

apical aperture. The Septa between compartments disappear & the zoospores pass out through the apical aperture one by one in a slow stream. The zoospores pass out in an irregular mass beneath the pore.

Structure - The spore is biflagellate pear shaped structure. With an eye spot, is covered by chloroplast membrane. The two flagella are unequal in size. The longer is hairy & is directed forwards, the shorter flagellum is not hairy & is directed backwards.

Cerminations → Each efficient zoospore absorbs its flagella, rounds off & secretes a membrane around it. It germinates & forms prostrate system of the diploid sporophyte. The diploid zoospore produces in plurilocular sporangia thus serve to reduplicate the sporophytic generation. They play no role in the phenomenon of alternation of generations.

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Unilocular Sporangia → Besides the plurilocular sporangia, the sporophyte E. siliculosus produce another kind of sporangium. It is one called & thus

Called unilocular sporangium.

Development - The terminal cell of the branchlet increases considerably in size to take on a globose or ellipsoidal form. It has numerous ~~chromatophores~~ chromatophores. The diploid nucleus of the unilocular sporangium undergoes meiosis to form 4 haploid nuclei. These further divide by mitosis repeatedly to produce 32 to 14 daughter nuclei. There is then cleavage of the cytoplasm to form as many uninnervate daughter protoplasts. Each daughter protoplast metaphases into a biflagellate haploid swarmer called a meiozoospore or gonozoospore. The meiozoospore resembles the diploid zoospore in a every respect except that it is haploid & on germination produces the alternate haploid plant (gametophyte) which is concerned with several reproductive stages. Meiospore formation is considered a stage under sexual reproduction by some

algologists as it multiplies the beneficial effects of a single act of fertilization.

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Chartrancia Stage or Chartrancia →  
Formation of Chartrancia stage by the germination of Carpogone is an interesting feature in the life cycle of Batrachospermum. This stage represents the juvenile asexual phase resembling an alga like Chartrancia.

It is a multicellular filamentous structure exhibiting heterotrichy on account of having the branched creeping system & an erect system with short laterals.

It reproduces asexually by means of monospores produced singly inside the monosporangium. This sporangium is an oval ellipsoidal uniloculate structure borne singly or in a pair of two at tip of short laterals. The entire protoplasm of the sporangium gets transformed into a monospore which, on liberation & subsequent germination, produces the Chartrancia stage. In this way the propagation of this stage in a quick sequence is achieved by the agency of monospore. However, eventually the sexual part of plant of Batrachospermum develops as laterals on the erect system.

Trichome  $\Rightarrow$  fine hair like filamentous  
thallus embedded in the gelatinous  
matrix is called a trichome which  
represents the simplest & primitive form  
of blue green algae, since the cells are  
prokaryotic & the life cycle is imperfect  
due to lack of sexuality & meiosis.

Highly consolidated kind  
of nostoc with several sub-spherical cells  
beaded together having both the  
intercalary heterocyst with 2 polar  
nodules, & terminal one with a single  
nodule is a specific feature.

The trichome of  
Anabaena is more or less similar to nostoc  
but it lacks the terminal heterocyst  
here the trichome is said to be  
exposed owing to presence of a very  
thin layer of mucilaginous sheath  
of watery consistency.

Fig

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The whip like tapering trichome from base upwards with a basal heterocyst is a specific feature of Rivularia. Here the tapering pointed end represented by a hair above the intercalary meristem, is exposed beyond the level of gelatinous sheath.

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The trichome multiplies  
by hormogones - the broken pieces of a  
trichome, & fixes atmospheric nitrogen  
with the aid of its heterocysts. In  
certain species of *Nostoc* & *Anabaena*, the  
heterocyst acts as a reproductive structure  
reproducing asexually either due to  
direct germination or producing endospores

