Modes of asexual Reproduction

You know that an organism undergoes many life processes for its survival. Direction, Circulation, Respiration, and Excretion are crucially required for the survival of an individual. But for the survival of the species reproduction has to be done otherwise the existing species will extinct over a period of time.

On the basis of the number, process, and outcomes there are two modes of reproduction.

- **Asexual reproduction**
- **Sexual reproduction**

Asexual mode of reproduction- It involves a single parent only and the progeny formed out of this mode is genetically identical to the parents. For example- Binary fission, Multiple fission, Budding, fragmentation etc.

It occurs at a faster pace in comparison to the sexual mode of reproduction. It is usually seen in animals with a lower level of body organization like Amoeba, Sponges, Hydra, Planaria, Paramecium etc.

Sexual mode of reproduction- It involves two parents for the generation of the offspring. Here, two individuals i.e a male and a female produce male and female gametes respectively. It occurs at a very slow pace as it takes a lot of time and energy for the gametes to form and fuse together. The fusion of sperm (male gametes) and an Ovum(female gametes) forms a zygote which further divides into an embryo to form a foetus. Most of the animals do sexual reproduction such as- humans, many plants, Lion, cats, bats etc.

Asexual mode of reproduction is also different in different organisms. Such as follows-

Budding- Here a small outgrowth is formed on the parent body. These bulging structures are called Buds. This outgrowth with a growing pace of time develops and detaches to form a daughter. For example- Hydra, Sponges, Yeast etc.

INSERT DIAGRAM

BUDDING IN HYDRA

Binary fission- It usually occurs in a unicellular organism which has a very simple body form. Here the cytoplasm starts dividing into two half which results in the formation of two daughter nuclei. The daughter nuclei cause the division of the cell. Hence, forming daughter cells.

INSERT DIAGRAM

BINARY FISSION

Multiple fission- It occurs when a single cell produces many daughter cells. First, a protective coating called the Cyst is formed around the cell. Inside this cyst, the cell rapidly divides to form a number of daughter cells.

Advantages of Asexual reproduction-

- It is helpful for certain animals which remains in a particular place and are not successful in finding a mate for themselves.
- It produces a large number of offspring in a short duration of time.
- It does not charge an individual with a high amount of energy.

Disadvantages of asexual reproduction-

- It lacks variation on the genetic level. The parents and offsprings are identical to each other.
- Parents and offsprings share the same characters. It makes the chances of the future progeny to survive ir the environmental changes minimal.

Cloning- Cloning is generally done in laboratories or by artificial means where an exact copy of a cell or a tissue can be used to develop a complete organism. Here the parent from where the cell has been extracted and the offspring are the exact replica of each other. Hence, the progeny is known as Clones. Many of the time researchers tried to make a clone of an animal but it became successful for the very first time by Ian Wilmut and his colleagues at the Roslin Institutes in Edinburgh, Scotland. This successfully cloned organism was a

Scottish sheep named Dolly. This was considered a huge success as it was the first Mammal to be cloned yet.