Asexual Reproduction in Organism

1. **What is Reproduction?**
   Ans. Reproduction can be defined as the production of young ones of one's own kind.

2. **Reproduction are how many types?**
   Ans. Reproduction are two types
   i. Asexual Reproduction
   ii. Sexual Reproduction

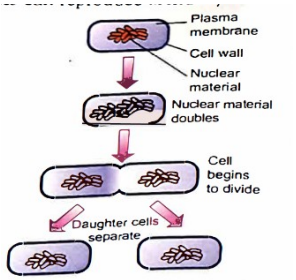
3. **What is Asexual Reproduction?**
   Ans. Asexual reproduction is a type of reproduction which does not involve the fusion of gametes or change in the number of chromosomes.
   - Asexual reproduction involves a single parent. Thus, the off springs have exactly the same features as of parent.
   - In this process, a new individual is produced without the involvement of gametes or sex

4. **What is vegetative propagation?**
   Ans. A few plants can also reproduce from their vegetative pants, such as leaves, stems, roots, etc. This type of reproduction is called vegetative propagation.
   Ex: Cynodont; Mint, Onions, Garlic, and Tulips etc.

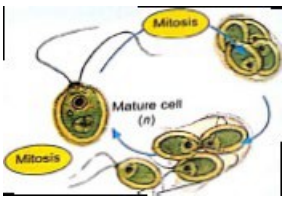
5. **What is Sexual Reproduction?**
   Ans. Sexual reproduction is a type of reproduction that involves a complex life cycle in which a gamete (such as a sperm or egg cell) with a single set of chromosomes (haploid) combines with another to produce an organism composed of cells with two sets of chromosomes (diploid).
   - Sexual Reproduction which involves formation and fusion of male and female gametes.
   - The offspring has a mixture of paternal and maternal features.
   - This is the most common method of reproduction in higher plants.

6. **Asexual Reproduction are how many times?**
   Ans. Asexual Reproduction are following types:
   a. Binary Fission
   b. Fragmentation
   c. Budding
   d. Spore Formation
   e. Vegetative Propagation

7. **Define Binary Fission.**
   Ans. Binary fission is the process by which an organism divides into two daughter cells which are almost identical.
   The process starts with the division of nuclear material into two, which is followed by the division of cytoplasm.
   The cytoplasm divides by a constriction which results in the division of the body into two parts.
   The daughter individuals grow and develop into adult individuals.
   This process is common in lower organisms such as bacteria.



8. **What is Multiple Fission?**
Ans. A few algae, such as Chlorella and Chlamydomonas, divide into four or more daughter cells during unfavorable conditions. This process is termed as multiple fission and it takes place under a hard covering called cyst.



9. **What is Fragmentation?**

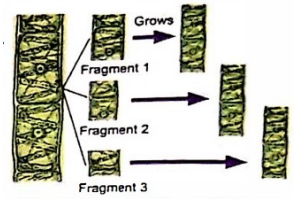
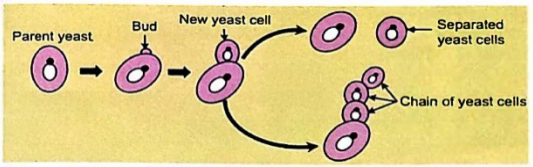


Fig. 3.3: Fragmentation in *Spirogyra*

Ans. A few lower plants, such as algae, break up into two or more fragments after a certain period of growth. Each of these fragments grows into a new adult individual. These individuals can further fragment and produce new adults. This process is called Fragmentation and can be observed in Spirogyra.

10. **Define Budding.**
Ans. This is the process of Asexual Reproduction.
During the process, a small bulb-like projection is formed on the parent body which is called a bud. Bud grows in size, detaches from the parent and forms an adult individual. From the bud, another bud may arise and forms a chain of buds. When these are well- grown, they detach from the parent body and form new individual
Example: Yeast, Fungus.



11. **What is Spore?**
Ans. A spore is a microscopic, spherical structure, covered by a hard-protective coat which protects them from the unfavorable conditions, such as intense hem, frost and dryness.

12. **Define the process of Spore Formation.**
Ans. A spore is a microscopic, spherical structure, covered by a hard-protective coat which protects them from the unfavorable conditions, such as intense hem, frost and dryness. When conditions become favorable, the coat breaks and spores are liberated. The spores then grow into new individuals. Being very light, they Also get easily dispersed to the distant places with the help of air.
Ex: Ferns, Mosses

13. **What is Vegetative Propagation?**
Ans. This is method of asexual reproduction. new plants are produced from the vegetative parts, such as leaves, roots or stems of the mother plant.
Vegetative reproduction often takes place naturally. However, scientists have also developed several methods for producing useful plants artificially. Thus, the methods of vegetative propagation are broadly classified into two types-natural methods and artificial methods.

