

SACCULINA

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Sacculina is an ectoparasite on crab it belongs to

PHYLUM - Arthropoda

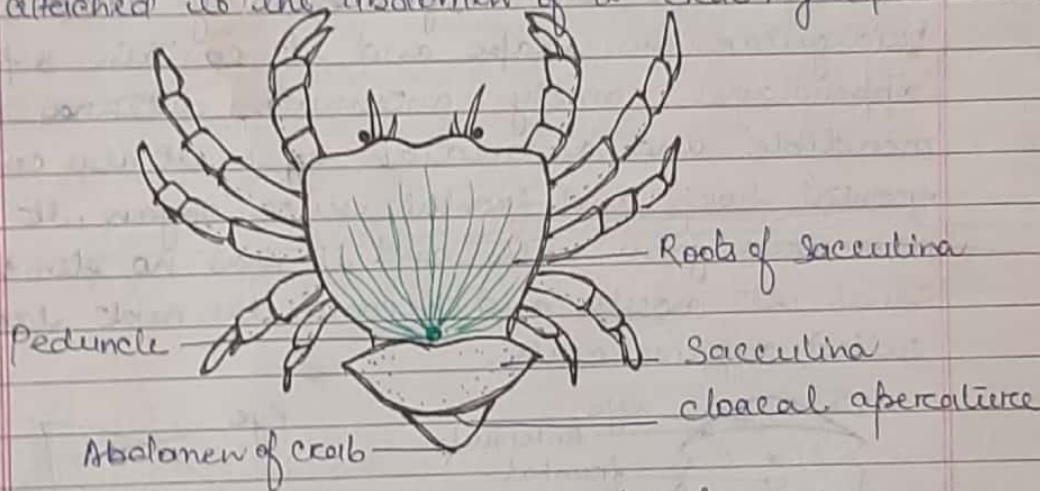
CLASS - Crustacea

Order - Rhigocephala

Type - Sacculina.

The parasitic life of Sacculina leads to the degeneration of ^{many} arthropodan characters of Sacculina.

● It looks like a fleshy tumour attached to the abdomen of a crab by a peduncle.



● The peduncle divides into many branched roots and these roots ramify the body of the crab and absorb nutritive material from the crab.

● The posterior end of the parasite has an opening called cloacal aperture.

● The cloacal aperture opens into a brood chamber filled with eggs.

● The brood chamber and the visceral mass are enclosed by a mantle. The visceral mass consists of a ganglion, a cement gland and the reproductive system.

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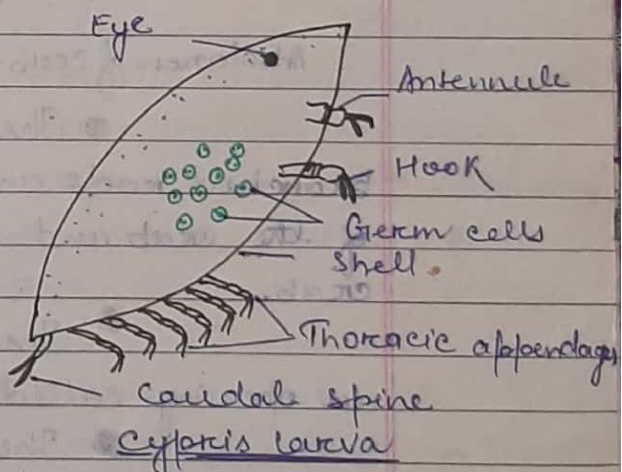
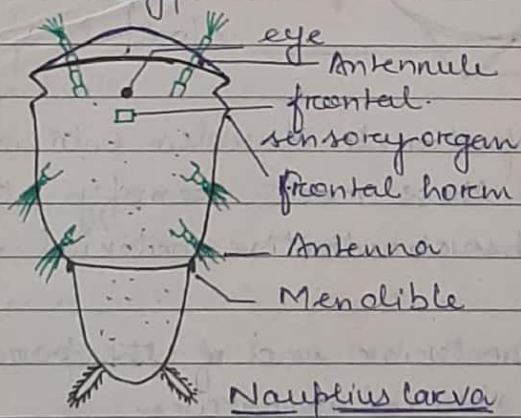
The digestive system and circulatory system are absent. Saccellina is a hermaphrodite. The fertilization is internal.

