Parthenogenesis-II

Natural parthenogenesis may be of following two types:

1. Haploid or arrhenotokous parthenogenesis;

2. Diploid or thelytokous parthenogenesis.

1. Haploid or arrhenotokous parthenogenesis:

In the arrhenotokous parthenogenesis, the haploid eggs are not fertilised by the sperms and develop into the haploid individuals. Here, the haploid individuals are always males and the diploid individuals are the females. It occurs in Hymenoptera (bees and wasps), Homoptera, Coleoptera (*Micromalthus debilis*), Thysanoptera (*Anthothrips verbasi*), Arachnids (ticks, mites and certain spiders (*Pediculoides ventricusm*), etc.

2. Diploid or thelytokous parthenogenesis:

In the process of diploid parthenogenesis, the young ones develop from the un-fertilised diploid eggs. They are of following types:

Ameiotic Parthenogenesis:

Sometimes during the oogenesis, first meiotic or reduction division is bypassed but second meiotic division occurs as usual. Such eggs have diploid number of chromosomes(2n), and develop into new individuals without fertilisation. It occurs in *Trichoniscus* (Isopoda), *Daphnia pulex* (Crustacea), *Campelona rufum* (Mollusca), weevils and long-horned grasshoppers.

(ii) Meiotic Parthenogenesis:

In this process eggs develop by the usual process of oogenesis but at certain stages diplosis or doubling of chromosome number and production of diploid eggs occur. Such diploid eggs develop into the diploid individuals. The diplosis of the diploid thelytoky may occur as:

By Autofertilisation:

In this process, the oocyte divides meiotically up to the formation of ootid or ovum and secondary polocyte. However, the ootid and the secondary polocyte unite together to form a diploid egg which develops into a new individual. It occurs in *Artemia salina* (Crustacea) and various other organisms.

By Restitution:

In this process primary oocyte, by nuclear division forms a nucleus of the secondary oocyte and nucleus of the first polocyte. However, cytokinesis does not occur. The chromosomes of secondary oocyte and of the first polocyte are arranged on the equator and undergo second meiotic division to form a diploid ootid and a diploid polocyte.

Now, the diploid ovum develops into a parthenogenetic diploid individual. Such type of diplosis is known as the restitution. It occurs in insects of the order Hymenoptera (*Nemertis conesceus*) and Lepidoptera.