

System sinic a řas

Impérium: Prokarya

Říše: Bacteria

Oddělení: Cyanophyta (Cyanobacteria) – sinice

Třída : Cyanophyceae- sinice

Řád: Chroococcales

Řád: Oscillatoriales

Řád: Nostocales

Impérium: **Eukarya**

Říše: **Protozoa - prvoci**

Oddělení: **Dinophyta** (Dinoflagellata) - obrněnky

Třída: Dinophyceae

Oddělení: **Euglenophyta** – krásnooka, eugleny

Třída: Euglenophyceae – krásnooka, eugleny

Říše: **Chromista**

Oddělení: **Cryptophyta** – skrytěnky

Třída: Cryptophyceae

Oddělení: **Chromophyta**

Třída: Chrysophyceae - zlativky

Třída: Bacillariophyceae (Diatomae) – rozsivky

Třída: Phaeophyceae (Fucophyceae) – hnědé řasy, chaluhy

Třída: Xanthophyceae (Heterocontae) - různobrvky

Říše: Plantae

Podříše: Biliphyta

Oddělení: Rhodophyta- ruduchy

Třída: Bangiophyceae

Třída: Florideophyceae

Podříše: Viridiplantae

Oddělení: Chlorophyta – zelené řasy

Třída: Chlorophyceae – zelenivky

Třída: Ulvophyceae

Třída: Cladophorophyceae - žabovlasovité

Třída: Bryopsidophyceae - trubicovky

Třída: Trentenpohliophyceae

Třída: Trebouxioophyceae

Oddělení: **Charophyta – parožnatky**

Třída: **Zygnematophyceae (Conjugatohyceae) – spájivky**

Řád: Zygnematales – jařmatkotvaré

Řád: Desmidiiales – dvojčatkovité řasy, krásivky

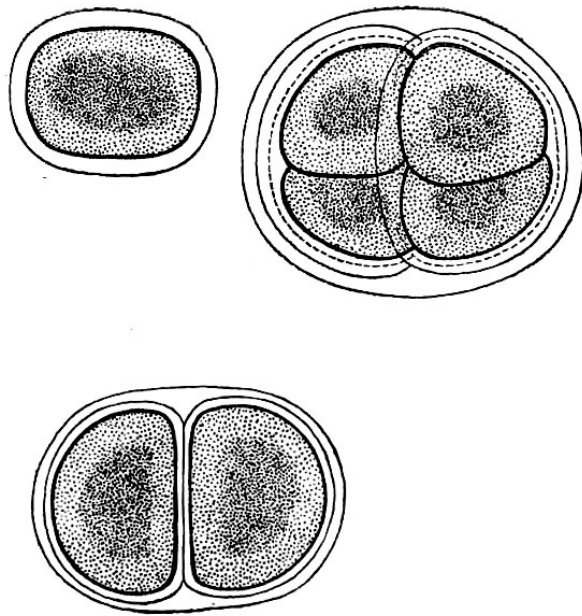
Třída: **Charophyceae**

Řád: Charales - parožnatky

Oddělení: Cyanophyta (Cyanobacteria) – sinice
Třída : Cyanophyceae- sinice

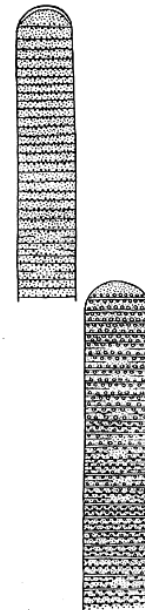
řád: **Chroococcales**

sinivka (*Chroococcus turgidus*)



řád: **Oscillatoriales**

drkalka (*Oscillatoria limosa*)

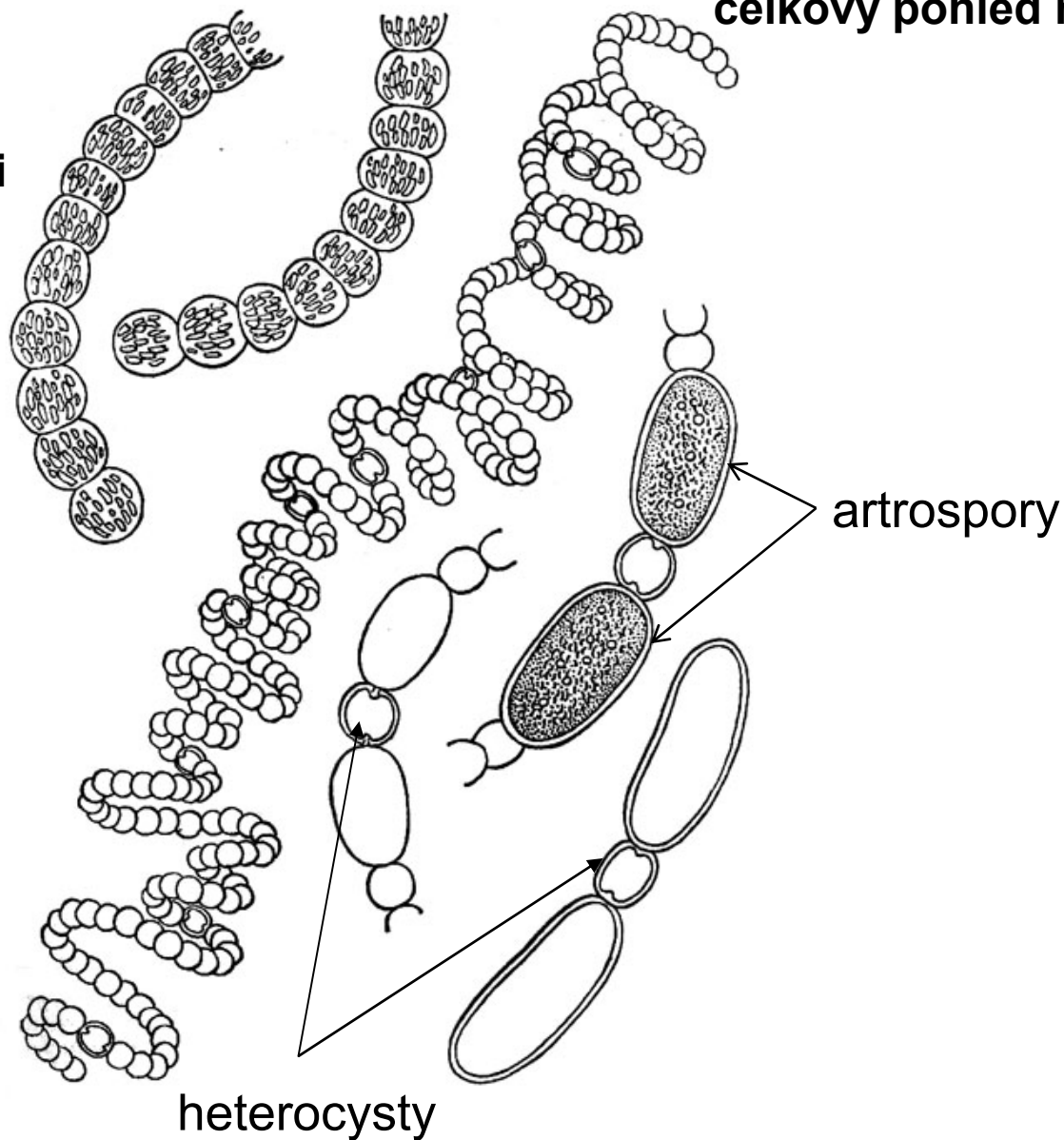


řád: Nostocales

růžencovka (*Anabaena flos-aquae*)

celkový pohled na vlákno

vegetativní buňky
s plynými vezikulemi



chmýřnatka (*Aphanizomenon flos-aquae*)

