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Research Article

**BLUE-GREEN ALGAE (CYANOBACTERIA) FROM THE GULF OF
GDAŃSK. A REVIEW**

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Abstract

Seventy-eight species of blue-green algae have been noted in the Gulf of Gdańsk. Chroococcales is represented by nine genera and 28 species, Pleurocapsales by two genera and two species, and Hormogoniales by 21 genera and 48 species. The most abundant number of species come from the following genera: *Aphanothece*, *Synechocystis*, *Merismopedia*, *Microcystis*, *Chroococcus* from Chroococcales and *Phormidium*, *Spirulina*, *Oscillatoria*, *Lyngbya* and *Anabaena* from Hormogoniales. The majority of the species noted are planktonic forms, while a few that occur are sessile or epiphytic. The small number of the benthonic species identified to date in the Gulf of Gdańsk could be explained by the lack of investigations on this ecological group of cyanobacteria in the Baltic Sea.

This review was designed as a key for determining families and genera.

A review of the species noted in the Gulf of Gdańsk (Species names in parenthesis are potential members of the Gulf of Gdańsk flora; they could be noted in future.)

Key to the classes:

1. Unicellular, mainly colonial; never form true filaments. Cells never determined on the basal and apical parts. Reproduction by cell division..... **Chroococophyceae**
- 1a. Differently shaped.....**2**
2. Multicellular, sessile epiphytes that are more or less filamentous; usually differentiated on a flat foot comprised of creeping filaments and on horizontal rows that form primitive filaments. Reproduction by the cell division or colony fragmentation; endospores present.....**Pleurocapsophyceae**
- 2a. Typical filaments; single or joint in colonies; straight or branching. Reproduction by filament or colony fragmentation as well as through hormogoniales**Hormogoniophyceae**

Class: **Chroococcophyceae**

Order: **Chroococcales**

Key to the families:

1. Cells usually elongated. Cell division always only in one plane, usually perpendicular to the longitudinal axis of the cell**Synechococcaceae**
- 1a. Cells usually spherical. Cell division different**2**
2. Cell division by binary fission always in two planes perpendicular to one another**Merismopediaceae**
- 2a. Cells divide in another way.....**3**
3. Cell division occurs regularly in three planes perpendicular one to another in successive generations; daughter cells grow into the original form and size before the next division.....**Microcystaceae**
- 3a. Cells divide successively in three or more different planes, later forming small, packet-like colonies, and reach the original shape before the next division, but not a spherical form.....**Chroococcaceae**

Family: Synechococcaceae (Komárek et Anagnostidis 1995)

Key to the subfamilies:

1. Cells 1.2-3 times longer than wide; they occur solitarily or irregularly

- arranged in formless or more or less spherical colonies; never form typical pseudofilaments.....**Aphanothecoideae**
- 1a. Cells usually several times longer than their wide; in colonies often arranged in one direction, sometimes in pseudofilamentous rows.....**Synechococcoideae**

Subfamily: Aphanothecoideae (Komárek et Anagnostidis 1995)

Key to the genera:

1. Cells attached transversely to the ends of gelatinous stalks.....**Cyanonephron**
- 1a. Cells arranged into irregular, spherical gelatinous colonies.....**2**
2. Cells arranged only on or near the surface of gelatinous spheres.....**Lemmermanniella**
- 2a. Cells distributed in other way in the colonies.....**3**
3. Cells arranged in mucilaginous, irregular net-like colonies, at least partly in rows.....**Cyanodictyon**
- 3a. Cells arranged into more or less spherical or amorphous colonies, always irregularly, but with different densities of cells in different colony regions.....**Aphanothece**

Genus: **Cyanonephron** Hickel 1985

- (*C. styloides* Hickel)

Genus: **Lemmermanniella** Geitler 1942

- *L. parva* Hindák
- *L. pallida* (Lemmermann) Geitler

Genus: **Cyanodictyon** Pascher 1914

- (*C. planctonicum* Meyer)
- (*C. imperfectum* Cronberg et Weibull)
- (*C. reticulatum* (Lemmermann) Geitler)

