Homogamy:

This refers to the ripening of the anthers and stigmas of a bisexual flower at the same time. This homogamous condition promotes self-pollination through one of these ways.

- Pollinating agents readily carry pollen grains from the mature anthers to the receptive stigmas.
- The filaments of anthers may bend over (recoil), bringing the anthers near the stigmas. The anthers then burst and discharge the pollen grains directly on the stigmatic surfaces. E.g. four o'clock plant (Mirabilis). In some species, the stigmas bend over to touch the mature anthers when cross-pollination fails, a common practice in members of the sunflower and hibiscus families.
- In tubular flowers e.g. periwinkle and ixora, the anthers are arranged at the mouth of the corolla tube. As the carpels mature, the stigmas push their way out through the tube, brushing against the mature anthers as they do so.

Cleistogamy:

This refers to the condition in which ripe pollen grains are discharged directly onto the receptive stigmas of some closed bisexual flowers. Here the bisexual flowers never open, they are closed.

This usually occurs among closed flowers that is, bisexual flowers which never open at all.

Advantages of Self-Pollination

1. There is no waste of pollen grains.

2. It is a sure way of ensuring pollination as it does not involve any distance.

3. The flower structures are less complicated and many do not need mechanisms to achieve pollination.

Disadvantages of Self-Pollination

1. It leads to the production of less healthy seeds or weak offspring as a relut of continuous or repeated self-pollination.

2. The offspring or individuals produced are less adapted in environment when there are changes in conditions of the environment.

3. There are little or no variations among precies and the rate of evolution is slower.

Conditions or Features, When Aid Cross-Poilington

A Dichogany:

i

This is the maturation of stamens and carpels of bisexual flowers at different times. These usually prevent self-pollination as dichogamous flowers function as male flowers when only the stamens are mature and as female flowers when only the carpels are mature. There are two types of dichogamous flowers:

Protandrous (Protandry):

This is when the stamens of a flower mature earlier than the carpels of that flower or other flowers of the same plant so that the mature pollen grains are only useful to flowers of other plants which have mature stigmas to receive them. E.g.; sunflower, okra and cotton.

Usually, the carpels only mature and stigmas receptive when the stamens have finished shedding all their pollen.

ii. Protogyny (Protogynous):

This is when the carpels of a flower mature earlier than its stamens or those of other flowers of the same plant so that it can only receive pollen grains from flowers of other plants. Examples are Dutchman's pipe, palms and figs.

B. Unisexuality:

This is a situation in which some plants bear only male or female flowers and not both on the same plant. Unisexual flowers occur either in Dioecious or Monoecious plants.



usually unisexual and dioecious i.e. the male and female flowers are borne on separate trees. Sometimes, however, the female tree also bears male flowers. (See modern biology for more on Paw-paw)