

as Oogonium or Nucule. Most of the species are homothallic (monoecious) but some are heterothallic (dioecious).

Development of Antheridium → Antheridium is a large spherical, bright yellow or red in colour. It is covered by a plate like cells and it arises from a single cell of the nodal region of branches of limited growth. Each cell of the nodal region act as a Antheridial initial stage. During the development of the Antheridial initial cell transversely and forms 2 cells of which lower one is known as pedicel cell and upper one is known as Antheridial mother cell. Antheridial mother cell again divides vertically and forms 4 cells and each of the 4 cell divides transversely and give rise to 8 cells. That is known as octent stage. In octent stage cells undergoes a periclinal cell division and form an outer and inner layers of cells. The outer cells forms a series of cells by repeated vertical cell division. Which is spherical in nature and known as shield cells. And lower cells forms a rod like cells. That is known as manubrium cells. The apical cell of the manubrium forms primary capitulum cells or Head cell. Each primary capitulum cell again divides and forms 6 secondary capitulum cells in its inner side and each secondary capitulum cell forms whip Antheridial filaments. Which is found in branch also. Each Antheridial filament consist 6 to 200 sperm mother cell and the each sperm forms a single sperm or Antherozoids. Each sperm is spirally coiled by flagellate, elongated and uninucleate. After maturity each sperm ~~mother~~ rupture the cell wall of sperm mother cell and they swims for some time and is

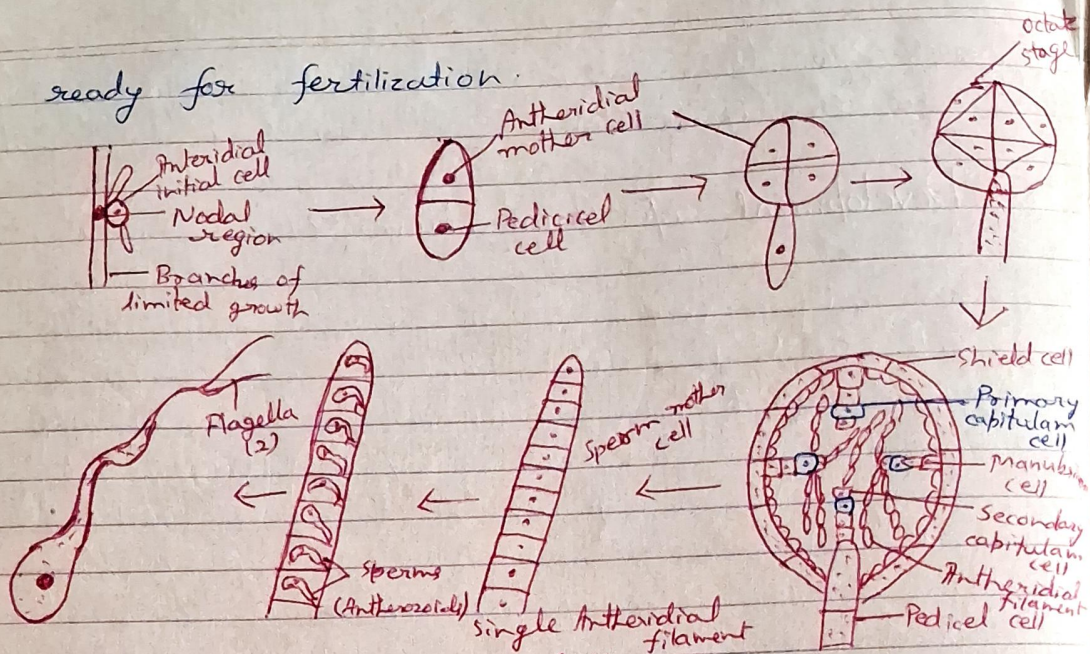


Fig - Development of Antheridium

Development of Oogonium → It is a large oval in structure and surrounded by envelope of coronal cells. These coronal cells are spirally arranged on Oogonium and forms 5 coronal cells. The cell of the basal nodal region of the Antheridium act as an Oogonial initial cell. The Oogonial initial cell not divides but it simply enlarged and forms one cell is called Oogonial initial cell. After some time it divides transversely of which bigger upper one function as the Oogonial mother cell and lower one is known as supporting cell. The Oogonial mother cell enlarge in size and its centrally located nucleus is turned as an egg cell or ovum cell. before fertilization which is packed with starch grain. The cells of the corona get separated and Oogonium is ready for fertilization. Corona is found above the oogonium and tube cells are found below the corona. which spirally coiled the oogonia. The

cytoplasm of the oogonium is hyaline and forms a receptive spot and in this time Oogonium is fully ready for fertilization.