řád: **Nostocales**

vlákna

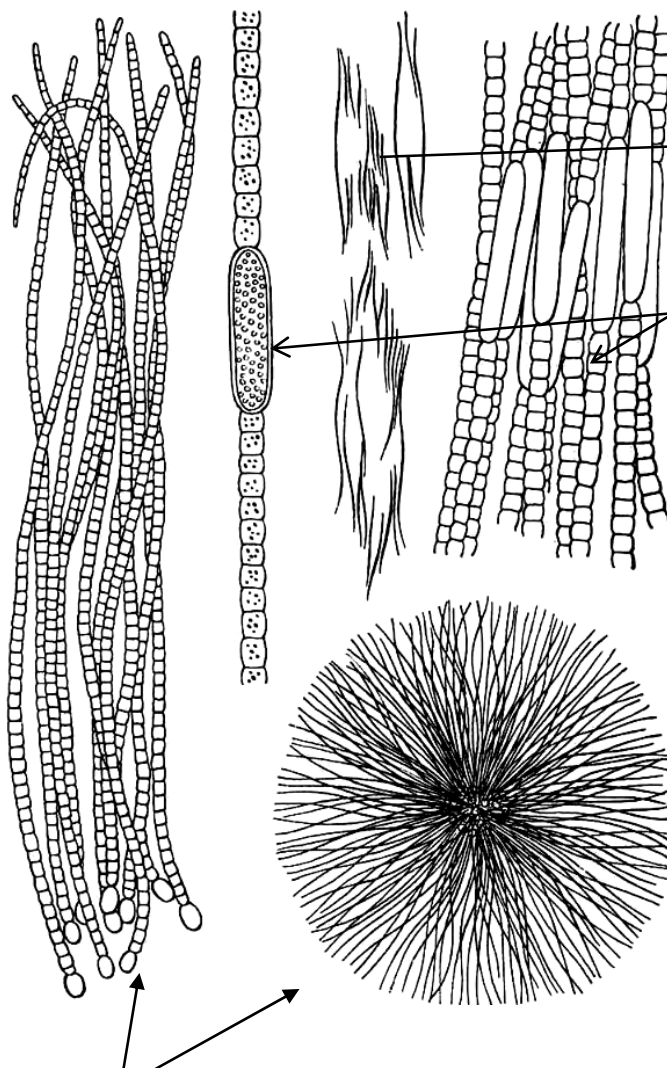
kolonie

vlákna

artrospora

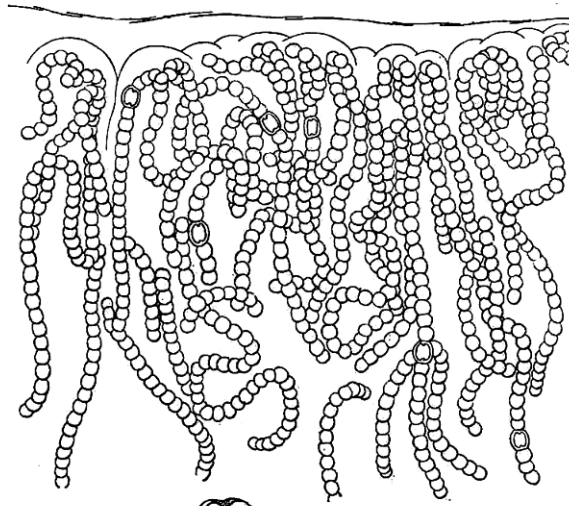
kolonie

Gloeotrichia echinulata

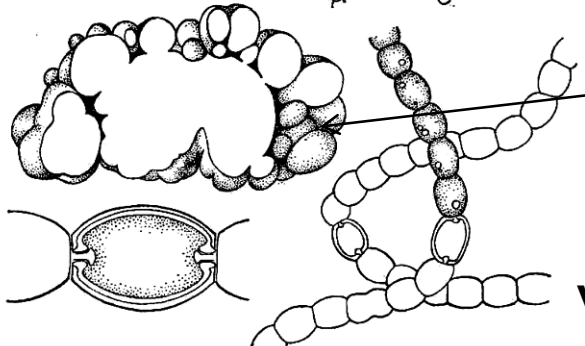


řád: **Nostocales**

Nostoc pruniforme



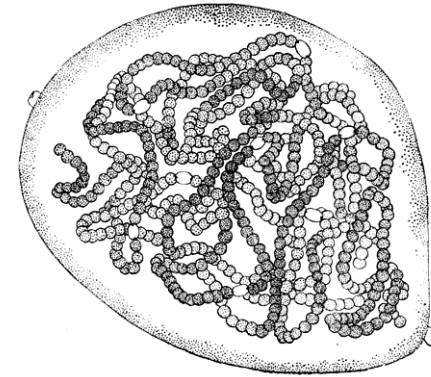
část kolonie



celkový vzhled

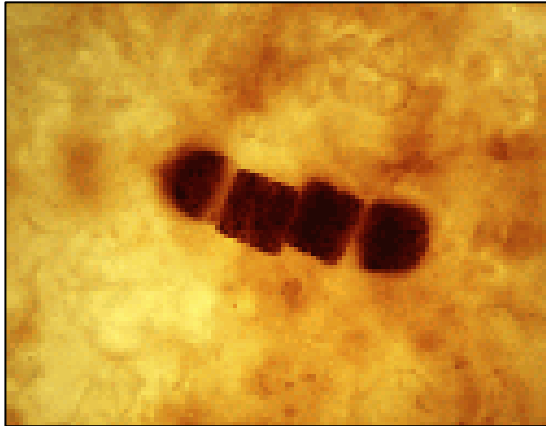
heterocysta

vegetativní vlákno

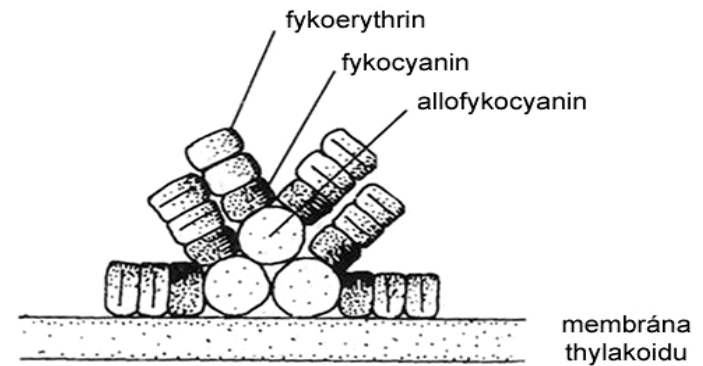


Nostoc commune

Fosilní sinice



Thylakoid s barvivy



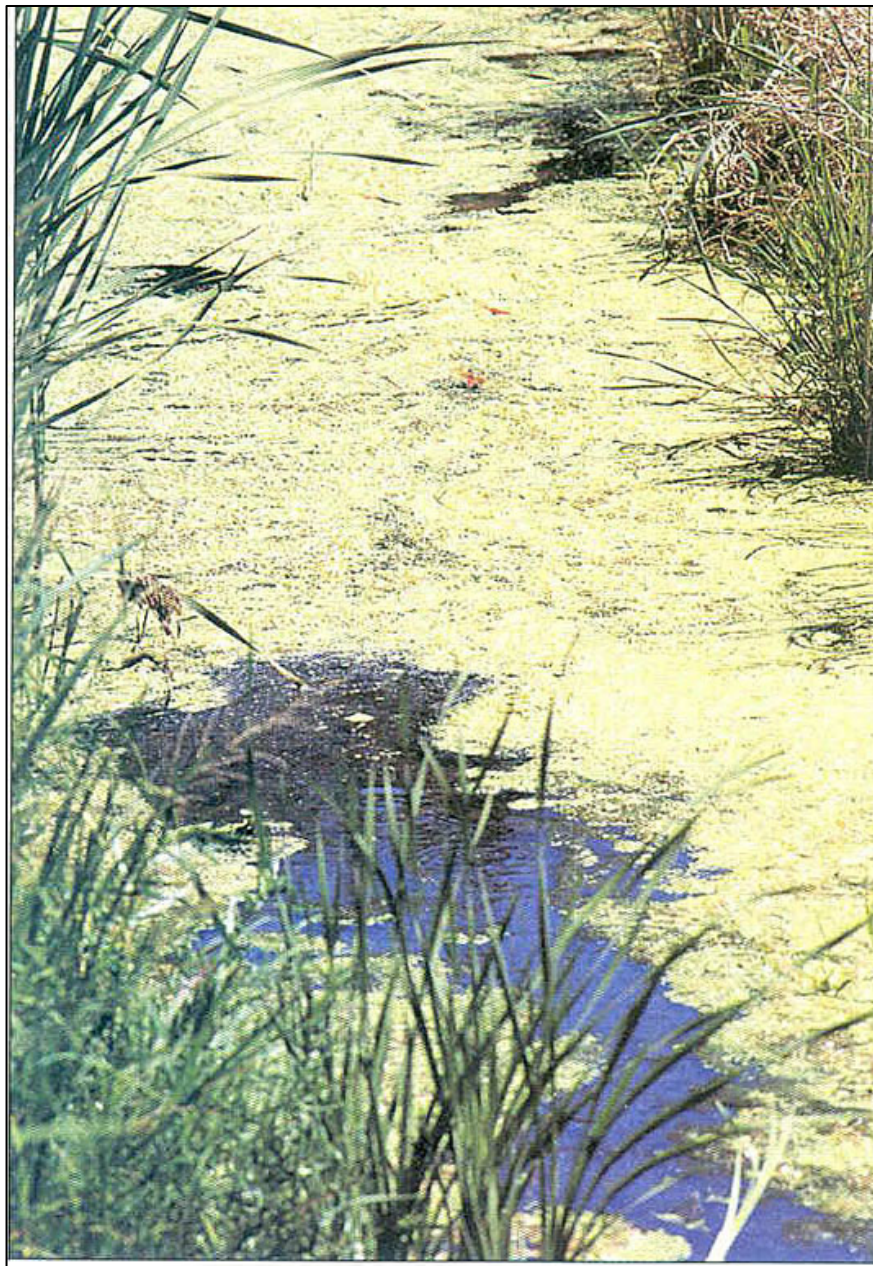
Stromatolit



Krajina se stromatolity



Vodní květ



Řasy

Základní typy stélek řas (organizační stupně)



monádoidní



rhizopodiální



kokální



kapsální



trichální



sifonální



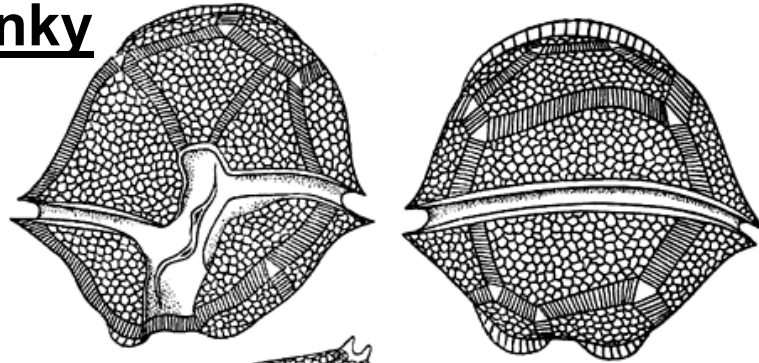
sifonokladální



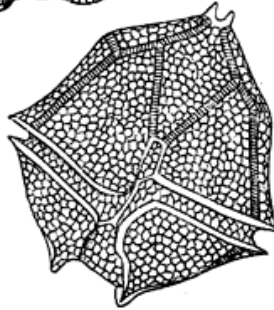
pletivná

Oddělení:
Dinophyta - obrněnky

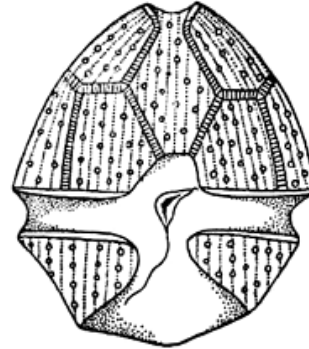
Peridinium willei



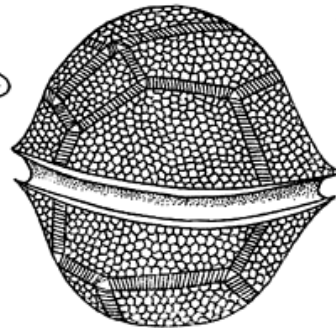
Peridinium bipes



Peridinium umbonatum

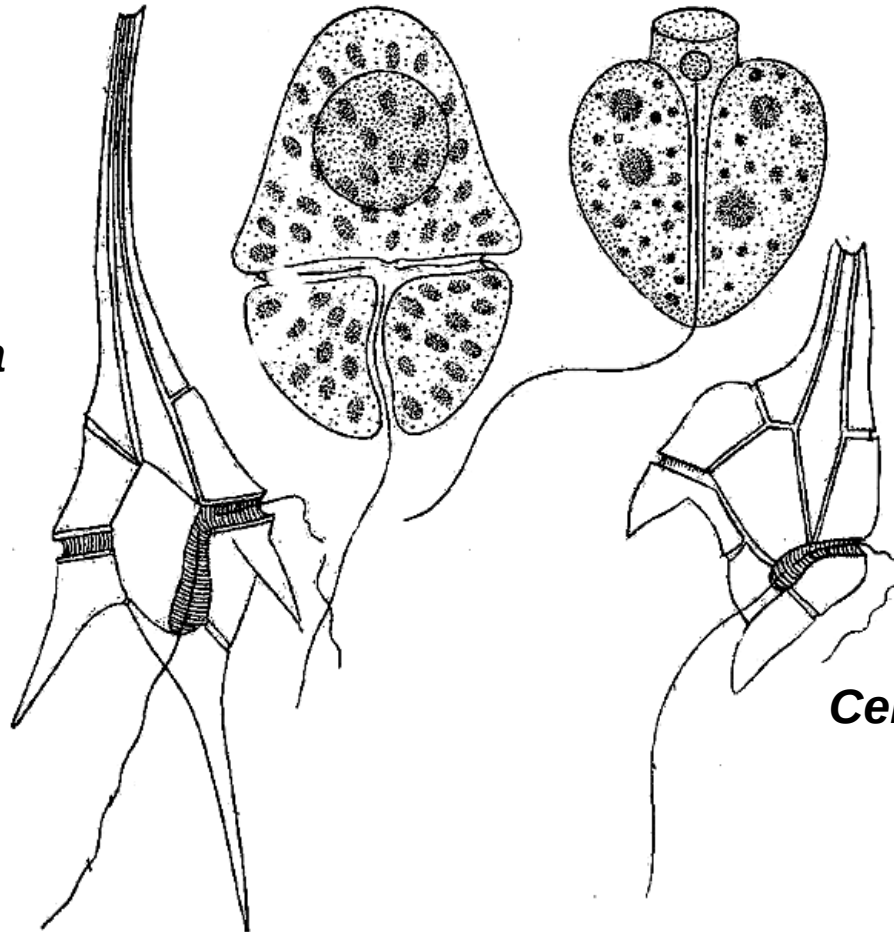


Peridinium cinctum



Gymnodinium palustre

Amphidium lacustre



Ceratium hirundinella

Ceratium cornutum

Oddělení: Euglenophyta
- krásnoočka

*Euglena
spirogyra*

Euglena viridis
(krásnoočko zelené)

