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COURSE: BIOLOGY (BIO 102)

Assignment

1.A CRYPTOGAMAE – flowerless and seedless plants and also lower plants

Classes are;

a. Algae

b. bryophyta

c. pteridophta

B. . PHANEROGAMAE- seed bearing flowers with advanced vascular system such as the roots, stems and leaves. They are also known as spermatophytes.

a. monocotyledon

b. dicotyledon

2a. they are a source of nourishment.

b. they can be used as fertilizers.

c.. they serve for medicinal purposes

d. they are used in the manufacturing industries.

e. they play a role in reclaiming alkaline.

3. diatoms

Diatoms are often referred as "jewels of the sea" or "living opals" due to their optical properties. Diatoms are unicellular they occur either as solitary cells or in colonies which can take the shape of ribbons, fans, zigzags, or stars. Individual cells range in size from 2 to 200 micrometers. In the presence of adequate nutrients and sunlight, an assemblage of living diatoms doubles approximately every 24 hours by asexual multiple fission; the maximum life span of individual cells is about six days.Diatoms have two distinct shapes: a few (*centric diatoms*) are *radially* symmetric, while most (*pennate diatoms*) are broadly *bilaterally*symmetric. A unique feature of diatom anatomy is that they are surrounded by a cellwall made of silica (hydrated silicon dioxide), called a frustule These frustules have structural coloration due to their photonic nanostructure, prompting them to be described as "jewels of the sea" and "living opals". Movement in diatoms primarily occurs passively as a result of both water currents and wind-induced water turbulence; however, male gametes of centric diatoms have flagella, permitting active movement for seeking female gametes. Similar to plants, diatoms convert light energy to chemical energy by photosynthesis, although this shared autotrophy evolved independently in both lineages. Unusually for autotrophic organisms, diatoms possess a urea cycle, a feature that they share with animals, although this cycle is used to different metabolic ends in diatoms. The family *Rhopalodiaceae* also possess a cyanobacteril endosymbiont called a spheroid body. This endosymbiont has lost its photosynthetic properties, but has kept its ability to perform nitrogen fixation, allowing the diatom to fix atmospheric nitrogen.

The study of diatoms is a branch of phycology. Diatoms are classified as eukaryotes

4. Vegetative cells of diatoms are diploid (2N) and so meiosiscan take place, producing male and female gametes which then fuse to form the zygote. The zygote sheds its silica theca and grows into a large sphere covered by an organic membrane, the auxospore. A new diatom cell of maximum size, the initial cell, forms within the auxospore thus beginning a new generation. Resting spores may also be formed as a response to unfavourable environmental conditions with germination occurring when conditions improve.Reproduction among these organisms is asexual by binary fission, during which the diatom divides into two parts, producing two "new" diatoms with identical genes. Each new organism receives one of the two [frustules](https://en.wikipedia.org/wiki/Frustule) – one larger, the other smaller – possessed by the parent, which is now called the [epitheca](https://en.wikipedia.org/wiki/Epitheca%22%20%5Co%20%22Epitheca); and is used to construct a second, smaller frustule, the [hypotheca](https://en.wikipedia.org/wiki/Hypotheca%22%20%5Co%20%22Hypotheca). The diatom that received the larger frustule becomes the same size as its parent, but the diatom that received the smaller frustule remains smaller than its parent. This causes the average cell size of this diatom population to decrease.[[17]](https://en.wikipedia.org/wiki/Diatom#cite_note-HasleSyvertsen1996-17) It has been observed, however, that certain taxa have the ability to divide without causing a reduction in cell size. ]Nonetheless, in order to restore the cell size of a diatom population for those that do endure size reduction, sexual reproduction and [auxospore](https://en.wikipedia.org/wiki/Auxospore) formation must occur.

5. volvox

They reproduce sexually and asexually

They can be seen with the use if a microscope

Their colonies are spherical

 Spyruna

They reproduce only sexually

They cannot be seen with the use of a microscope

Their colonies are globular

6. charophyceae also known as stoneworts

 kingdom: plantae

Division: charophyta

Class: charophyceae

Order: charales

Family: aclistocharaceae

Genus: chara

Specie: globularis