

REPRODUCTION IN ORGANISMS

Reproduction is the means of perpetuation of race. as older individuals undergo Senescence and die.

 When the offspring is produced by single parents with or without the involvement of gamete formation, the reproduction Is called asexual reproduction.

4. When two parents (opposite sex) participates in reproduction process arbd also invokes the fusion of male and female gametes, it is called sexual reproduction.

Asexual Reproduction

Single individual is capable of producing offspring which are identical and exact copy of their parent. The morphological and genetically individuals Of same parents are called done.

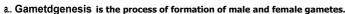
- Asexual reproduction is common among single celled organisms, plants and 4 nimais with simple organization.
- In ProtiZa and Monera, the parent cells divides into Moto give rise to new individuals. Thus,. in these organisms cell divItion is the mode of reproduction itself.
- Binary fission in this method of asexual reproduction, a .cel I &vides into two halves and rapidly grows into an adult. Ex. arrioeba, paramecium.
- Budding- small buds are produced that remain attached initially with parents and get separated on maturation, Ex. Yeast,
- Fungi and simple plants like algae reproduce through special reproductive structures like itilDspores (motile Structure), conidia perricilliumk, buds hydra] and gernmules Isponges).
- in plants, vegetative reproduction occurs by vegetative proiagules like runner, rhizome,. sucker, tuber, offset and bulb
- Water hyacinth is called "terror of Bengal' because it one at the most invasive weeds found growing wherever there is standing water_ It drains oxygen from the water which leads to death of fishes_
- The ability of plants like potato, zinger, sugarcane, banana etc_ has ability to produce roots from their nodes
 when come in contact of soi I_This ability is used by gardeners Arid cu itiwati5rS for commercial propagation.
- Bryophyllum desrelops adventitious Oucls from notches present at margin of leaves.
- Asexual reproduction is the most common method of reproduction in organisms having simpler hod' like in algae and fungi but during unfavorable condition they shift to sexual reproduction.

Sexual Reproduction involves formation of male and female gametes, either by the same Individual or different individuals of opposite sex. These gametes fuse to form zygote which develops to form the new organisms_

- In sexual reproduction, fusion of male and female gametes results in offspring that are not identical to parents.
- Some plants show flowering in particular season and some other flowers in all seasons. Some other plants
 li ke bamboo species flowers once in life time lafter 50-100 years}, Strobikrrithus ilEunthrono flowers once in 12
 years.
- The female placental an exhibit cyclic change in activities ovaries and accessary glands as well as hormone during the reproductive phase.
- in non-primate animals cow, sheep, rat, deer, dog, tiger etc.} cyclic change in females is called oestrus
 cycles and where as in primates monkey, apes, human beings) it is called menstrual cycle.

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- 4) Gametes are haploid cells which may be similar or dissimilar in structure, in algae, both gametes are similar in structure called isogametes. In higher organism that reproduces sexually, two morphologically distinct gametes are formed called heterogarrietes, male sarnetes are called antheromid or sperm and female gametes are called ovum or egg.
- In animals, species which possess both male and female reprodurtive organs in same individual are called biseitua I or hermaphrodites (earthworm, sponges, tapeworm etc.1 and both having either male or female reproductive organs are called unisexual (cockroach, human).
- 4) Gametes are always haploid, although organisms may be haploid and Diploid onganisms form gametes by meiotic division. The organisms belonging to algae, fungi, and bryophytes have haploid plant body and ptericloohytes, gymnosperm's, angiosperms and most of animals are diploid.
- o lii diploid organisms, gamete mother cell (rnaiocytell undergoes meiosis in which one set of chromosome is present in gametes_
- Garnets-Transfer _ in majority of organisms, male gametes are motile and females gametes are non.rnotile, except in fungi and algae in which both gametes are motile_
- In si mple plants II.ke algae, fungi, bryophytes and ptericlophytes water is the medium through which male and female gametes MDVEs
- in higher plants pollen s:ra ins are carrier of male gametes and ovule has eggs, Pollen gra ins must be transferred from anther to stigma to facilitate fertilization, The transfer of pollen grains from anther to stigma is called pollination_ Pollination may be self lanther to stigma of flower) or cross lanther tu_stigma of different flower.
- o Fallen grains germinate on stigma to produce pollen tube that delivers the male gametes near the ovule.

Fertilization — the fusion of male and female gametes is called syng.amy that results in the formation of zygote, the process is called fertilization.

- O The process of development of crew orgAnisms without fertilization of female gamretes is called parthenogenesis.
- In aquatic organism, fertilintion occurs In water.; outside the body of organism is called external fertilization
- In terrestrial organisms, syngarny occurs inside the body of organisms, so called Internal fertilization.

Post Fertilization Events- events in the sexual reproduction after formation of zygote_
In the organisms. having txtErnal fantilizakiOrk, zygote- is formed in external medium (waft) and those having internal fertilisation avisote is formed inside the body of female-

- In algae and fungi, zygote. develops a thick wall resistant to desiccation and damage. This germinates after a period of rest_
- In the organisms having hapiontic life code, pigote divides to form haploid spores that germinate to form haploid individual_

Embryoge nesiS—is the process of development of embryo from the zygote_During this,. zygote undergoes mitotic division and cell differentiation_Cell division increase the number and cell differentiation help in formation of new group of cells and organs.

- o In flowering plants, zygote is formed inside the ovule. After fertilization, sepals, petals and stamens of flower fall oft. The 2ygote develops into embryo and ovules into seeds The cyary develops into fruits which develop a thick wall called pericarp, protective in function_
- o After dispersal, seeds germinate under favorable condition to produce new Wants.