*Trachaelomonas
spec. div.*

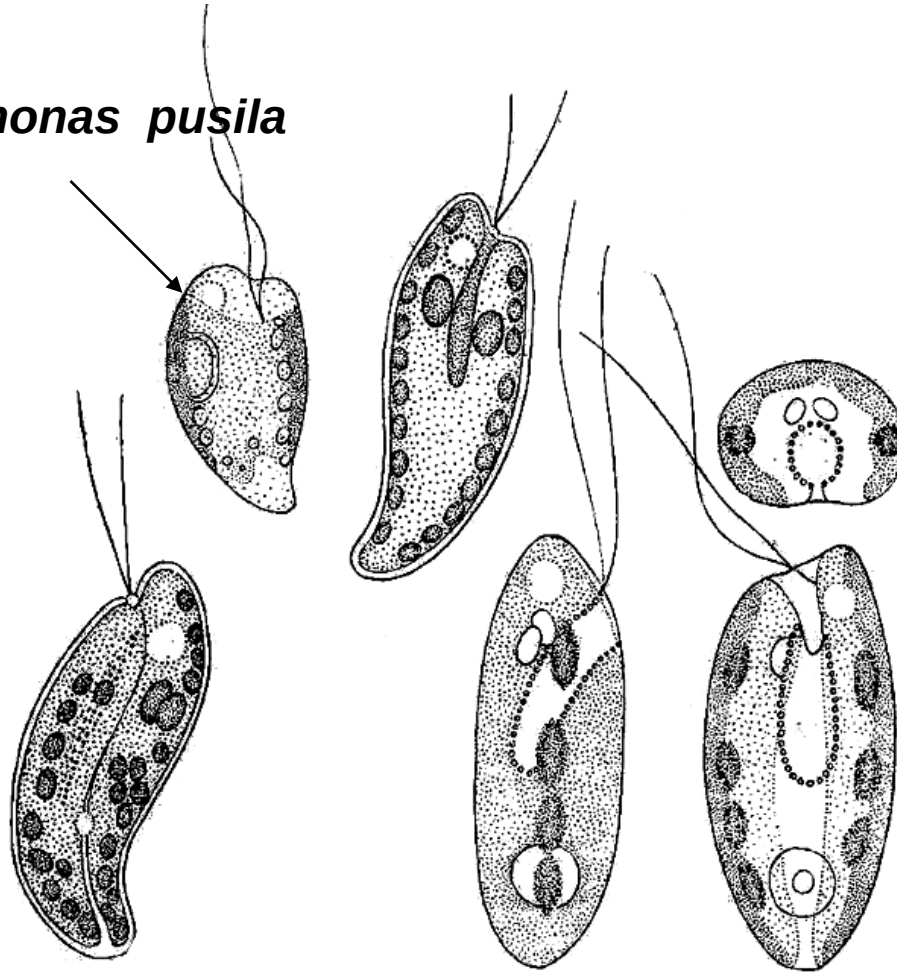
Euglena acus

Euglena gracilis
(krásnoočko štíhlé)



