

Q. Describe the occurrence, structure and reproduction in POLYSIPHONIA ?

Ans - Systematic Position →

Class - Rhodophyceae
Sub class - Florideae
Order - Ceramiales
Family - Rhodomelaceae
Genus - Polysiphonia

Occurrence and structure of the thallus →

Polysiphonia is a marine red algae which prefer shallow waters. But some species are epiphyte also like

- ① P. wrightii is epiphyte on laminaria
- ② P. variegata is epiphyte on Mangroves root
- ③ P. fastigiate is semi-parasite on the brown algae

The thallus is brownish red to dark purple red in colour. The plant body is beautiful, delicate, feathery, filamentous, branched and is attached with the substratum by holdfast. They are few cm to several in height. Thallus are of both heterotrichous and not heterotrichous.

Study of Heterotrichous Thallus →

It consist of two parts →

1. The basal prostrate filament which are creeping over the substratum its peripheral cells which face to the substratum give

are thick wall, unicellular, elongated schizoid. Distal end of the schizoids are flat and irregularly broad and act as attaching disc which is basal parenchymal in structure.

2. Up right filament arising from the creeping filaments which bears trichoblast and is found in *P. urecedate*, *P. nigrescens*.

Study of Non heterotrichous species.

It consist of upright axis only bearing schizoids from basal lower cell which functions as holdfast. In other words we can say that the non heterotrichous is a modification of heterotrichous one whose creeping system has been lost as in *P. elongata*, *P. violacea* etc.

Main filament → The main filaments consist of a system of a parallel filament which varying in number from 4 to 24. These filaments are called "Siphons".

- There is one central siphon and axial siphon surrounded by a number of peripheral siphons. Each cell of the siphons are arranged in a tier and, and to aid central siphons cell may be larger than the peripheral siphons cells. The apex of the filament consist of only central cells.

In *P. siphon spiralis* has 4 pericentral siphons which run parallel to

the central siphon but they are spirally arranged around it. In some species pericentral cells divide anticlinally and periclinally forming several, larger, thick parenchymatous tissue around the central siphons. These tissue are known as pseudocortex cells.

Branching → There are two types of branches arises from the thallus -

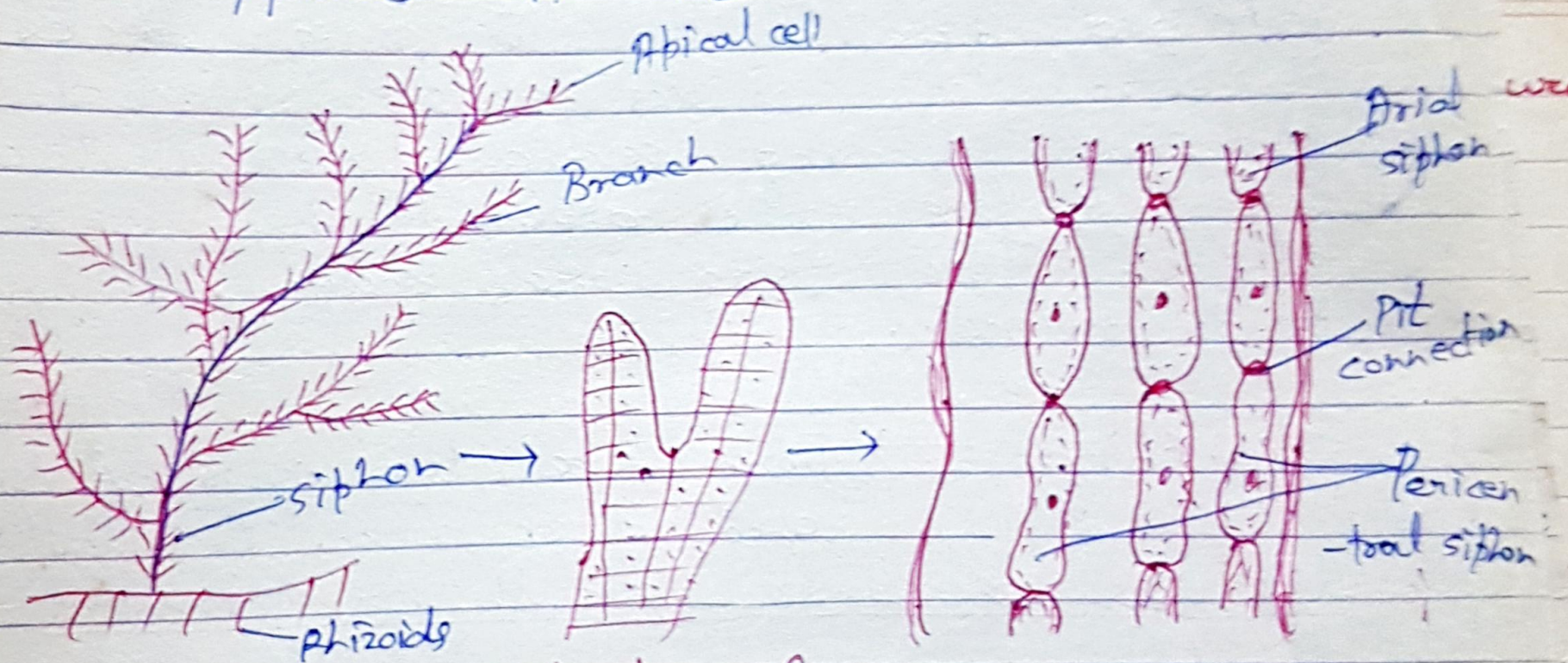
1. Branches of limited growth or Trichoblast →

It develops from the cells below the apical cells which is called trichoblast. Trichoblast is monosiphonous either it consist a single row of cells. After sometimes it forked and give rise dichotomous appearance. It is gradually tapering towards its apex and pit connection are present between its cells. Cells are uninucleate and consist leucoplasts they are spirally arranged around the main axis. They are deciduous because they are shed during spring season. They bears sex organs.

2. Branches of unlimited growth →

They arise from the basal cell of trichoblast. They resembles as main axis in structure but they

appears in the axil of trichoblast.



Habit sketch of
Polysiphonia

Structure of
siphon