Genus: **Aphanothece** Nägeli 1849

- *A. microscopica* Nägeli
- *A. castagnei* (Brébisson) Rabenhorst
- (*A. clathrata* W. et G.S. West)
- (*A. saxicola* Nägeli)
- (*A. bachmannii* Kom.-Leg. et Cronberg)
- (*A. minutissima* (W. West) Kom.-Leg. et Cronberg)

Subfamily: Synechococcoideae (Komárek et Anagnostidis 1999)

Key to the genera:

1. Solitary cells without mucilage envelopes, sometimes jointly in groups.
.....**Synechococcus**
- 1a. Cells in mucilaginous colonies..... **2**
2. Cells fusiform with tapering or conical ends**Rhabdogloea**
- 2a. Cells cylindrical with rounded ends.....**Rhabdoderma**

Genus: **Synechococcus** Nägeli

- (*S. elongatus* (Nägeli) Nägeli)

Genus: **Rhabdogloea** Schröder 1917

- (*Rh. linearis* (Geitler) Komárek)
- (*Rh. smithii* (R. et F. Chodat) Komárek =*Dactylococcopsis raphidioides* Hansgirg)

Genus: **Rhabdoderma** Schmidle et Lauterborn 1900

- (*Rh. compositum* (G.M. Smith) Fedorov)
- (*Rh. lineare* Schmidle et Lauterborn)

Family: Merismopediaceae (Elenkin 1933)

Key to the subfamilies:

1. Cells solitary or in irregular or tabular colonies; colony cells arranged in single layers.....**Merismopedioideae**
- 1a. Cells in spherical colonies arranged peripherally and radially and usually connected with the central mucilaginous stalk system.....
.....**Gomphosphaerioideae**

Subfamily: Merismopedioideae (Komárek et Anagnostidis 1999)

Key to the genera:

1. Cells free-living, solitary.....**Synechocystis**
- 1a. Cells arranged in groups or colonies.....**2**
2. Colonies mucilaginous, formless with irregular cell arrangement.....
.....**Aphanocapsa**
- 2a. Flat colonies with a single cell layer; cells arranged in perpendicular rows.....**Merismopedia**

Genus: **Synechocystis** Sauvageau 1892

- (*S. salina* Wislouch)
- (*S. aquatilis* Sauvageau)
- (*S. septentrionalis* Skuja)

- (*S. sallensis* Skuja)

Genus: **Aphanocapsa** Nägeli 1849

- *A. incerta* (Lemmerma.) Cronberg et Komárek = *Microcysis incerta* Lemm.
- (*A. marina* Hansgirg)
- (*A. grevillei* (Berkeley) Rabenhorst = *Microcystis grevillei* (Berk.) Rabenh.)
- (*A. delicatissima* West)
- (*A. elachista* West)
- (*A. rivularis* (C.) Rabe.)

Genus: **Merismopedia** Meyen 1839

- *M. glauca* (Ehrenberg) Kützing
- *M. tenuissima* Lemmermann
- *M. punctata* Meyen
- (*M. elegans* A. Braun in Kützing)
- (*M. warmingiana* Lagerheim)

Subfamily: Gomphosphaerioideae ((Elenkin) Komárek et Hindák 1988)

Key to the genera:

1. Cells arranged more or less peripherally in the mucilaginous spherical colonies in which there is no central stalk system; sometimes there are irregular gelatinous clusters in the centre of colonies..... 2
- 1a. Cells in colonies arranged radially, usually peripherally, or displaced slightly from one another, attached to the ends of radial stalks extending from the colonial centre.....3
2. Cells spherical or hemispherical (after division), always distant from one another, usually arranged in one layer on the periphery.....**Coelosphaerium**
- 2a. Cells widely oval, in old colonies densely packed and radially arranged in one or several layers on the periphery of the colony; sometimes in the centre of young colonies gelatinous clusters**Coelomoron**
3. Cells arranged radially in spherical colonies; attached to the ends of thin, pseudodichotom ramificated stalks, usually clearly visible without staining**Snowella**
- 3a. Cells attached to the ends of wide mucilaginous stalks4
4. Cells spherical or oval to 6 µm in length located on the ends of indistinctly visible, gelatinous, simple stalks; cells in old colonies densely packed in the peripheral layer; reproduction usually by the