Oddělení: Cryptophyta - skrytěnky

Rhodomonas pusila

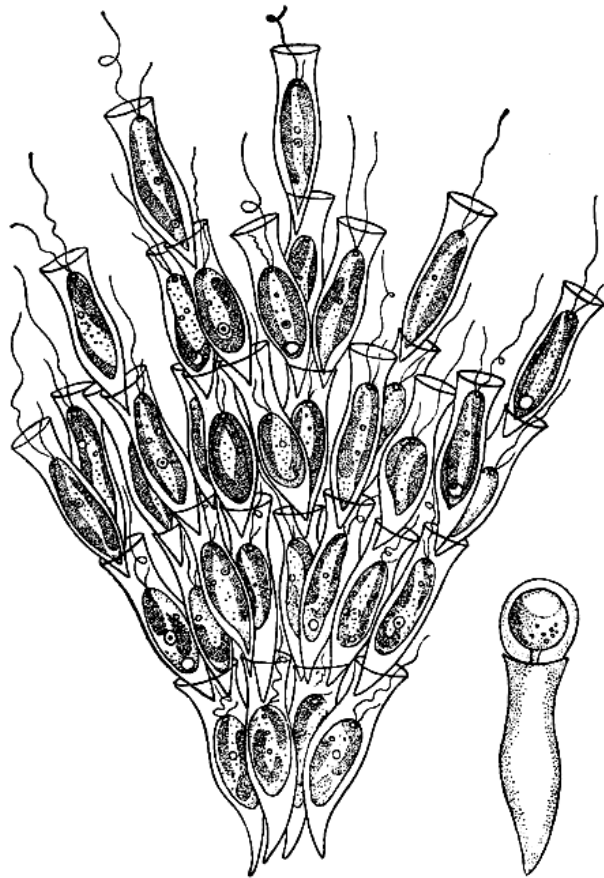


*Cryptomonas tetra-
pyrenoidosa*

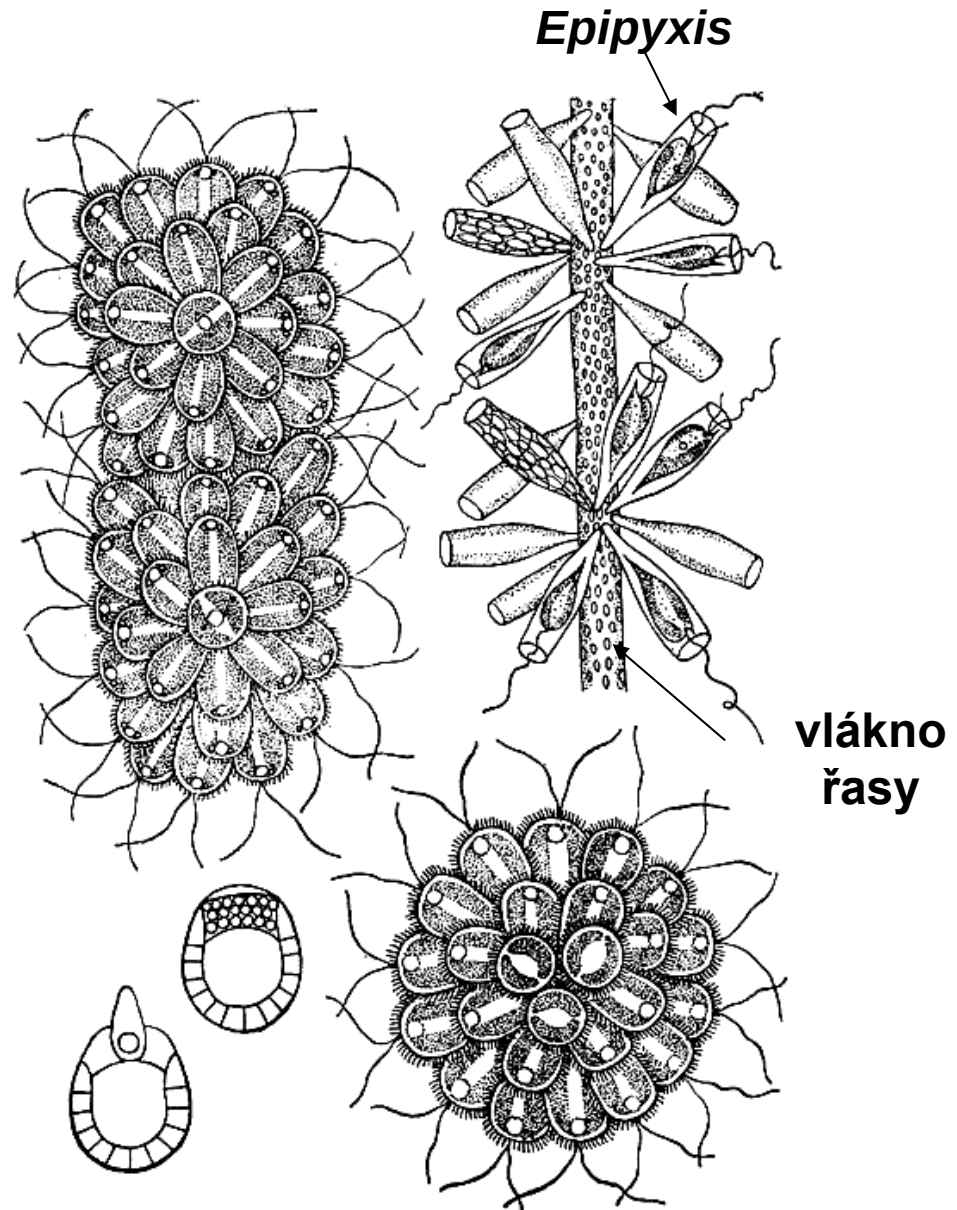
Cryptomonas marsonii

Oddělení: Chromophyta

Třída: Chrysophyceae - zlativky



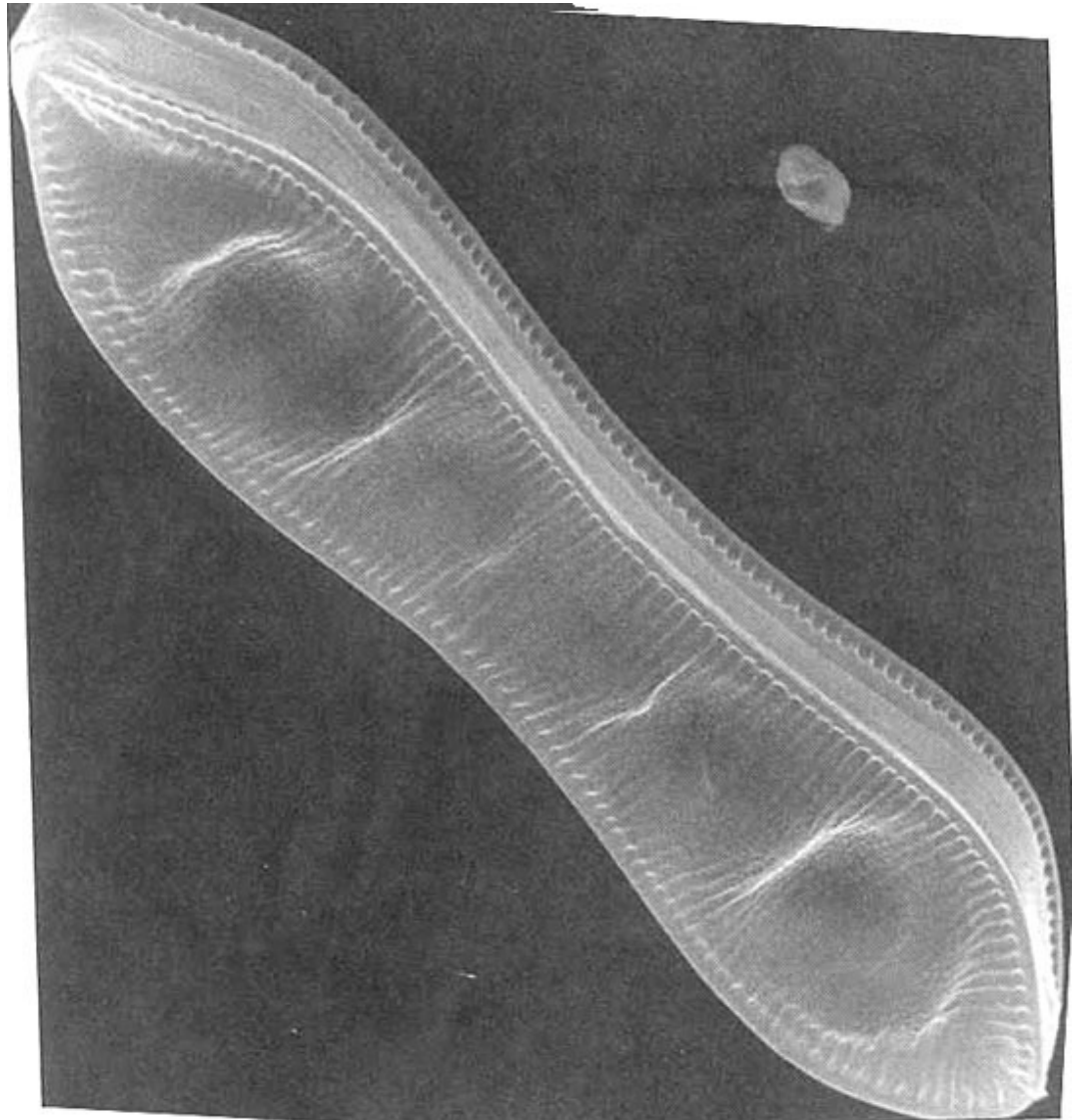
Dinobryon



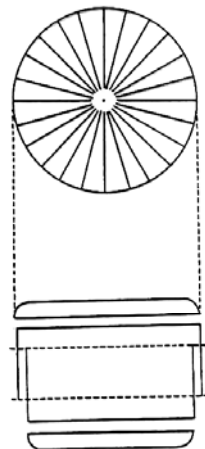
Synura

Třída: Bacillariophyceae
(Diatomae) - rozsivky

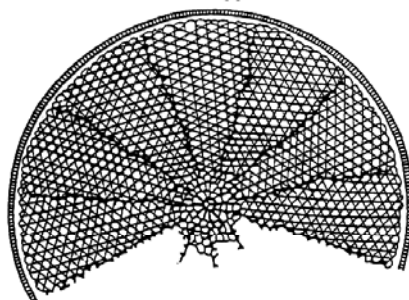
Diatoma



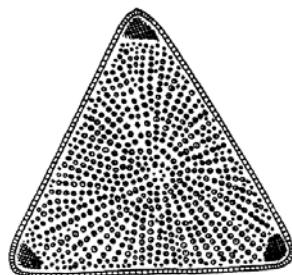
centrická rozsvivka



*Coscinodiscus
denarius*

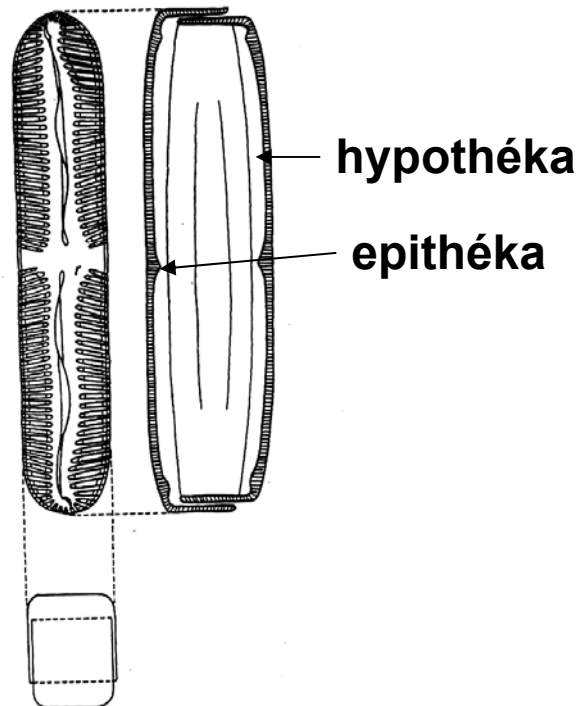


*Triceratium
coelatum*

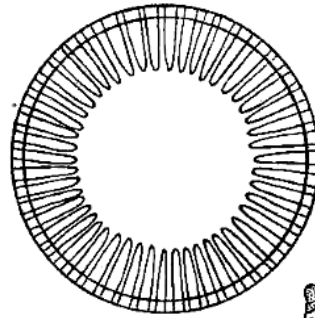


penátní rozsvivka

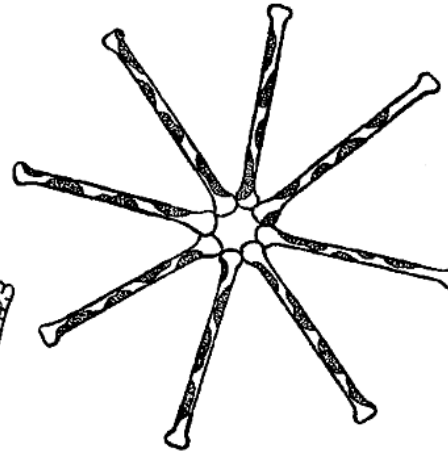
Pinularia



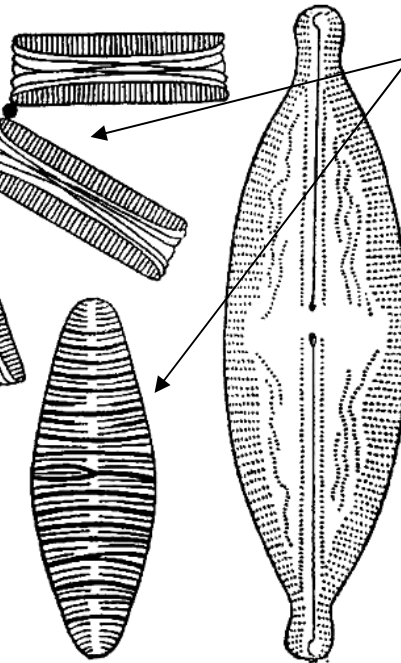
Cyclotella



Asterionella



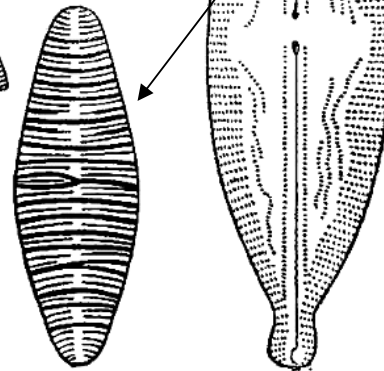
Diatoma vulgare

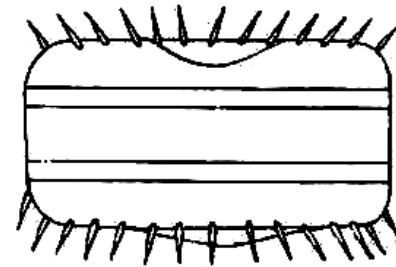
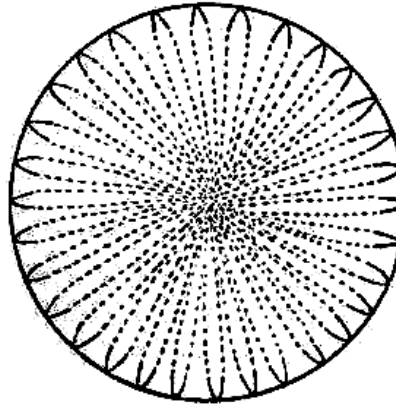
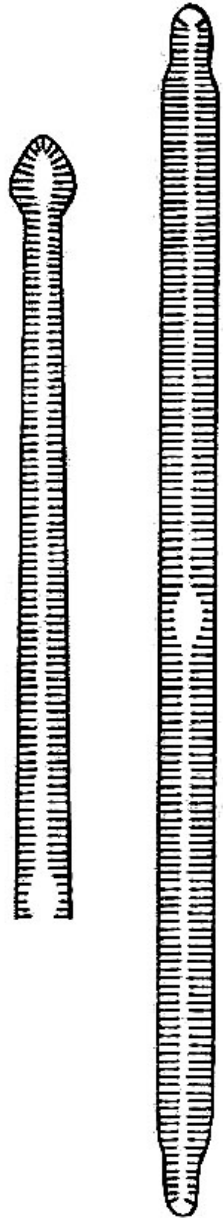