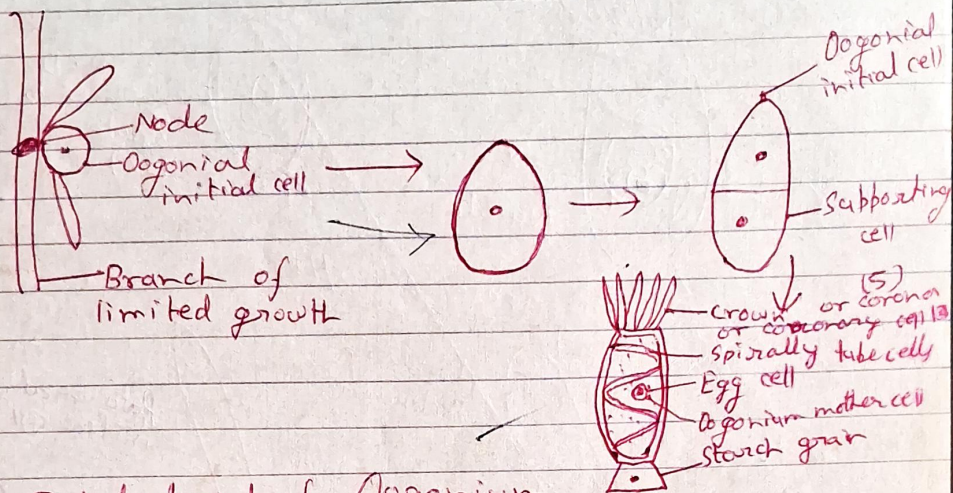


Fig - Development of Oogonium

Fertilization → Before fertilization the tubular cells slightly separated from each other below the corona and they form 5 micro slits. Through these slits the sperm enter into the oogonium and one of the sperms fuse with the egg cell and form oospore (zygote). The oospore retained for a time in the oogonium and after returning favourable condition. The rupturing of the oogonial wall the oospores slit down below the water. After some time they divide meiotically and form 4 Haploid nucleus. Out of this 4 nucleus 3 degenerate and 1 divide transversely of which upper cells form the thallus of the Chara. And lower cell divides longitudinally and forms the schizoidal initial cell which later on forms a colourless rhizoids. The upper cell before fertilization

formation of the thallus they form primary protonema like structure - which later on forms the thallus of Chara.

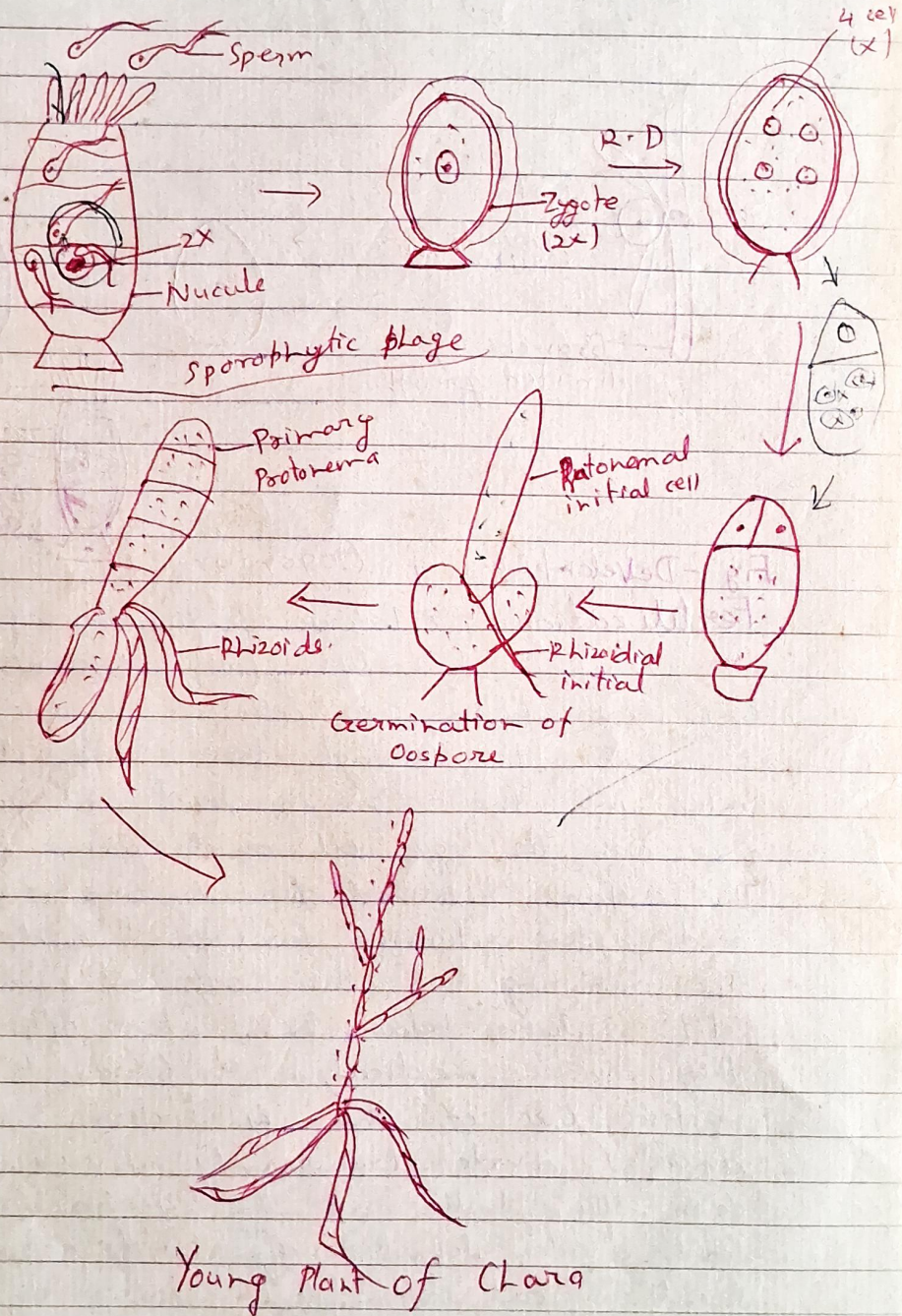


Fig - Fertilization