- liberation of solitary cells from colony.....**Woronichinia**
- 4a. Cells obovoid, club-shaped or cordiform over 6 µm in length located on the ends of wide pseudodichotom branched stalks, never as wide as the cell; cells are often surrounded by stalks with a thin layer of gelatin around them; cells packed loosely with notable spaces. Reproduction only by the disintegration of colonies **Gomphosphaeria**

Genus: **Coelosphaerium** Nägeli 1849

- (*C. minutissimum* Lemmermann)
- (*C. dubium* Grunow in Rabenhorst)

Genus: **Coelomoron** Buell 1938

- (*C. pusillum* (Van Goor) Komárek = *Gomphosphaeria pusilla* (Van Goor) Komárek)

Genus: **Snowella** Elenkin 1938

- *S. lacustris* (Chodat) Komárek et Hindák = *Gomphosphaeria lacustris* Chodat
- (*S. litoralis* (Häyrén) Komárek et Hindák)
- (*S. rosea* (Snow) Elenkin)
- (*S. septentrionalis* Komárek et Hindák)

Genus: **Woronichinia** Elenkin 1933

- *W. naegeliana* (Unger) Elenkin = *Gomphosphaeria nageliana* (Unger) Lemmermann
- (*W. compacta* (Lemmermann) Komárek et Hindák)

Genus: **Gomphosphaeria** Kützing 1836

- *G. aponina* Kützing

Family: Microcystaceae (Elenkin 1933)

Genus: **Microcystis** Kützing ex Lemmermann 1907

- *M. aeruginosa* (Kütz.) Kütz.
- *M. ichthyoblade* Kützing
- *M. viridis* (A. Braun) Lemm.
- *M. wesenbergii* (Komárek) Komárek in Kondrateva
- (*M. novacekii* (Komárek) Compère = *Microcystis marginata* (Menegh.) Kütz.)
- (*M. flos-aquae* (Wittrock) Kirchner)
- (*M. smithii* Komár. et Anagn.)

Family: Chroococcaceae (Nägeli 1849)

Key to the genera:

1. Mucilaginous envelope colorless, usually slightly enlarged, sometimes not sharply delimited **Chroococcus**
- 1a. Mucilaginous envelope colored, especially in the old stage, thin and firm, distinct, usually sharply delimited, rarely slightly dissolved..... **Gloeocapsopsis**

Genus: **Gloeocapsopsis** Geitler ex Komárek 1993

- *G. crepidium* (Thuret) Geitler ex Komárek = *Gloeocapsa crepidium* Thuret

Genus: **Chroococcus** Nägeli

- *Ch. turgidus* (Kütz.) Nägeli = *Gloeocapsa turgida* (Kütz.) Hollerbach
- *Ch. limneticus* Lemmermann = *Glo. limnetica* (Lemm.) Holl.
- *Ch. minimus* (Keissler) Lemm. = *Glo. minima* (Keiss.) Holl.
- (*Ch. minutus* (Kütz.) Nägeli = *Glo. minuta* (Kütz.) Holl.)
- (*Ch. aphanocapsoides* Skuja)
- (*Ch. cumulatus* Bachmann)
- (*Ch. dispersus* (Keis.) Lemm.)
- (*Ch. distans* (Smith) K-L et C.)
- (*Ch. minor* (?) (Kütz.) Nägeli)

Class: Pleurocapsophyceae (Starmach 1966)

Key to the orders:

1. Thalli sessile with an indistinct filamentous construction, composed of irregular groups of cells **Pleurocapsales**
- 1a. Thalli filamentous, filaments usually grow together, forming a pseudoparenchymatous prostrate system creeping on the substrate or grow endolithically..... **Scopulonematales**

Order: Pleurocapsales (Geitler 1925)

Genus: **Pleurocapsa** Thuret in Hauck 1885

- *P. fuliginosa* Hauck

Order: Scopulonematales (Starmach 1966)

Genus: **Hyella** Bornet et Flahault 1888

- *H. caespitosa* Bornet et Flahault

Class: Hormogoniophyceae

Key to the orders:

1. Filaments without branching or with false branching..... 2
- 1a. Filaments with true branching**Stigonematales**
2. Trichomes without heterocytes and resting spores (akinetes).....
.....**Oscillatoriales**
- 2a. Trichomes with heterocytes and resting spores (akinetes).....**Nostocales**