Diatoma elongatum



*Onomoeonesis
sphaerophora*





Stephanodiscus hantzschii

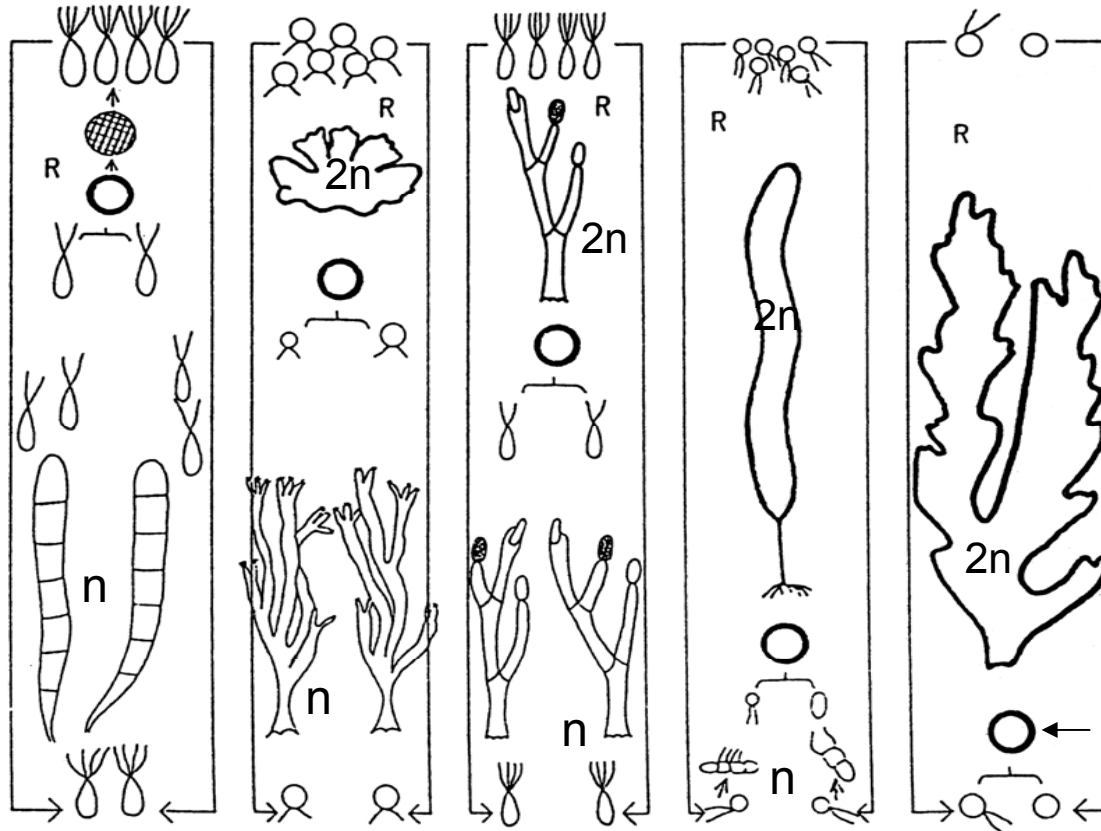
Synedra ulna

Třída: Phaeophyceae
- hnědé řasy

Rodozměna hnědých řas

**heteromorfní
rodozměna**

R- redukční dělení

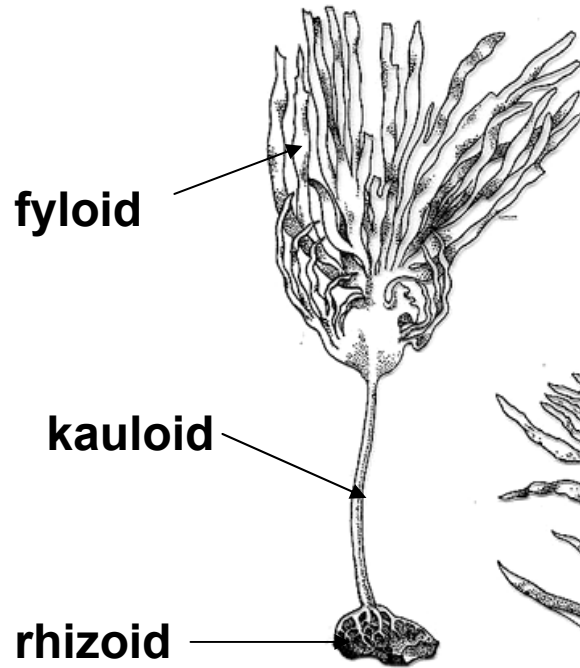


$n > 2n$

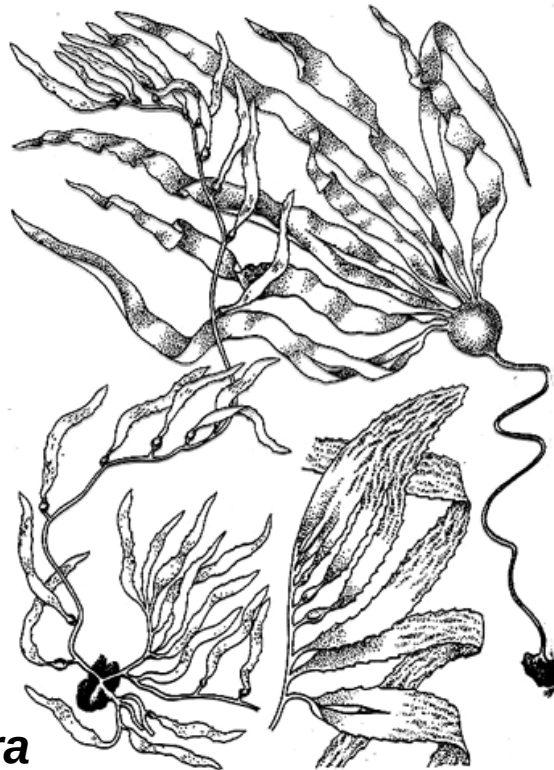
**isomorfní
rodozměna**

$2n > n$

Laminaria digitata



Nereocystis luetkeana



Macrocystis pyrifera

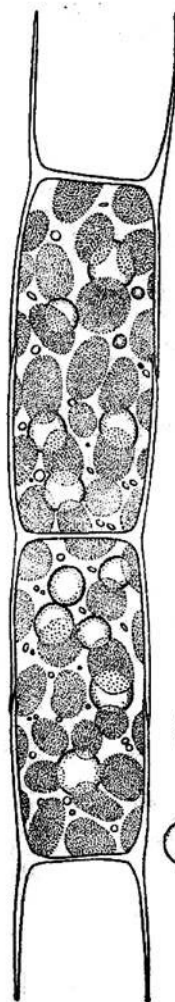
list

Sargassum (hroznovice)

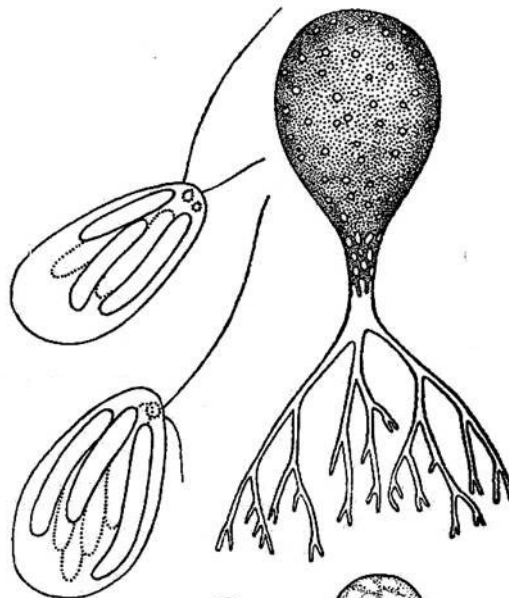


Třída: Xanthophyceae
- různobrvky

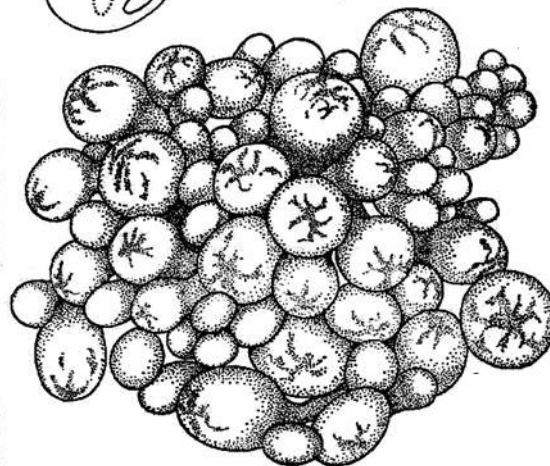
Tribonema viride
(žabnice zelená)



zoospory



Botrydium granulatum
(vakovka zrnitá)



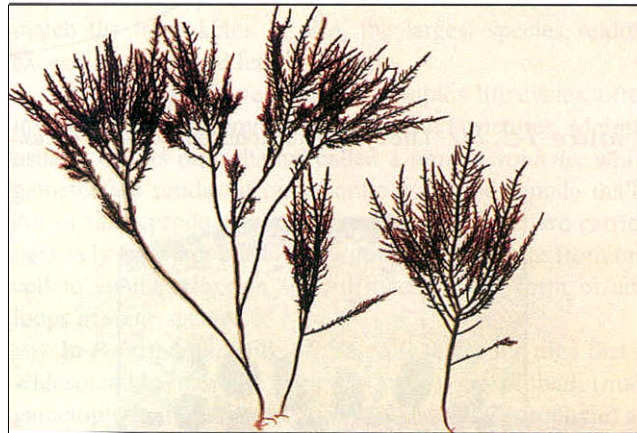
Kolonie vakovky

**Oddělení: Rhodophyta
- ruduchy**



Gelidium

Suroviny pro výrobu agaru



Gracillaria

***Botryocladium* sp.**

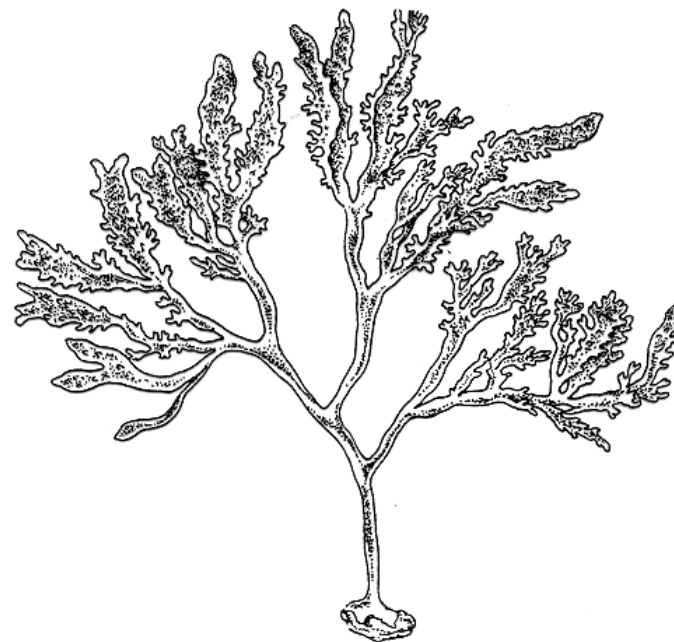


Suroviny pro výrobu karagénu:

