Parthenocarpy

Embryology of Angiosperms

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AP in Botany

Parthenocarpy

"Parthenocarpy is the production of fruits without the fertilisation of ovules.

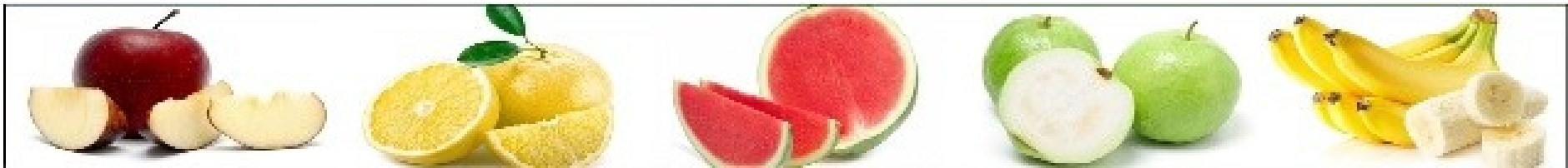
Fruits like banana and figs are developed without fertilisation and do not produce any viable seeds."

Fruits are developed without the formation of seeds is called **parthenocarpy**.

Parthenocarpic fruit means "virgin fruit" (seedless fruit).

The term "**Parthenocarpy"** first introduced by **Noll (1902)**.

Parthenocarpy Fruits: e.g. Apple, Banana, Pinapple, Citrus, Cucumber, Brinjal, Watermelon, Fig fruits (Ficus) etc.



After fertilization, the ovary becomes the fruit and the ovule becomes the seed.

Here, the condition in which fruit is developed without fertilization of ovules is called parthenocarpy.

Parthenocarpy is the development of fruit without formation of seed due to lack of pollination, fertilization or embryo development.

Parthenocarphic fruits means “seedless or Virgin fruits”.

Many commercial purpose was fruits are made seedless fruits.

E.g. Banana, Grapes, Papaya.

Parthenocarpy types

Parthenocarpy classified into 3 types: (Nitsch, 1963).

- Genetically Parthenocarpy (Natural)
- Environmental Parthenocarpy (Natural)
- Chemically Induced Parthenocarpy (Artificial Methods)

Genetically Parthenocarpy

This type of parthenocarpy arises due to hybridization or mutation.

Example: Citrus, Cucurbita

Naturally, parthenocarpy occurs in Pinapple, Banana, Papaya, Figs etc.

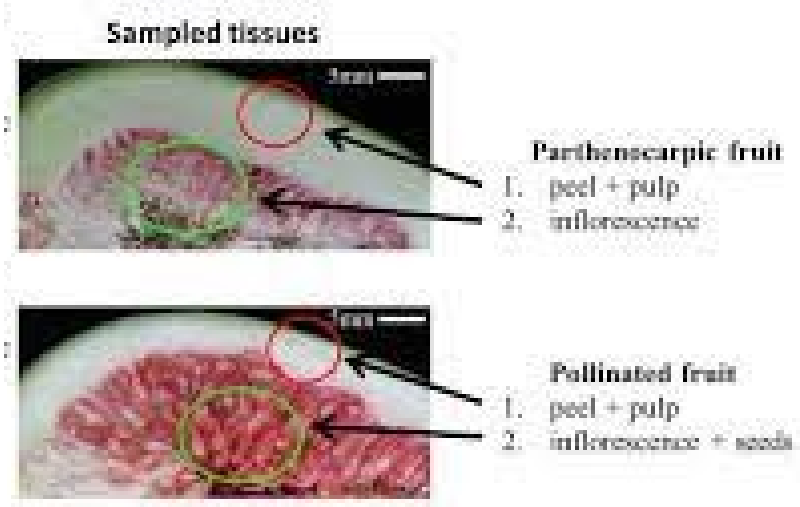
Bananas are sterile, developed without viable ovaries and do not produce seeds.

Which are propagate through vegetative (rizhome).

Environmental Parthenocarpy

Environmental conditions like frost, low temperature, light etc induce the parthenocarpy fruits.

Low temperature is induce the sterile seed fruits. E.g. Figs.



Chemically Induced Parthenocarpy

Parthenocarpy can be induced artificially.

Spraying of growth hormones like Gibberlines, Auxines.

In cultivation, about 15 types of Gibberelins are used to induced parthenocarpy.

It results in the maturation of the ovaries without the process of fertilization and produces bigger and pulby fruits.

Example: Apple, Squash, Cucumber, Tomato, Brinjal, Grapes, Watermelon etc.

Significance of Parthenocarpy

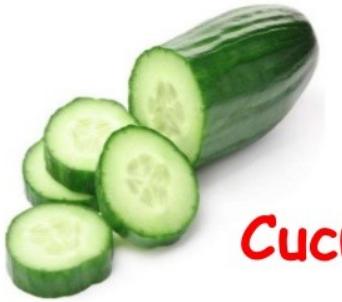
The seedless fruit have great commercial important quality.

It reduces the complete cost of the cultivation.

Seedless fruits are useful for the preparation of jams, jellies, souces, fruit drinks etc.

High proportion of edible part is available in parthenocarpic fruits due to the absence of seeds.

Plant growth regulators are natural and the fruits produced are large size.



Cucumber

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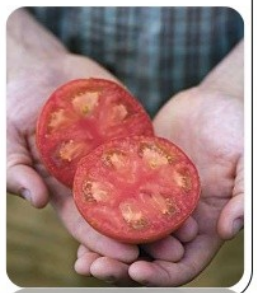
Tomato



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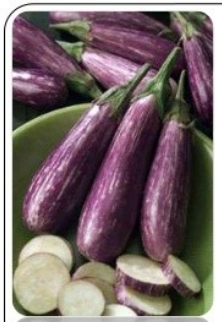

Brinjal

38

Watermelon

49

Seedless watermelon varieties from KAU

Red seedless

(KAU-CL-TETRA 1 x CL-4)

Yellow seedless

(KAU-CL-TETRA 1 x CL-5)