Order: Oscillatoriales (Elenkin 1934)**Key to the families:**

1. Cells longer than wide2
- 1a. Cells shorter than wide.....3
2. Solitary trichomes, without sheaths, sometimes with diffluent sheaths...
.....**Pseudanabaenaceae**
- 2a. One or more trichomes in one distinct sheath; sheaths normally closed
and acute on top**Schizotrichaceae**
3. Trichomes heteropolar, joined with one end to the substrate, usually
with hair-like narrowed ends.....**Homoeotrichaceae**
- 3a. Trichomes of other shapes.....4
4. Cells usually as long as wide.....**Phormidiaceae**
- 4a. Cells several times shorter than wide.....**Oscillatoriaceae**

Family: Pseudanabaenaceae (Anagnostidis et Komárek 1988)**Key to the subfamilies:**

1. Trichomes enveloped by distinct sheaths.....**Leptolyngboideae**
- 1a. Sheaths lacking.....2
2. Trichomes motile of a limited “specific” length.....
.....**Pseudanabaenoideae**
- 2a. Trichomes immotile of unlimited length**Limnotrichoideae**

Subfamily: Pseudanabaenoideae (Anagnostidis et Komárek 1988)**Genus: Pseudanabaena** Lauterborn 1915

- (*P. catenata* Lauterborn)
- (*P. limnetica* (Lemmermann) Komárek = *Oscillatoria limnetica* Lemmermann))
- (*P. mucicola* (Naumann et Huber-Pestalozzi Bourrelly = *Phormidium mucicola* Naumann et Huber-Pestalozzi))

Subfamily: Limnotrichoideae (Anagnostidis et Komárek 1988)

Genus: **Limnothrix** Meffert 1987

- (*L. redecke*i (Van Goor) Meffert = *Oscillatoria redecke*i Van Goor)

Subfamily: **Leptolyngbyoideae** (Anagnostidis et Komárek 1988)

Key to the genus:

1. Trichomes are gathered in tangled bundles**Leptolyngbya**
- 1a. Trichomes solitary free-floating**Planktolyngbya**

Genus: **Leptolyngbya** Anagnostidis et Komárek 1988

- *L. foveolarum* (Raben. ex Gom.) Anagnostidis et Komárek = *Phormidium foveolarum* Gomont
- (*L. fragilis* (Gomont) Anagnostidis et Komárek = *Phormidium fragile* Gomont)
- (*L. tenuis* (Gomont) Anagnostidis et Komárek = *Phormidium tenue* Gomont)

Genus: **Planktolyngbya** Anagnostidis et Komárek 1988

- (*P. circumcreta* (G.S. West) Anagnostidis et Komárek = *Lyngbya circumcreta* G. S. West)
- *P. bipunctata* (Lemm.) Anagnostidis et Komárek = *Lyngbya bipunctata* Lemm.
- (*P. limnetica* (Lemm.) Kom.-Legner et Cornberg = *Lyngbya limnetica* Lemmermann)
- *P. contorta* (Lemmermann) Anagnostidis et Komárek = *Lyngbya contorta* Lemm.

Family: Schizotrichaceae (Elenkin 1934)

Genus: **Schizothrix**

- (*S. vaginata* (Nägeli) Gomont)

Family: Phormidiaceae (Anagnostidis et Komárek 1988)

Key to the subfamilies:

1. Trichomes are straight.....2
- 1a. Trichomes regularly screw-like coiled without sheaths...**Spirulinoideae**
2. Trichomes without or with sheaths which envelope only one trichome..
.....**Phormidioideae**

2a. Sheaths envelope more than one trichome**Microcoleoideae**

Subfamily: Phormidioideae (Anagnostidis et Komárek 1988)

Key to the genus:

1. Aerotopes (gas vesicles) present.....**2**
- 1a. Aerotopes (gas vesicles) absent.....**3**
2. Trichomes solitary.....**Planktothrix**
- 2a. Trichomes gathered into floating bundles.....**Trichodesmium**
3. Trichomes in mats; sheaths can be present.....**Phormidium**
- 3a. Trichomes solitary; sheaths absent or fine mucilage.....**Tychonema**