Chodrus crispus

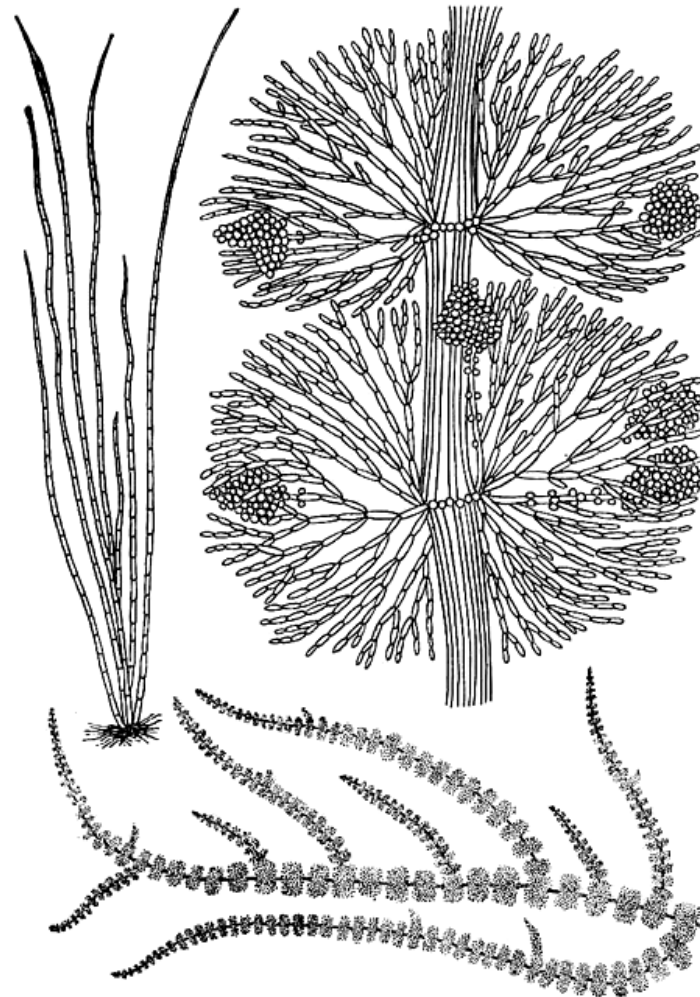


Gigartina mamillosa



Sladkovodní ruduchy:

potěrka obecná (potěrka žabí símě)
(*Batrachospermum moniliforme*)



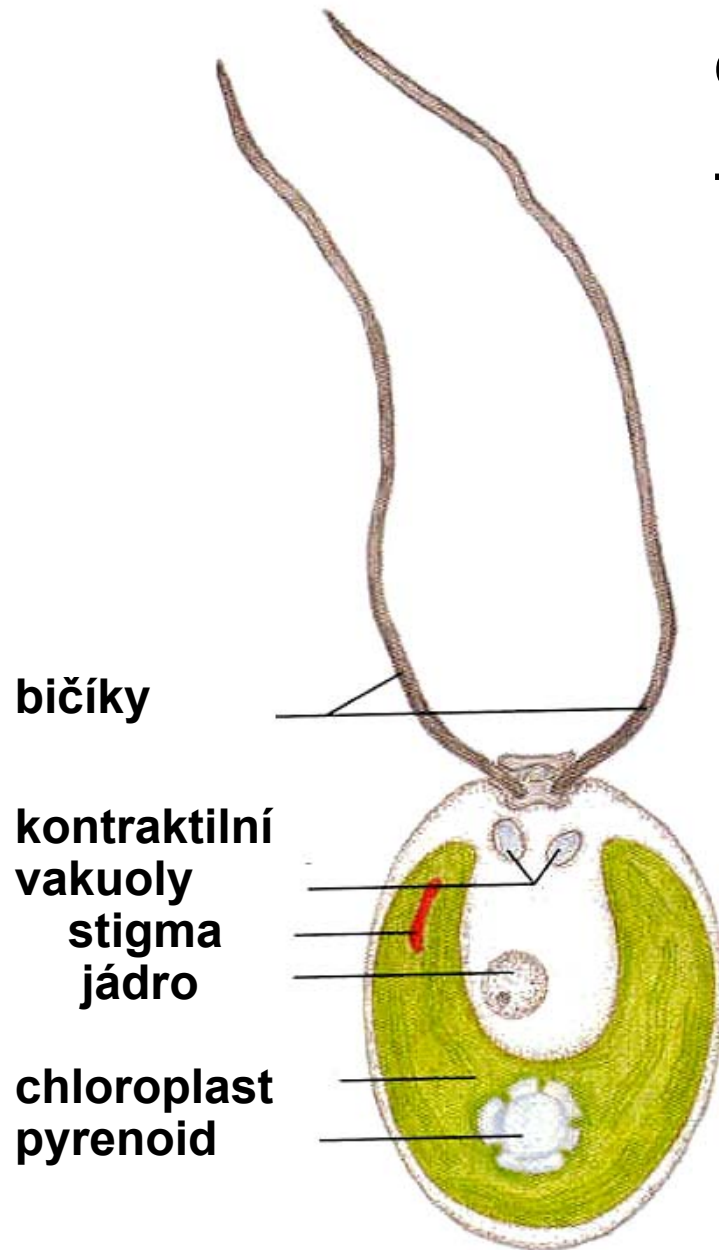
Lemanea annulata

část stélky

celkový pohled

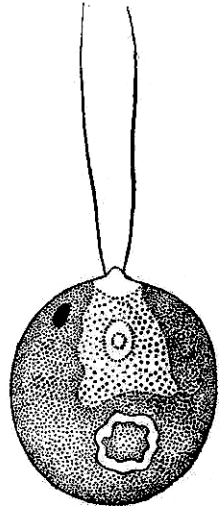
Oddělení: Chlorophyta - zelené řasy

Třída: Chlorophyceae – zelenivky

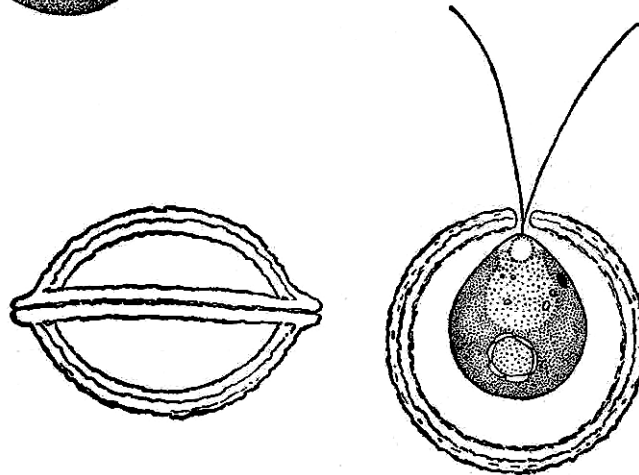
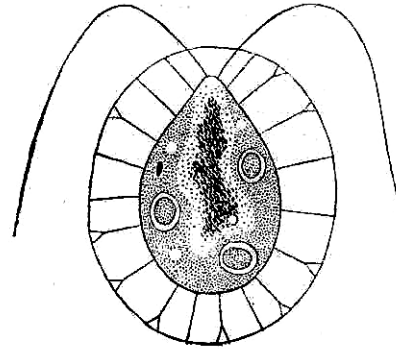


Chlamydomonas sp.

Chlamydomonas reinhardtii

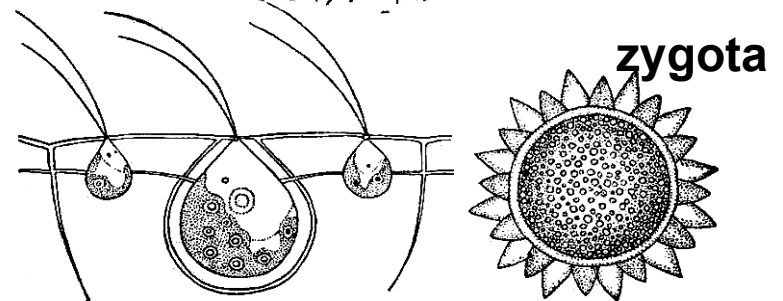
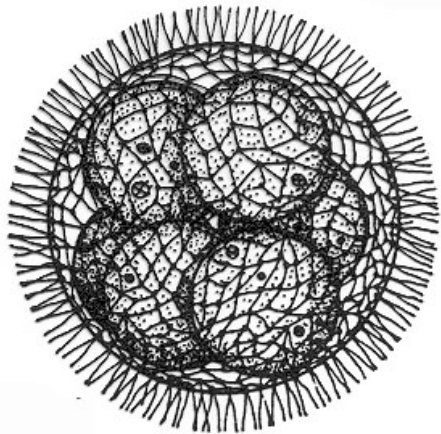
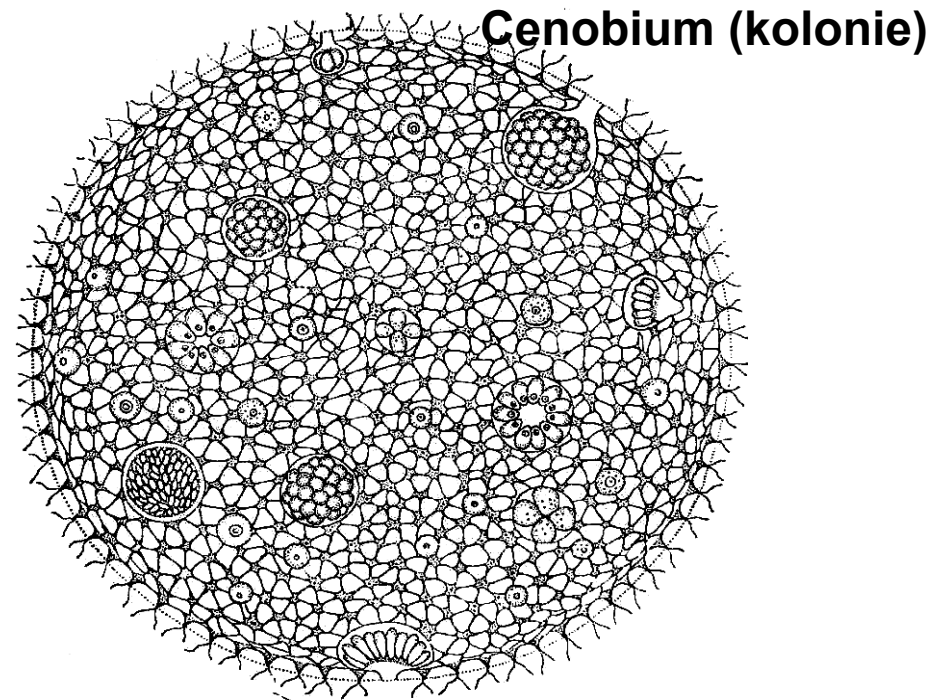
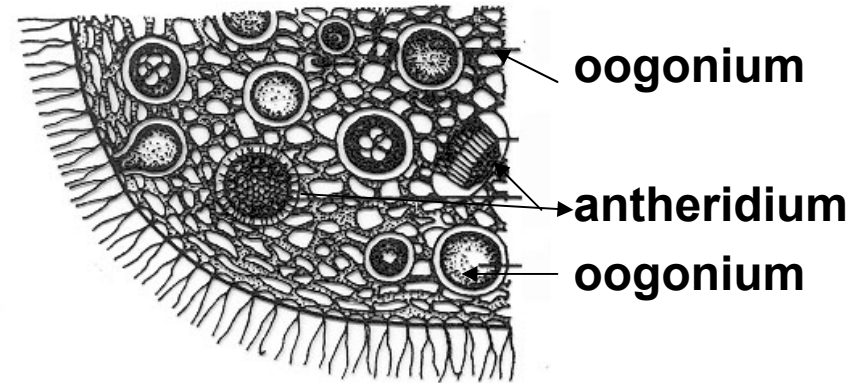


