

Classification & characters of Obelia

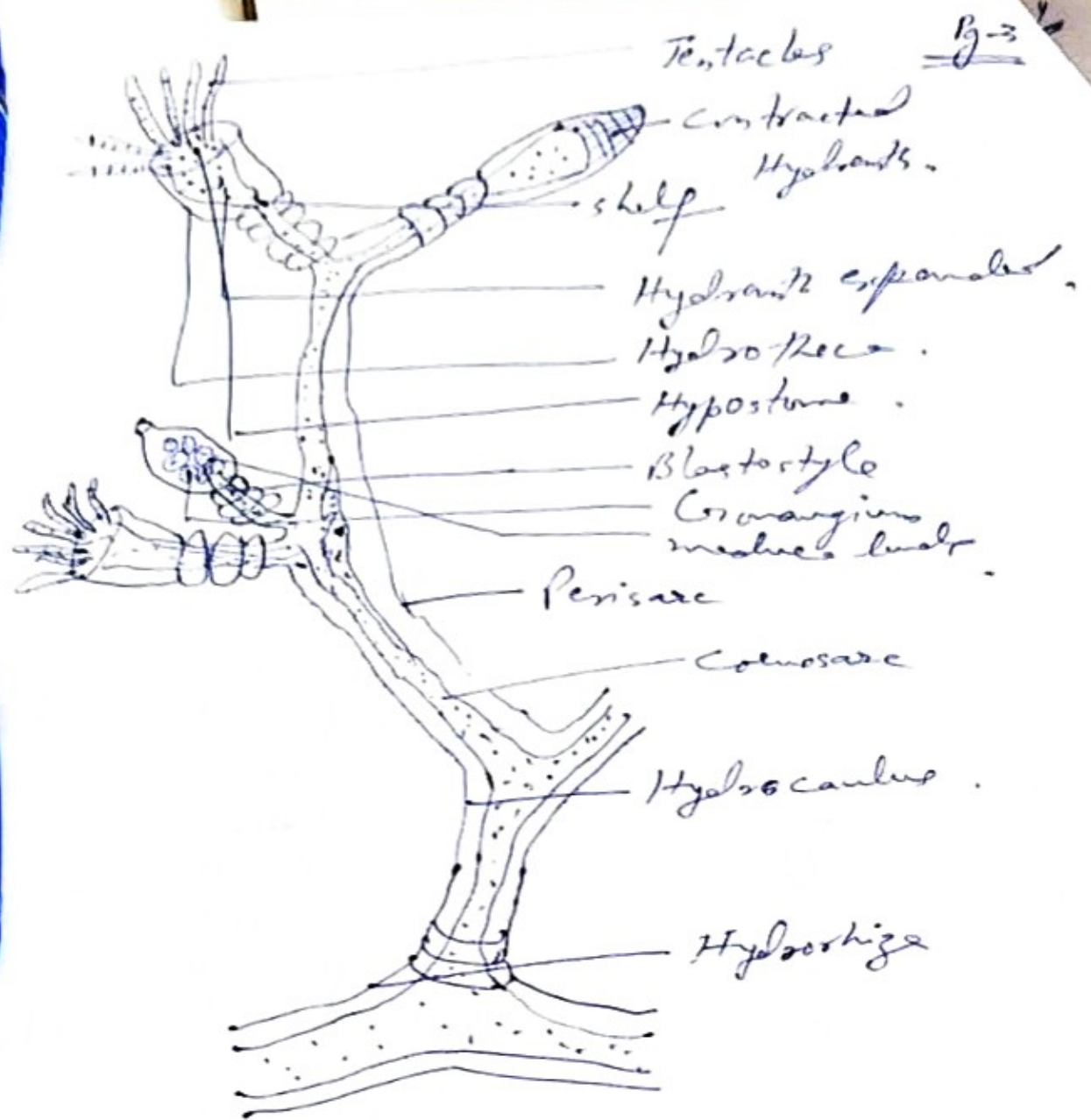
Introduction: Obelia is a whitish or brownish common plant-like colonial Hydrozoan Coelenterate. In the shallow sea-water it is found attached to the rocks and surfaces of sea-weeds. Obelia colony consists of many branches. The branches are of two types - the vertical branch is called Hydrocaulus and the horizontal branch is called Hydrosoma which is attached to the substrate. Hydrocaulus and Hydrosoma consists of two distinct layers - (a) Perisarc and (b) Coenosarc. The cuticular perisarc is transparent yellow in colour, tough chitinous outer non-cellular layer secreted by ectoderm. It is the protective outer layer. Coenosarc is hollow and its continuous cavity is continued into the cavity of polyps thus being a gastrovascular cavity containing fluid. Coenosarc has an outer layer of ectoderm and an inner layer of endoderm. From the hydrocaulus, several side branches arise which are ringed and their open end is expanded into hyaline like polyps or the hydranths. Hydranths are the feeding

Zooids. In the anits of the hydrants are found blastostyles, they are reproductive zooids. They give rise to small lateral offshoots, the medusae buds which develop into disc like medusae and remain attached with the blastostyle for sometime by oral-like structures. The medusae are reproductive zooids. They do sexual reproduction. Thus, obelia colony is trimorphic, having

- (a) Polyps or hydrants - feeding zooids.
- (b) Blastostyles - reproductive zooids or gorgonia.
- (c) medusae - the sexual zooids.

Polymorphism -

Due to the presence of three types of zooids in the individual, the obelia colony (trimorphic) is said to exhibit the phenomenon of polymorphism, which is correlated with the colonial organisation of obelia. The phenomenon of polymorphism is essentially one of the division of labour, i.e. different functions are assigned to different individuals rather than to parts of organs of one individual. It may be recalled here that in obelia the feeding zooids (hydrants), asexually reproductive zooids (blastostyles) and sexually reproductive zooids (medusae) perform their respective functions for obelia and thus exhibit division of labour through different kinds of zooids.



A part of Obelia Colony

Different kinds of zooids —

Polyp or Hydrotheca — The polyps or hydrothecae are feeding zooids. They are numerous. They are found attached at the apical or free (or distal) ends of the hydrocauli and their branches. The tubular perisarc is ring shaped at the base of the hydrotheca. The tubular

cortical

perisarc expands into a wine glass shape or conical cup called hydrotheca. The hydrotheca protects the polyps which are cylindrical, conical and vase-like hollow sac somewhat yellowish colour and opens at one end outside by mouth which is situated at the tip of a conical hypostome and at the other end towards its base. Its coelenteron opens into the coenosarc canal of the hydrocanthus. The base of the polyp rests on the shelf formed by the hydrotheca.

Around the base of the hypostome, there are 24 solid tentacles arranged in a circle. Each tentacle has an outer ectoderm and an inner endoderm. There are numerous nematocytes on the tentacles. The whole polyp can contract and is withdrawn into the hydrotheca. The mouth can dilate and contract as required and thus change the shape of hypostome from conical to trumpet like. Tentacles can also rapidly contract and curve over the hypostome.

Blastostyles — They are asexually reproduced zooids called blastozooids. (brood zooid or gonangium). The blastostyles are covered by perisarc called chromothela...