



Studievereniging Congo

Samenvatting

Marine Biology
Biologie, Jaar , Periode 4

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Phytoplankton

Bacteria

Cyanobacteria

Cyanobacteria have a thylakoid membrane for building a proton gradient, needed for the photosynthesis. On this thylakoid membrane lay the phycobilisomes.

Pigments: - chlorophyll a
 - phycocyanin (part of the phycobilisomes)
 - phycoerithrin (part of the phycobilisomes)

- Prochlorococcus

Cyanobacteria with different pigments, and which lack the phycobilisomes, although it has the genes for it.

Pigments: - divinyl-chlorophyll a
 - divinyl-chlorophyll b

Some cyanobacteria are nitrogen-fixing. There are several types of nitrogen-fixing cyanobacteria:

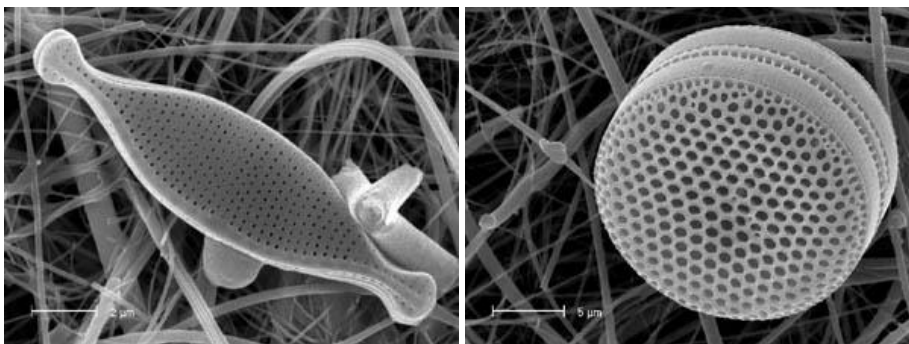
- multicellular heterocystous
- multicellular non-heterocystous (for example Trichodesmium)
- unicellular (daytime photosynthetic, night-time nitrogen-fixing)

Eukaryotes

Diatoms

Diatoms have a silica exoskeleton. There are two types of diatoms with a different shape:

- pennate diatoms
- centric diatoms



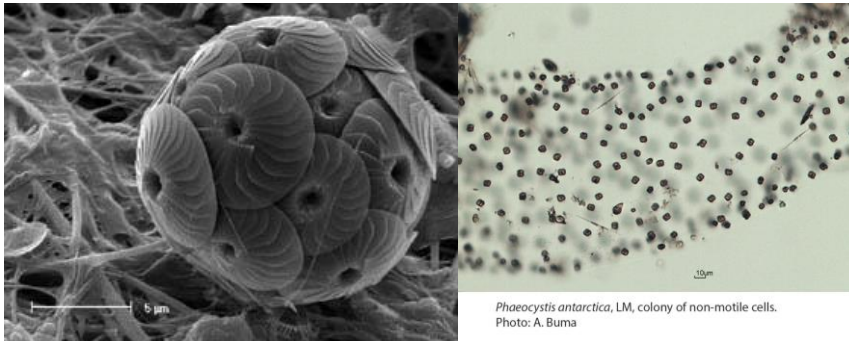
Pigments: - chlorophyll a
 - chlorophyll c
 - fucoxanthin (a carotenoid)

Haptophytes

Haptophytes have a haptone, an organelle for feeding or gene transfer.

Pigments: - chlorophyll a
 - chlorophyll c
 - fucoxanthin (a carotenoid)

- Coccolithophores: - non-motile
 - calcareous shield
- Prymnesiophytes: - motile
 - non-calcareous
 - for example: phaeocystis (schuimalg)

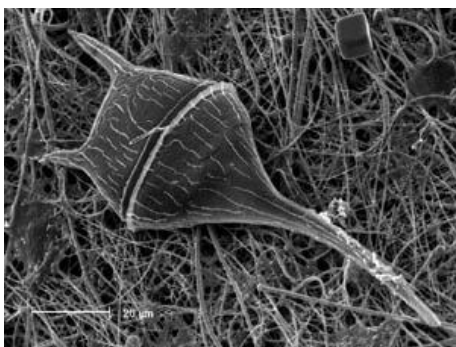


Dinoflagellates

Dinoflagellates have two flagella, one around their body, and one longitudinal. They often have a cellulose body armour, and some are mixotrophic.

