LIFE-CYCLE PATTERN IN ALGAE

vii) Autogamy: Here there is fusion without liberation but within. The protoplast and nuclei get fused and form zygote.

Whatever the mode of formation of zygote, but the fate of zygote differs variably in the members of algae.

→ In some cases like Spirogyra sps. The zygote meiotically divides soon forming Zygospores. In this case three out of four degenerate and only one survive. whereas in some cases like Ulothrix all get developed. The zygote form a thick wall around it and become zygospore.

On the basis of Behaviour and pattern of the fate of zygote there are different types of life-cycle pattern in algae e.g. in some cases there is no alternation of generation specially in vegetatively and asexually reproducing ones, which lack sexual reproduction. Though seeming or clear alternation of generation is a phenomenon of sexually reproducing organisms.

I) Haplontic Type: Here main plant body is haploid(n), gametophytic They produce vegetatively, asexually and sexually also. Due to fusion of gametes (n) in different way Zygote (2n) is formed which represents diploid (2n) sporophytic. Zygote divide meiotically and form haploid (n) zygospores. The zygospore develops in favourable environment and form a gametophytic haploid (n) plant body like parents.

e.g. Chlamydomonas sps. Chara sps.
Oedogonium sps Spirogyra sps.
Ulothrix sps.

II) Diplontic: Here main plant body is diploid sporophyte. After maturity they develop gametes (n) haploid due to meiotic devission. The gametes represent the haploid (n) phase. These gametes fuse and form zygote (2n) diploid sporophyte. Here only gametes are representative of haploid phase (n). Zygote (2n) devides mitotically and form new sporophyte which is diploid (2n) like parents.

e.g. Bryopsis sps. Codium sps. Fucus sps.
Sargassum sps. etc

III) Isomorphic: Here there are two types of plants which are morphologically similar but differ genetically. One is Sporophytic diploid (2n) where as other is gametophytic haploid (n)

Gametophytic plants produce gamete (n) Haploid Gametes of opposite strains fuse and form diploid Zygote (2n). The Zygote devides mitotically and give rise to sporophytic (2n) diploid plant body. They form Later on haploid (n) zoospores by meiotic divission.

These zoospores develop and form gametophytic (n) haploid plant bodies which are alike to sporophytic (2n) diploid ones formed by zygospores.

e.g. Members of Cheatophoraceae, Cladophoraceae & Ulvaceae of Chlorophyceae.

Order — Ectocarpales
Dyctyotales
Cutleriales
Sphacelariales
& Tilopteridales of Phaeophyceae

iv) Heteromorphic : It is like the previous one, but with a difference that haploid(n) and diploid (2n) plants are different morphologically.

The sporophyte multicelluler diploid(2n) plant body gives rise to haploid (n) zoospore by meiotic division. These are also knowon as Meiospore.

These develop into gametophytic(n) haploid plant body. Later on these form haploid(n) gametes mitotically. The gametes of opposite strain fuse and form zygote (2n) diploid structure. The zygote divides mitotically and forms new plant body. e.g. Desmarestiales
Laminariales
Sporochnales of Phaeophyceae.
Urospora sps of Chlorophyceae.