Haematococcus pluviatilis



Phacotus lenticularis

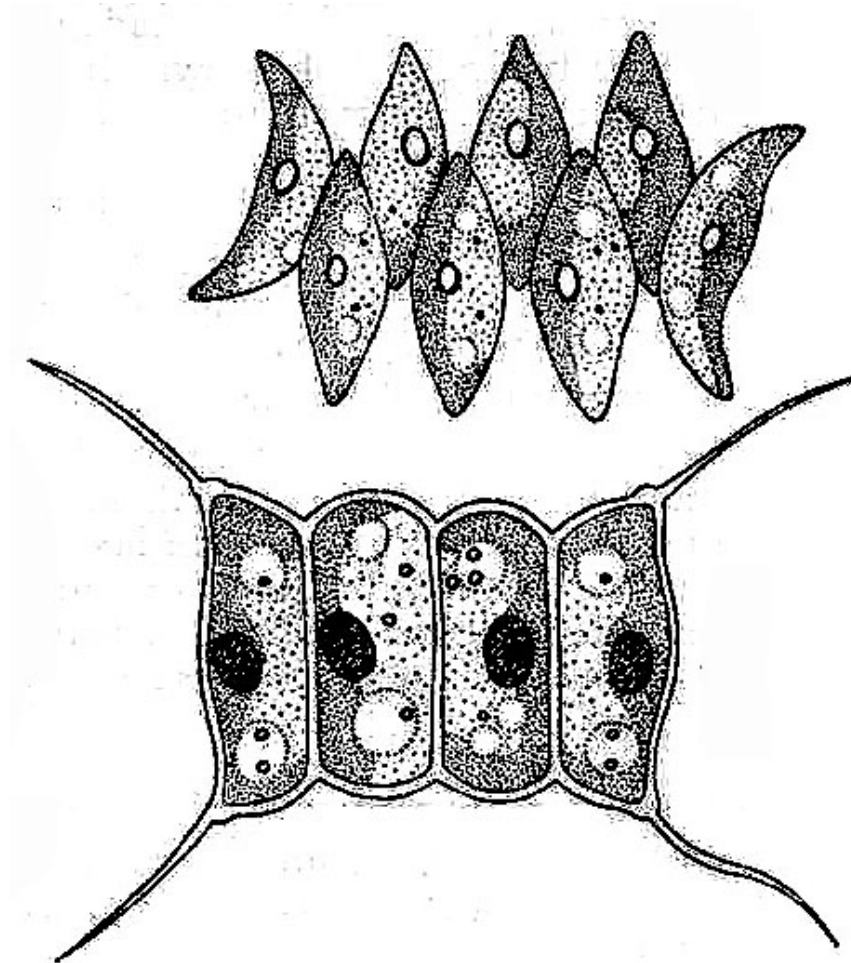
Volvox globator (váleč koulivý)



Třída: Chlorophyceae

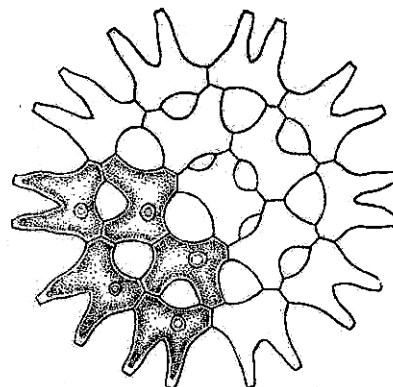
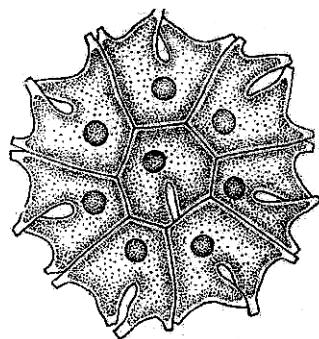
- zelenivky

Scenedesmus obliquus

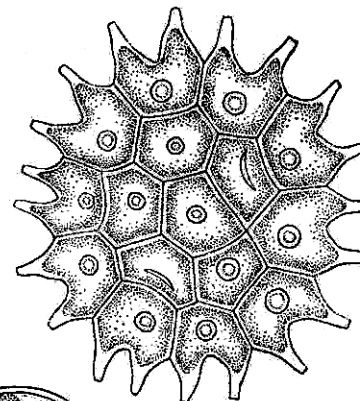


Scenedesmus quadricauda

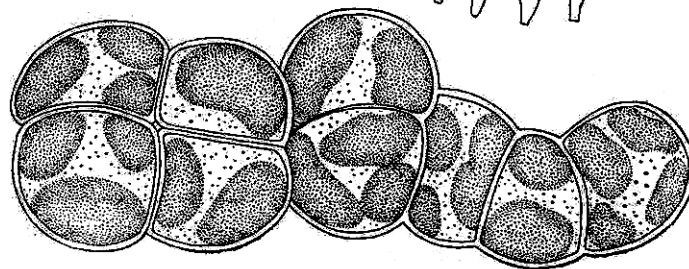
Pediastrum tetras



Pediastrum duplex

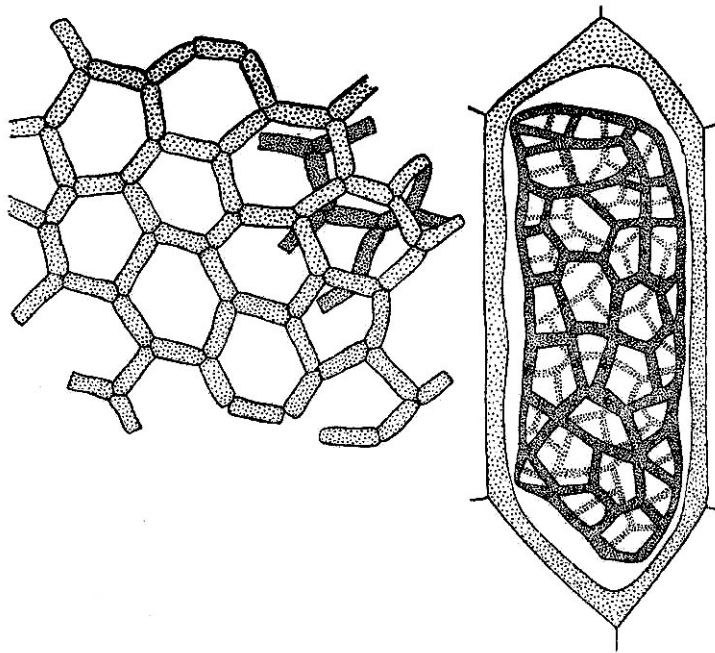


Pediastrum boreanum



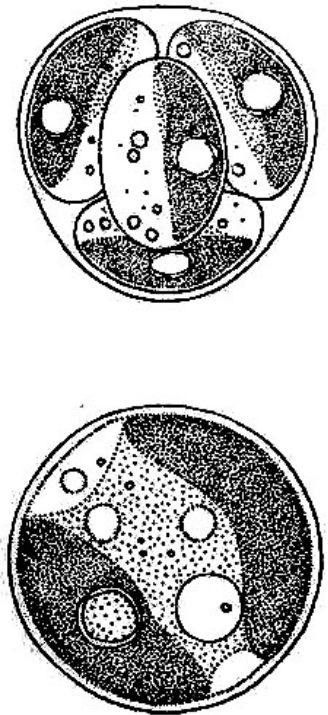
Pleurococcus vulgaris
(zrněnka obecná)

Hydrodictyon reticulatum



Třída:
Trebouxiophyceae

Chlorella vulgaris
(zelenivka obecná)

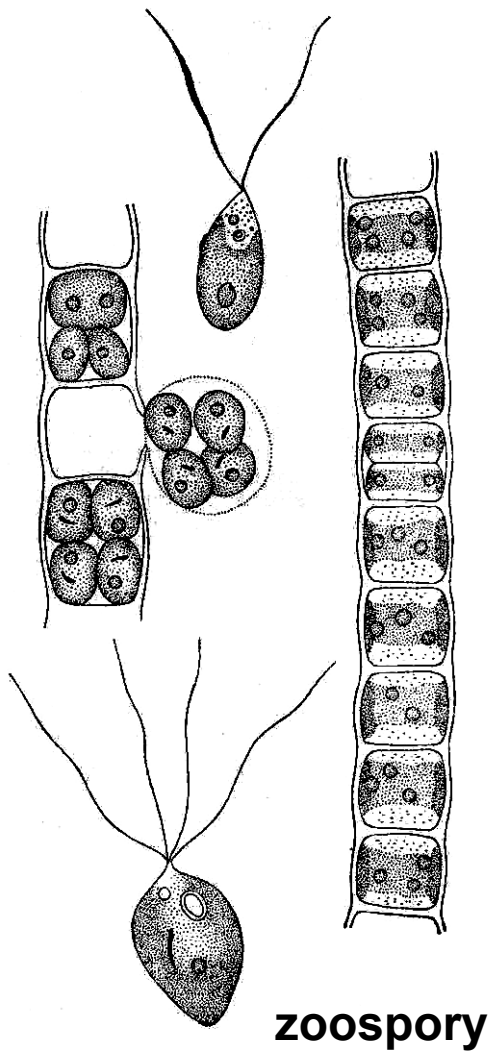


Třída: Ulvophyceae

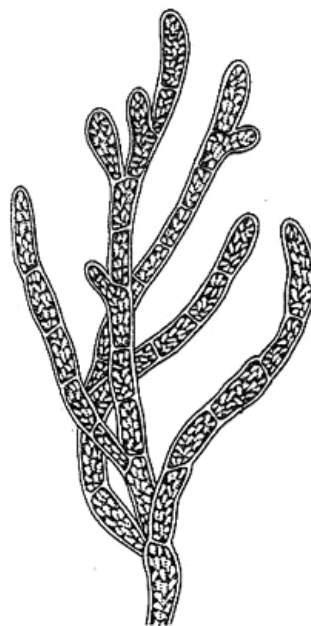
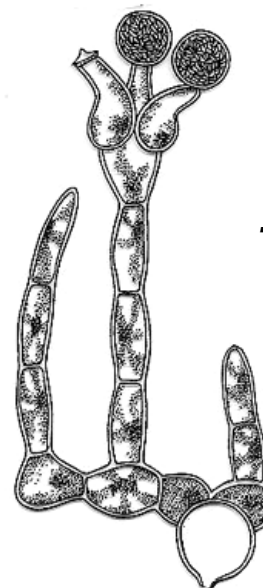
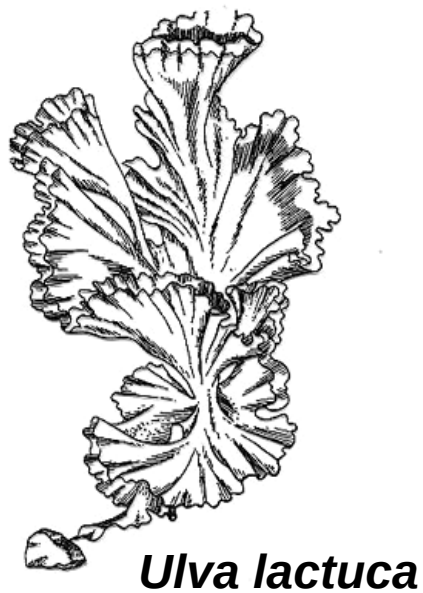
-vláknité kadeřnaté řasy