An example: Symbiodinium, which has a symbiosis with coral polyps.

Pigments: - chlorophyll a
 - chlorophyll c
 - peridinin (a carotenoid)



Green algae

Pigments: - chlorophyll a
 - chlorophyll b

Invertebrates

Porifera (sponges)

Sponges are the simplest of animals. They are multicellular, but have no organs or nervous system. There are about 5000 species.



Ctenophora (ribkwallen)

They have radial symmetry, comb plates, and a network of nerve cells. Their only live stage is the medusa. There are about 100 species.



Cnidaria (hydrozoans, jellyfish, anemones, corals)

They have radial symmetry, a network of nerve cells, and nematocysts (stinging cells). They have both a medusa and polyp live stage (depending on the species). There are about 9000 species.



Platyhelminthes (flatworms)

They have bilateral symmetry, a central nervous system, and a highly branched gut system, without anus. There are about 12000 species



Annelida (polychaete worms / borstelwormen)

They have bilateral symmetry, a central nervous system and brain, and a gut system. There are about 12000 species.



Vestimentifera (gutless worm)

They have a bilateral symmetry, a nervous system with a primitive brain, and a primitive heart. They lack, however, a mouth and gut. The symbiotic bacteria inside of their body provide in their energy. There are about 100 species.



Mollusca (schelpdieren)

They have bilateral symmetry, a central nervous system and brain, often a calcium-carbonate shell, a head-foot complex, a mantle, gills, and a radula (rasping tongue). There are over 100000 species.

- Bivalvia (two shells, no radula)
- Gastropoda (single or no shell)
- Polyplacophora (keverslakken)
- Monoplacophora
- Cephalopoda (inktvisen)



Arthropoda (geleedpotigen)

They have bilateral symmetry, a central nervous system and brain, a complete gut system, compound eyes, and a exoskeleton of chitin. There are about 1000000 species.

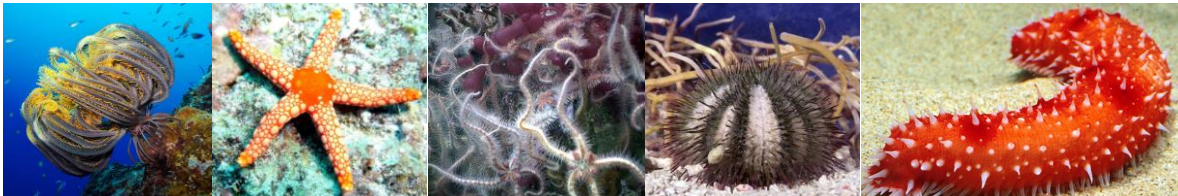
- Trilobita (extinct)
- Chelicerata (spiders, horseshoe crabs)
- Crustacea (copepods, shrimps, crabs)
- Insects



Echinodermata (stekelhuidigen)

They have a radial symmetry (often 5-fold), a nerve ring without brain, a gut system, a skeleton of calcium-carbonate plates, and a water-vascular system. There are about 6000 species.

- Crinoids (sea lilies, feather stars)
- Asteroids (sea stars)
- Ophiuroids (brittle stars)
- Echinoids (sea urchins)
- Holothuroids (sea cucumbers)



Chaetagnatha (arrow worms / pijlwormen)

They have bilateral symmetry, a central nervous system and brain, and a complete gut system. There are about 100 species.



Urochordata

They have bilateral symmetry, a central nervous system and brain, a complete gut system, and a heart with vessels. The larvae have a notochord. There are about 1200 species.

- seasquirts (zakpijpen)
- salps
- appendicularia (lancetvisjes)

