Unit summary note

Std 6, Unit-3, Flower to flower (Part-2)

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Seed formation

For the formation of fruits and seeds, the male gamete from the pollen grain should reach the ovary and fuse with the egg. This involves two processes named pollination and fertilization.

Fertilization

Fusion of male gamete with the egg is called fertilization.

Pollination

Transfer of pollen grains to the stigma is called pollination.

Pollinating agents

Factors that help pollination are called pollinating agents. Eg:- Organisms like butterflies, honey bees, beetles, ants, flies, birds, bats, wind, water etc.

Peculiarities seen in flowers to attract pollinating agents

- Presence of honey
- Attractive colour
- Fragrance
- Night blooming flower have white colour and more fragrance (Eg; Jasmine, nisagandhi)
- Flowers in which pollinating agents are flies have foul odour(Eg:- Taro,elephantyam,rufflessia)
- Small flowers are seen as inflorescence (Eg:-Lantana, ixora)
- Tender leaves of non attractive flowers change their colour like petals (Eg:- Mussaenda, Bouggainvillea)

To see an interesting video on this topic, click on the following link

https://www.youtube.com/watch?v=5ebUyZmepaA&list=PL9AshZEiXvDliKbw3pxDbolYQCAfmEHp3&index=11

Pollination through wind and water

Wind is the pollinating agent of many plants. Eg:- Paddy, wheat, maize, sugarcane. Water is the pollinating agent in some aquatic plants like valisneria and hydrilla. Water (dew drops) is the pollinating agent in pepper too. Flowers that pollinate through wind and water have some adaptations.

Adaptations for flowers in which pollination happens through wind

- Have a large number of pollen grains
- Pollen grains are lighter in weight

Adaptations for flowers in which pollination happens through water

- Pollen grains have a wax coating
- Stigma is sticky

Match the following (Page 39)

Light weight pollen grains	-	Wind
Colourful flowers	-	Honey bee
White flowers that bloom at night	-	Moth
Pollination in pepper	-	Water (Dew drops)

Artificial pollination

Pollen grains from superior quality plants are collected and dusted on the stigma of other plants to produce high quality seeds. This is artificial pollination. We had to adopt artificial pollination to cultivate vanilla, as there is no melipona bees in our country which are the pollinating agents of vanilla.

Effective pollination

Pollination becomes effective when the pollen grains fall on the stigma of flowers of the same kind. Pollen grains that fall on the stigma of other kinds of flowers may get destroyed. Eg:- If pollen grains of a pumpkin flower fall on the stigma of an ash gourd plant, the pollination will not be effective.

Self and cross pollination

There are two types of pollination named self pollination and cross pollination. If pollination happens by reaching the pollen grains of a flower on the stigma of the same flower or on the stigma of another flower of the same plant, it is called self pollination. If pollination happens by reaching the pollen grains of a flower on the stigma of another flower of another plant, it is called cross pollination.

To see a video on this topic, click on the following link

https://www.youtube.com/watch?v=6FrI5kpBCxk&list=PL9AshZEiXvDliKbw3pxDbolYQCAfmEHp3&index=7

Do both types of pollination occur in plants like cucumber, bitter gourd, pumpkin etc.? Why?

No. Because they are unisexual flowers. Pollen grains and stigma are seen in separate flowers in them.

Changes happening to flowers after pollination

Parts of the flower	Change
Pedicel	Becomes thicker and stronger
Thalamus	Becomes thicker and stronger
Calyx	Becomes thicker and stronger
Corolla	Withers
Androecium	Withers
Ovary	Becomes fruit
Ovules	Becomes seed

Types of fruits

Simple fruits

In some plants, only one fruit is formed from each flower. These fruits are called simple fruits. Eg:- mango, ash gourd, tomato, coconut, rice, papaya, ladies finger.

Aggregate fruits

In some plants, more than one fruit is formed from a flower. Such fruits are called aggregate fruits. Eg:- custard apple, black berry, polyalthia fruit, frangipani, strawberry

Multiple fruits

In some plants, many flowers are arranged on a common stalk. After fertilization, fruits are formed from each of these flowers and are arranged inside a common covering. Such fruits are called multiple fruits. Eg:- Jack fruit, pineapple, noni fruit.

What is chakkachula, chakkukkuru and chakkachavini in a jackfruit?

In jackfruit, chakkachulas are the fruits, chakkakkurus are the seeds and chakkachavinis are the flowers in which pollination failed.

False fruits

In some plants, parts like the pedicel, thalamus etc., develop into fruit like structures. These are called false fruits. Eg:- cashew apple (pedecil), apple (thalamus), pear (thalamus)

To see a video on different types of fruits, click on the following link

https://www.youtube.com/watch?v=mazu1k_2FQY&list=PL9AshZEiXvDliKbw3pxDboIYQCAfmEHp3&index=25

Explain the advantage of false fruits based on seed dispersal.

In false fruits, the real fruits are not fleshy. Instead, the false fruits are fleshy. The birds and bats that help in seed dispersal will take these fruits, eat the fleshy part and leave the seeds.

Examine the figures given in page 43 of the text book and find out the right statement related to each fruit.

Strawberry - More than one ovary in a flower

Chilli - Flowers are seen ony by one (single flower)

Arecanut - Flowers Are seen as inflorescence

Let us assess

1. Observe the picture. What inferences can be made about bitter gourd flower

- It has one ovary
- It's ovary is elongated
- It's ovary contains many ovules

1. **Parts like petals, androecium etc., wither and fall down after fertilization. The pedicel, thalamus and calyx become stronger. Explain the reason.**

   Petals are to attract pollinating agents and androecium is to provide pollen grains. So they are useless after pollination. The pedicel, thalamus and calyx become stronger because, they have to hold the fruit.

പാഠഭാഗങ്ങളുടെ കൂടുതൽ പി.ഡി.എഫ്. ഫയലുകളും വീഡിയോകളും ലഭിക്കാൻ TECH Malappuram ശാസ്ത്രാധ്യാപക കൂട്ടായ്മ വികസിപ്പിച്ച ശാസ്ത്രച്ചെപ്പ് ആപ്പ്,പ്ലേസ്റ്റോറിൽ നിന്നും ഡൗൺലോഡ് ചെയ്ത് ഇൻസ്റ്റാൾ ചെയ്യുക.
https://play.google.com/store/apps/details?id=com.basith.sasthracheppuapp.