

Parthenogenesis-I

Parthenogenesis

Parthenogenesis (Gr., parthenos = virgin; genesis = origin) is a form of reproduction wherein offspring develops from unfertilized female gamete. Parthenogenesis occurs in different groups of the animals as in certain insects (Hymenoptera, Homoptera, Coleoptera), crustaceans, rotifers, some ants, bees, parasitic wasps, and vertebrates such as some reptiles, amphibians, fish, and few birds.

Types of Parthenogenesis:

Parthenogenesis may be apomictic or automictic.

Apomictic parthenogenesis:

It is the parthenogenesis in which the mature female gametes that are produced through mitosis develop directly into embryos. The offspring are full clones of the mother.

Automictic parthenogenesis:

Here the gametes undergo meiosis and therefore are haploid. Parthenogenesis may be facultative or obligate.

Facultative parthenogenesis:

It is the parthenogenesis in which the female reproduce either sexually or asexually. For example, Mayflies. They undergo parthenogenesis when viable males are absent from the habitat.

Obligate parthenogenesis:

It is the parthenogenesis in which the organism reproduce only by asexual means. For example, certain species of reptiles (mostly lizards).

The parthenogenesis may be Natural or Artificial

Natural Parthenogenesis:

certain animals undergo regular natural parthenogenesis in their life cycles. This may be of two types, viz., complete or incomplete:

Complete Parthenogenesis:

Certain species of aphids have no sexual phase and no males. They depend exclusively on the parthenogenesis for the self-reproduction. This type of parthenogenesis is known as the complete parthenogenesis or obligatory parthenogenesis.

Incomplete Parthenogenesis:

The life cycle of certain insects includes two generations, the sexual generation and parthenogenetic generation, both of which alternate to each other. In such cases, the diploid eggs produce females and the un-fertilised eggs produce males. This type of parthenogenesis is known as the partial or incomplete or cyclic parthenogenesis.