

Biology 8.2

Protista 2: Algae

Algae

1. Eucaryotic, single cells (some colonial), autotrophs (photosynthetic)
2. Aquatic
3. “the grass of the sea”
4. Microscopic cells and many macroscopic colonies
5. Phytoplankton: plankton predominantly algae
6. Plankton: Tiny floating, organisms
7. Zooplankton: plankton consisting of protozoans or tiny animals
8. Primary producer organisms in aquatic environments
9. Is food source for even the 107 ton great blue whale
10. Aquaculture relies on algae
11. Used for puddings, jellies, ice cream, etc.
12. Produces about 70% of the photosynthesis in the world
13. Used in space travel to supply oxygen
14. Used as indicator organisms for polluted waters

Algal colonies

1. Thallus: name of an algal colony
2. Filament: a slender, chainlike thread of cells
3. Branched filaments
4. Sheet colonies:
5. Complex colonies form specialized cells such as holdfasts
6. Some colonies one hundred feet long

Algae classification

1. Algae is classified into five phyla
2. Pigments
3. Food storage
4. Cell wall composition

Chlorophyta

1. Green algae
2. Pigment: chlorophyll a and b, and carotenoids
3. Food storage: starch
4. Cell walls:
5. Colonial form: Usually single cell, simple colony, some form thallus
6. Reproduction: Sexual
7. Habitat: fresh and salt water, a few terrestrial

Chrysophyta

1. Diatoms
2. Yellow-green and golden brown algae
3. Pigment: chlorophyll a and b, and carotenoids

4. Food storage: oil
5. Cell walls: contain silica
6. Colonial form: Usually single cell, some in simple colonies
7. Reproduction: Asexual and sexual. Due to hard cell wall cells oftentimes get smaller
8. Habitat: ubiquitous
9. Largest group of photosynthetic organisms
10. The accumulation of diatoms forms diatomaceous earth (some 1400 ft thick)
11. Diatom remains used for abrasive agents in polish, wax, cleansers, toothpaste, insulation, etc.

Phaeophyta

1. Brown algae
2. Pigment: chlorophyll a and b, and carotenoids
3. Food storage: complex carbohydrate
4. Cell walls: contain silica
5. Colonial form: Multicellular, thallus of stemlike & leaflike structures, also air bladders
6. Reproduction: Sexual
7. Habitat: marine rocks and ocean floor
8. Algin: gelatinous coating used as ice cream thickener

Rhodophyta

1. Red Algae
2. Pigment: chlorophyll a and b, and carotenoids
3. Food storage: Carbohydrate
4. Cell walls: contain silica
5. Colonial form: Multicellular, ribbon-like or feathery thallus
6. Reproduction: Sexual
7. Habitat: marine
8. Source of agar

Pyrrophyta

1. Includes the dinoflagellates
2. Yellowish brown
3. Pigment: chlorophyll a and b, and carotenoids
4. Food storage: Carbohydrate
5. Cell walls: multi-sided cellulose
6. Colonial form: Single cells having two flagella
7. Reproduction: Sexual
8. Habitat: marine and fresh water
9. Some are bioluminescent
10. The cause of red tide in warm waters due to blooming (rapid growth)
11. Secrete poison that kills fish