Life history :-

The life history of Saccellina is significant because the arthropodan character of Saccellina is exhibited in the life cycle only. The fertilized egg develops into a Nauplius larva.

* Nauplius larva :-

It is free swimming larva. It is triangular in shape and it contains a pair of appendages, namely antennule, antenna and mandible, and a median eye. It also contains frontal horn and frontal sense organ. It contains numerous germ cells and it has no elementary canal. It moults and becomes the next larva called Cypris larva.



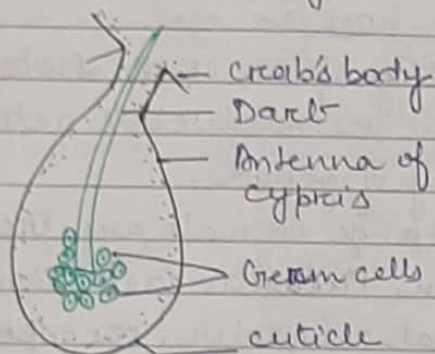
* Cypris larva :-

It is free swimming larva. It is triangular in shape. It is enclosed in a bivalved shell. The larva has 7 pairs of appendages namely a pair of antennules and 6 pairs of thoracic appendages. The abdomen has a pair of caudal spine. The single eye

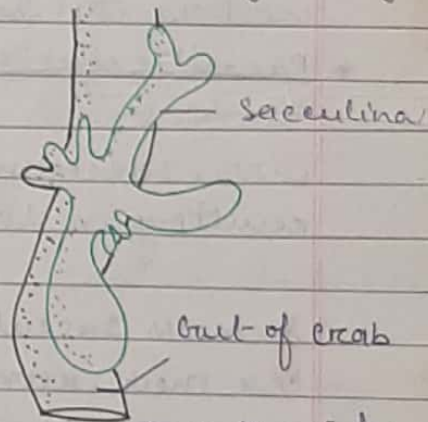
persist. the terminal end of the antennule is hooked after a short free swimming life. the cypris larva is attached to the body of a crab and is transformed into the next larva called Kentrogen larva.

* Kentrogen larva :-

The shell and appendages are discarded a new cuticle is secreted, a mass of germ cell is enclosed by this cuticle. It looks like a vesic. It is attached by the body of the crab by the antennule. this stage is called Kentrogen larva. It develops a Kittenus tube called dart. the dart pierces through the body of the crab. the contents of the Kentrogen larva passes into the body cavity of the crab through the dart.



Kentrogen larva



sacculina interna

* Sacculina interna :-

It remains inside the crab. It is formed of a mass of germ cells surrounded by a cuticle. this mass is attached to the lower surface of the intestine of the crab and it gives numerous roots which ramify the body of the host. the main mass grows back ward and enters the abdomen of the host as it continue to grow, the tissue of the host's body wall degenerate. finally the main body of the parasite pushes out as a swelling in the abdomen of the crab. it projects out of the crab. this stage is called sacculina externa.

* Sacculina externa :-

It lies on the outer surface of abdomen of the crab. It develops in the adult sacculina.

* Retrgressive Metamorphosis :-

The adult sacculina is without any arthropodan characters but the larval forms are well developed and possess any arthropodan characters. during metamorphosis the larva loses all the arthropodan characters and become the degenerate ~~larva~~ adult. such a type of Metamorphosis is called Retrgressive meta- morphosis.

* Effects of parasitism :-

The parasitic life effect the host as well as the parasite.

* Parasitic effects in the host :-

Moulting of the crab stops in both sexes. sacculina inhibits reproductive activities resulting in the atrophy of gonads.

The change in male are tremendous.

In males sacculina causes Parasitic castration. The male lose their secondary sexual character. the copulatory organ disappear. the testis degenerate. they develop many female characters. they become sterile, thus the parasite converts the fertile male into sterile female. this process is called Parasitic castration.

* Parasitic effects on parasite :-

The parasitic life of sacculina lead to the following bodily changes on it self:

- ① Segmentalton is lost.
- ② Appendages are lost
- ③ Different organ system are lost
- ④ Typical arthropodan character disappear.