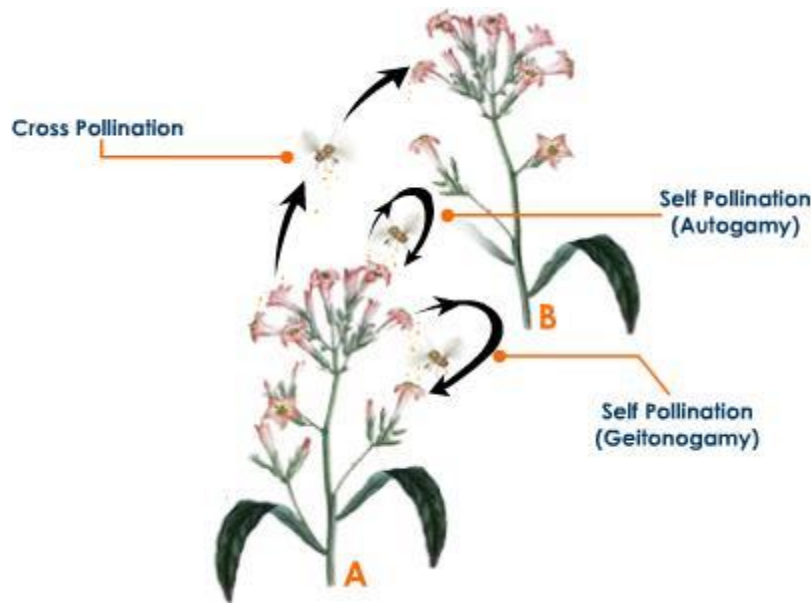
b) **Geitonogamy** - In this form, pollination occurs between two flowers of the same plants which has same genetic consequence like autogamy.

B. Cross pollination- Transfer of pollen grains from the anther to the stigma of different plant is known as autogamy or self pollination.

Eg. Maize, Sunflower etc.

C. Often cross pollination: In many self pollinating species, cross pollination may occur up to 5% or even reach to 30%, such species are referred as often cross pollinating species.

Eg – cotton, sorghum, tobacco, tur, safflower etc.



- 1. Bisexual Flowers:** Flower contain both male and female organ in a same flower on a plant is known as bisexual flower.
- 2. Unisexual flower:** When a flower contains only male or female organ, it is called as unisexual flower.

or

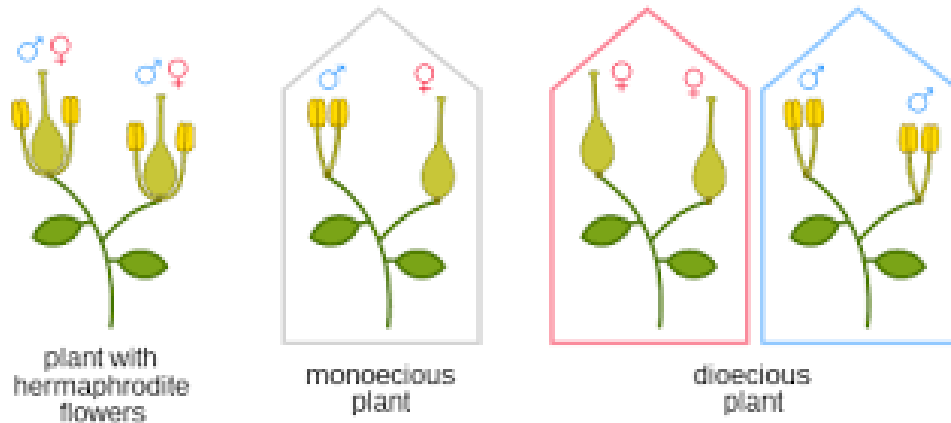
Male and female organ are found on different flower or different plant is know of Unisexual flower.

These are two type -

- (i) Monoecious plant
- (ii) Dioecious plant

(i) **Monoecious plant-** Male and female organ or flower found on same plant.
Eg- Corn (Zea mays), Cucurbits, castor Coconut, mango coconut.

(ii) **Dioecious plant-** Male and female flowers are on different plants. Means there is male plant & female plants.
Eg. Papaya, Date palm. asparagus, spinach



- 3. Homogamy:** Maturation of anthers and stigma of a flower at the same time is called as homogamy.
- 4. Dichogamy:** It refers to maturation anther and stigma of the same flowers at different time.

It is two type -

- (i) **Protogyny:** When pistil or female organ matures before anthers is called Progogyny.
Eg- Pearl millet.

(ii) **Protandry**- When anthers or male organ matures before female organ is called Protandry.

Eg- Maize, sugarbeet

5. **Cleistogamy** - When pollination and fertilization occur in unopened flower bud, it is known as cleistogamy.

Eg -Some variety of wheat, barley and oats.

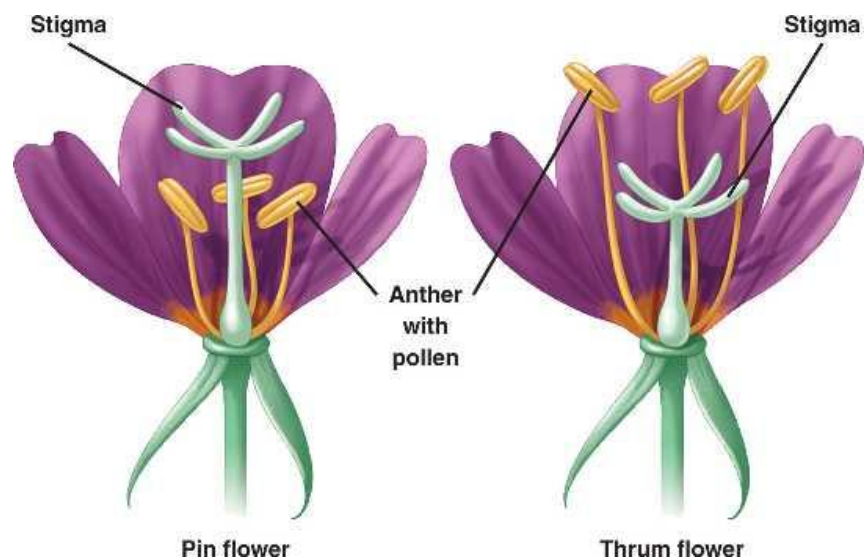
6. **Chasmogamy**: Opening of flowers only after the completion of pollination is known as chasmogamy.

Eg- Wheat, barley, rice and oats.

7. **Heterostyly**: When styles and filaments in a flower are of different lengths, it is called heterostyly.

It is two type - pin flower and thrum flower, the pin flower have long pistil and short stamen, where a reverse in the case of thrum flowers.

Eg- Maize is a Pin flower.



8. **Herkogamy**: Hindrance to self-pollination due to some physical barriers such as presence of hyline membrane around the anther is known as herkogamy.

Eg- Alfalfa