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B.Sc. PART (H)
PAPER I

CORE CONCEPT OF

Group - A, Algae
Anabaena - II

During times of low environmental nitrogen about one cell out of every ten will differentiate into a heterocyst. Heterocyst then supply neighboring cells with fixed nitrogen in return for the products of photosynthesis that they can no longer perform.

Akinetes: An akinetes is a thick walled dormant cell derived from enlargement of a vegetative cell. It serve as a survival structure. It is a resting cell of cyanobacteria. Akinetes appear thick walled ~~without~~ with granular looking cytoplasm under magnification. The akinetes are filled with food reserves and have a normal cell wall surrounded with 3 layer coat. Development of akinetes from a vegetative cell involves -

Increase in size.

Gradual disappearance of gas vacuoles, increase in cytoplasmic density, number of ribosomes and cyanophycin granules.

Anabaena is reproduced only by vegetative and asexual methods. The sexual reproduction is completely absent.

Anabaena reproduce vegetatively by the following methods.

Fragmentation — old trichome becomes very large and irregular due to which it gets to break up into short fragments. These short fragments of trichome divide vegetative cells and develop into new trichome.

Homozones

Homozones are the short fragments of trichomes. Developed in the region of heterocyst. Then they came out of the trichome due to some movement. They divide vegetative cells and developed heterocyst and again surrounded by sheath. In this way new trichome is formed.