FEMALE REPRODUCTIVE SYSTEM IN INSECTS

Introduction

The sexes are separate (dioecious) and distinct between male and female insect. The female insect may be easily determined by the posterior end is rounded and in the female insect it is pointed because the presence of ovipositor. Female insect has will developed female reproductive system and made insect also has male reproductive system.

The female reproductive system is present in the abdominal cavity of female insects. The female reproductive system of insect consist of following organ or parts:-

1. OVARIES
2. LATERAL OVIDUCT
3. MEDIAN OVIDUCT OR VAGINA
4. SPERMATHECA
5. ACCESSORY GLANDS
6. GONOPOPHYSIS

1. OVARIES

One pair of ovaries are situated at the anterior part of abdominal cavity above the intestine of the insect. It is bilaterally located and lies inside the tergum of abdomen of the female insect. Both ovaries of the insect are mesodermal in origin and produced egg. Each ovary is consisted into many ovarioles or functional units. Each ovariole is elongated and covered by epithelial layer with muscles. In insect each ovariole consist into many parts that means:-

Terminal filament
Germarium
Oocytes and
Pedicel.

Terminal filament is a long tubular structure present at the anterior part of the ovariole. The apical Germarium consists of oogonia. The basal vitallarium covered by outer overiole sheath. It contain many types of oocytes called Primary oocyte, secondary oocyte and tertiary oocyte. The yolk or vitellin is synthesized in the fat body and released into the hemolymph and taken up by the oocytes through the endocytosis.

Two types of ovarioles mainly found in insect which are called **Panoistic type** and **Meroistic type.**

Panoistic type ovariole: is mainly found in orthopteran and Beetles (coleopteron) this type is most primitive type and has not more cells.

Meroistic type ovariole: is mainly found in Lepidoptera and Hymnoptera insect. This type of ovariole has nurse cell for nourishment of Oocytes.

2, LATERAL OVIDUCT

One pair lateral oviduct are formed by the pedicel of ovariols in insects. All pedicel of ovarioles open into lateral oviduct. Lateral oviduct is communicating various type of eggs. Each lateral oviduct extends from postero-ventrally along the lateral margin of proctodaeun and finally unites below the colon to form a median oviduct. Both lateral oviduct are muscular and ectodermal in origin.

3. MEDIAN OVIDUCT OR VEGINA

Both lateral oviduct are United posteriorly to form a common oviduct or median oviduct or vagina. The junction of the two lateral oviducts are therefore a distinct 'Y'shape. It is comparatively a wider median tube then the lateral Ducts. It is also ectodermal in origin and therefore is muscular and lined with a modified cuticle. It runs posteriorly and opens ventrally between the plates of ovipositor. It is also called Barsa copulatrix in moths.

4. SPERMATHECA

A sac like tubular structure present at the posterior part of the common oviduct is called spermatheca. Spermatheca lies in the abdominal cavity towards its posterior end in the midline below the hindgut and consists of long coiled duct and a round chamber. It is creamy white in colour and opens into the genital chamber.

Function

spermatheca act as a storage chamber in insect which store the sperms during the copulation of insect. These sperm fertilise the egg inside the common oviduct. Spermatheca of insect also act as a gland which secretes spermathecal fluid that is for the nourishment of sperm..

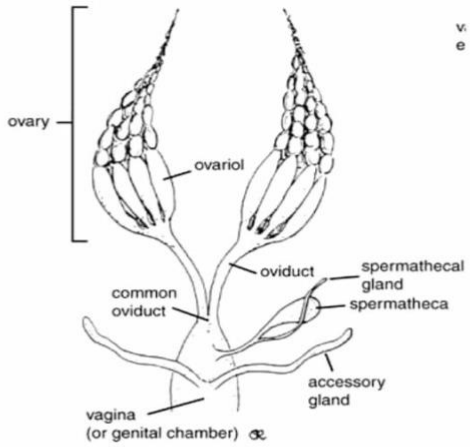
5. ACCESSORY GLANDS

One pair of accessory glands are generally found in insect but some insect has two pairs. It is present at the apical portion of the common oviduct. Accessory glands secrete adhesive material to cement egg to the substratum. In some insect egg pods are formed by the secretion of accessory glands i.e., grasshopper, otheca is also formed by the help of the secretion of accessory gland. In many aquatic insect accessory gland secrete gelatinous fluids for protection of eggs.

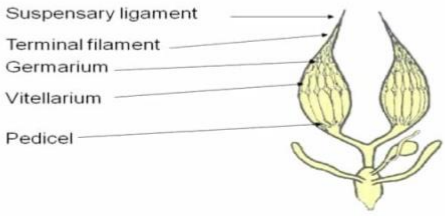
In wasp secretion of accessory gland are used to paralyze the prey.

6. GONOPOPHYSIS

An opening is presented at the posterior part of the abdomen of female insect is called gonapophysis. It is also called the ovipositor of female. Gonopophysis is surrounded by 6 chitinious structure which helps in the egg laying and formation of egg pod.



The different types of ovariole is based on the manner in which the oocytes are nourished.



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