Acetabularia acetabulum

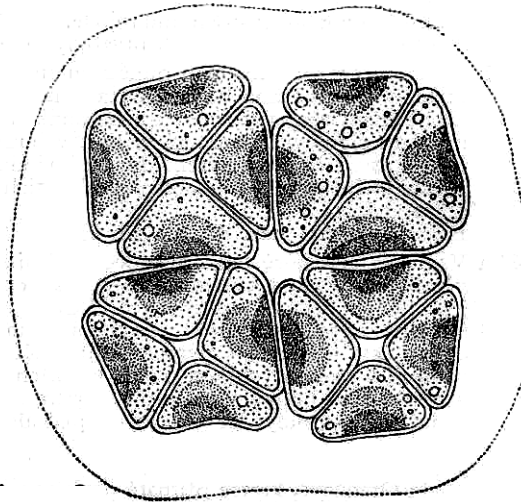
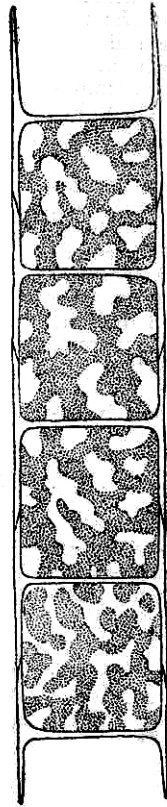




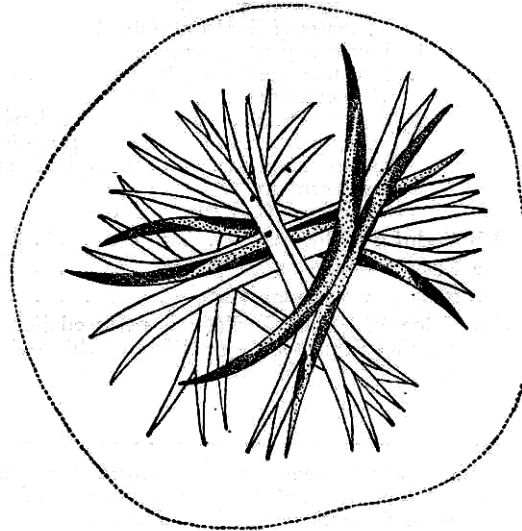
Ulothrix zonata
(kadeřnatka)



Microspora quadrata



Crucigenia fenestrata



*Ankistrodesmus
falcatus*

Oddělení: Charophyta

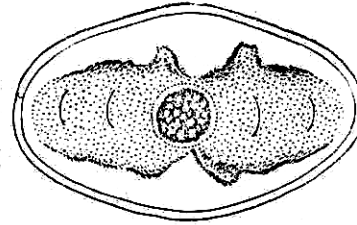
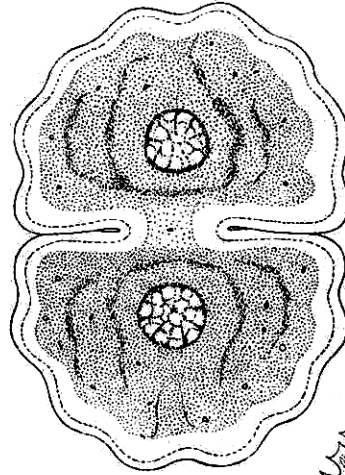
Třída:

Zygnematophyceae

- spájkivky

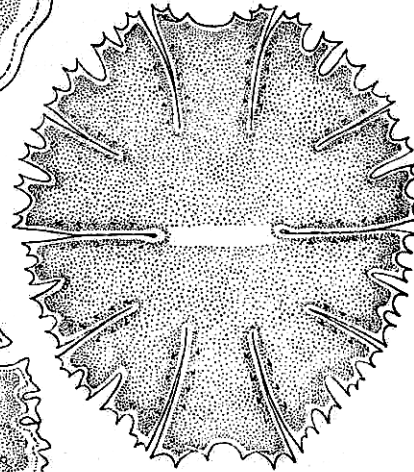
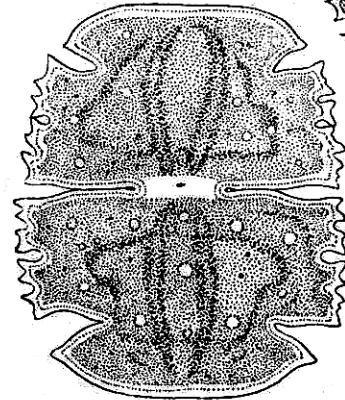
řád: krásivky

Cosmarium
impressulum

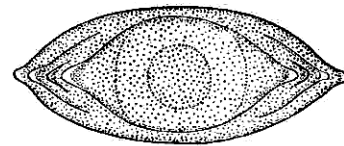


Pohled z boku

Micrasterias truncata



Micrasterias papilifera

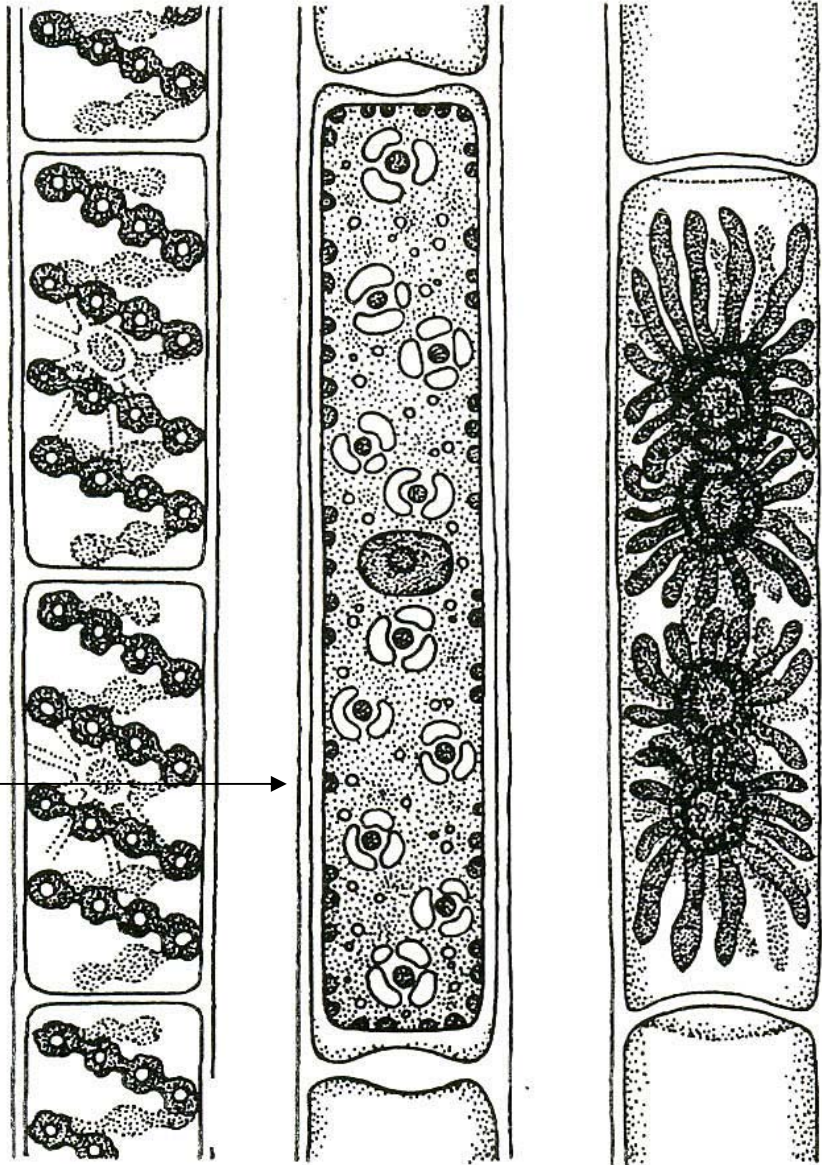


Pohled z boku

řád: jařmatkotvaré

Spirogyra sp.

Mougeotia viridis

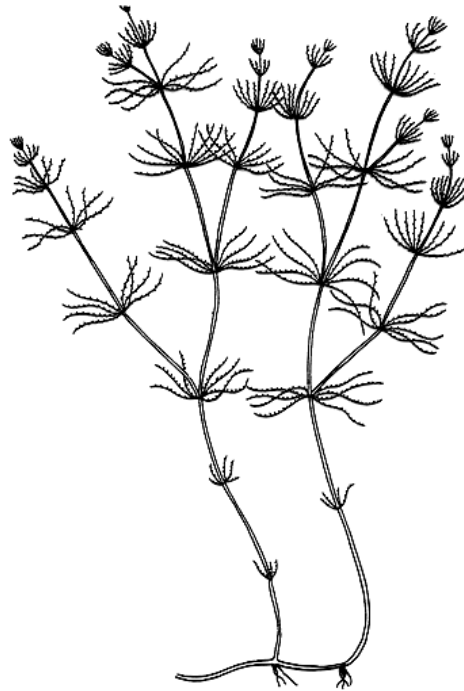
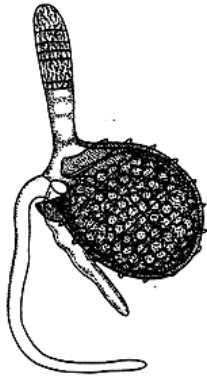


Zygnema sp.

Třída:
Charophyceae
- parožnatky

Chara foetida

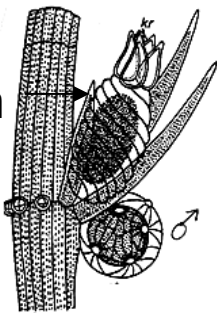
klíčící sporokarp



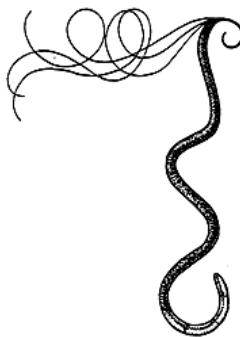
Porost parožnatek



oogonium



antheridium



spermatozoid