

*Giving relevant examples, explain how seeds and fruits are adapted to the various methods of dispersal (20 marks)*

*Adaptations of wind dispersed seeds and fruits*

-Seeds and fruits develop hairy and feather-like projections; to increase their surface area enabling them to be carried by wind, and be dropped some distance from parent plant.

Examples: Fruits/seeds of cotton, dandelion and sonchus.

-Some seeds and fruits develop papery extensions thus forming wing-like structures.

-The extensions increase the surface area of seed and fruit so that they are easily carried away by air-currents, which drop them away from the parent plant.

Examples: fruits of jacaranda and Nandi flame;

-Several wind-dispersed seeds are small and light, enabling them to be carried by air currents. Examples: Seeds of grasses and some orchids.

-Censor mechanism; some capsule shaped ovaries dry up and are partially opened off at the top.

-The capsule is placed at the end of the stalk such that when it is shaken, to- and fro- by wind, the seeds become shaken out and scattered.

Examples: -Sesamum spp /stmalm): Nicotiana spp. (Tobacco)

*Adaptations of animal dispersed seeds and fruits.*

-Some fruits are hooked (sticky) on the ovary wall, or into the calyx.

-These hooks stick on the fur/hairs (or clothes in man) of passing animals; this enables them to be carried and be deposited to a new site from parent plant.

Examples: - Black jack (Bidens pilosa), desmodium etc.

-Fruits that are succulent /fleshy/ juicy (fleshy pericarp) are eaten by animals and their seeds discarded same distance away from parent plant.

Examples: Berries like oranges, Bananas, mangoes, guavas etc.

-Some fruits have brightly coloured epicarp, which attracts animals, facilitating feeding and hence dispersal.

Examples: - Oranges, Bananas, mangoes etc.

-Other succulent fruits are aromatic/scented i.e. has sweet smell; which attracts animals. The animals feed on the fruits and discard the seeds away from the parent plant.

Examples: - Oranges and bananas.

-Some fruits have seeds with coats (testa) that are hard and resistant to digestive enzymes.

-The fruit together with the seeds are swallowed; the seeds being hard and indigestible are passed out with faeces while they are still capable of germination.

Examples: -Guava, mangoes, avocados, oranges etc.

-Other seeds are covered with sticky (mucoid) material, and are carried on the feet of birds, and consequently discarded away from the parent plant.

*Adaptations of water dispersed seeds and fruits:*

-They have air spaces making them light and able to float on water. i.e. they are buoyant.

Examples: - Water lily, coconut etc.

-They have a waterproof cover which makes them float without water entering them.

Example: - Coconuts.

*Adaptations of self-dispersed seeds and fruits (explosive mechanism).*

-Occur in dry dehiscent fruits e.g. legumes/ pods.

-After pod dries up, the seeds break off from the placenta and are placed inside the pod. Due to loss of water from the pod and the pressure within the pod, the dividing walls open violently.

-In the process seeds are thrown away from the parent plant.

Examples: -Beans, pea etc.

-Some fruits have lines of weakness (sutures) along which the pod opens violently due to development of pressure from within.