14. **How potato reproduce new plant?**
Ans. Potato is an underground stem tuber. It has buds called 'eyes'. If a potato is cut into pieces and planted in the soil, the parts which have 'eyes' develop into new plants.

15. **What is Rhizome?**
    Ans. The underground stem of ginger is called Rhizome.

16. **How ginger reproduce new plant?**
    Ans. The underground stern of ginger is called rhizome.
    It has nodes, internodes as well as scaly leaves. A few buds arising from the nodes can also be observed, which can grow into new plants.

17. **How onion reproduce new plant?**
    Ans. Onion can reproduce new plant with their underground stem. It is called Bulb.
    It also has thick fleshy leaves and buds.
    The bulb produces new bulbs with the help of these buds.

18. **What is Corm, and how it is helpful for reproduction?**
    Ans. The underground stem of Colocasia (arvi) is called corm.
    The corm has stored food and gives rise to a few buds which develop into new plants.
    Other common examples of corm are Zimikand and Gladiolus.

19. **How plants can Reproduce new plants through leaf?**
    Ans. In some plants many small buds arise from the notches at their leaf margins.
    When such leaves or buds fall on the moist soil, the buds give rise to new plants.
    Example: Bryophyllum, Kalanchoe Leif.

20. **Write some methods of Artificial Methods of Vegetable Propagation**.
    Ans. Grafting, Cutting and Layering.

21. **How can we prepare a new plant through cutting?**
    Ans. Cutting is the most common method of artificial propagation. In this method-
    A portion of stem or root is cut and planted in the moist soil.
    In few days, it grows into a new plant.
    Ex: China Rose Croton, Sugarcane Etc.

22. **Describe the process of Layering through which we can make new plant.**
    Ans. In layering, a young branch is bent towards the ground.
    After this a ring of bark is removed from the portion touching the soil and covered with moist soil.
    After it develops roots, the branch is cut which then grows as an independent plant.
    Example: Jasmine, Mint, Rose and Bougainvillea.

23. **Describe the process of Grifting.**
    Ans. Grafting is a method of artificial propagation in which a small branch of the plant is joined to the stem of another plant.
    The branch of the stem that is grafted is called scion or graft.
    The plant on which it is fixed is known as stock.
    The scion and stock are joined together with a tape and covered with wax to make it impervious to water.
    The stock supplies water and nutrients to the scion which gradually grows.
    This method is used extensively for ornamental and fruit plants.

24. What is called Tissue Cutting?

Ans. Tissue Cutting is the process of growth of plant cells, tissues and organs on a suitable nutrient medium in an artificial environment.

25. Writhe the process of Tissue Cutting.

Ans. Tissue cutting carried out in the following steps.

a. A part of the plant is cut off from its original location. It is called explant which is treated with certain chemicals to make it germ-free.
b. It is then transferred to a particular medium in a sterilised Petri plate or a test tube. The medium provides all the nutrients required for the growth and development of the explant.
c. The cells grow in the medium and divide repeatedly to form a mass of cells, called callus.
d. The callus gradually develops into a small plant called plantlet.
e. The plantlets are transferred to the soil where they grow into complete plants. Example: Asparagus, Chrysanthemum, etc.

26. What are the advantages of Vegetative Propagation?

Ans. The method of vegetative propagation is very useful to plant breeders because of the following advantages.

a. This is the only means of reproduction in seedless plants.
b. It is a quicker method of plant growth and takes place in much shorter time.
c. It is a surer, economical and easier method.
d. The plants need less attention than the plants grown from seeds.
e. The plants produced are exact copies of their parents. All the parental characters are preserved and retained by the daughter plants.
f. The varieties, with desired characters, can be propagated and maintained without any change.

27. What are the disadvantages of Vegetative Propagation?

Ans. Vegetative propagation also has a few disadvantages which are as follows.

a. It may lead to overcrowding around the parent plant. As a result, there may be competition for space, light and nutrients among them which may affect their growth.
b. There are slim chances of dispersal of these plants as in most of the methods, first the plant or its part (branch) used for propagation is fixed into the soil and then detached from the parent.
c. The vegetative propagated plants are exact copies of the parent plant and, thus, new varieties of plants with different characteristic features cannot be produced.