Genus: **Planktothrix** Anagnostidis et Komárek 1988

- (*P. agardhii* (Gomont) Anagnostidis et Komárek = *Oscillatoria agardhii* Gomont)
- (*P. cryptovaginata* (Škorbatov) Anagnostidis et Komárek = *Lyngbya cryptovaginata* Škorbatov)

Genus: **Trichodesmium** Ehrenberg et Gomont 1892

- (*T. lacustre* Klebahn = *Oscillatoria lacustris* (Klebahn) Geitler)
- Genus: Phormidium (Kütz. ex Gomont) Anagnostidis et Komárek 1988
- *P. nigro-viridis* (Thw. ex Gom.) Anag. et Kom. (= *Oscillatoria. nigro-viridis* Thw. ex Gom.)
- (*P. amphibium* (Ag.) Anag. et Kom. = *O. amphibia* Agardh)
- (*P. autumnale* (Ag.) Gomont)
- (*P. tenue* (Ag. ex Gom.) Anag. et Kom. = *O. tenuis* Agardh)
- (*P. breve* (Kütz. ex Gom.) Anag. et Kom. = *O. brevis* Kütz. ex Gom.)
- (*P. chalybeum* (Mert. ex Gom.) Anag. et Kom. = *O. chalybea* Mert. ex Gom.)
- (*P. formosum* (Bory ex Gom.) Anag. et Kom. = *O. formosa* Bory ex Gom.)
- (*P. laetevirens* (Crou. ex Gom.) Anag. et Kom. = *O. laetevirens* Crou. ex Gom.)

Genus: **Tychonema** Anagnostidis et Komárek 1988

- (*T. granulatum* (Gardn.) Anagnostidis et Komárek = *Oscillatoria granulata* Gardn.)
- (*T. chlorina* (Kütz. ex Gom.) Anagnostidis et Komárek = *Oscillatoria chlorina* (Kütz.) Gomont)

Subfamily: Microcoleoideae (Hansgirg 1892)

Genus: **Microcoleus** Desmazières 1823

- (*M. teberrimus* Gomont)
- (*M. chthonoplastes* (Fl. Dan.) Thuret)

Subfamily: Spirulinoideae (Forti 1907)

Genus: **Spirulina** Turpin ex Gomont 1892

- *S. maior* Kützing
- (*S. tenuissima* Kützing)
- (*S. versicolor* F. Cohn)
- (*S. subtilissima* Kützing)
- (*S. tenerrima* Kützing)
- (*S. rosea* Crouan)
- (*S. baltica* Mert. et Pankow)
- (*S. laxissima* G.S. West)
- (*S. meneghiniana* Zanardini ex Gomont)

Family: Oscillatoriaceae ((S.F.Gray) Harv.? ex Kirchner 1998)

Key to the subfamilies:

1. Trichomes solitary or in loose strata; false branching lacking or very rare **Oscillatorioideae**
- 1a. Trichomes in clusters; false branching obligatory and common.....
..... **Plectonematoideae**

Subfamily: Oscillatorioideae (Gomont 1892)

Key to the genus:

1. Trichomes without sheaths..... **Oscillatoria**
- 1a. Trichomes with sheaths..... **2**
2. One trichome in a sheath..... **Lyngbya**
- 2a. Several trichomes in a sheath..... **Blennothrix**

Genus: **Oscillatoria** Vaucher ex Gomont 1892

- *O. margaritifera* Kützing ex Gomont
- (*O. curviceps* Agardh ex Gomont)
- (*O. limosa* Agardh ex Gomont)

- (*O. proboscidea* Gomont)
- (*O. chlorina* Kützing ex Gomont)

Genus: **Lyngbya** C. Agardh ex Gomont 1892

- *L. aestuarii* (Mertens) Liebmann
- (*L. maiuscula* Harvey)
- (*L. lutea* (Agardh) Gomont)

Genus: **Blennothrix** Kützing

- (*Blennothrix* (?)= *Hydrocoleus glutinosus* (Agardh) Gomont)

Subfamily: Plectonematoideae ((Elenkin) Anagnostidis et Komárek 1988)

Genus: **Plectonema** Thuret ex Gomont 1892

- (*P. battersii* Gomont)
- (*P. terebrans* Bornet et Flahaut)
- (*P. boryanum* Gomont)

Family: Homoeotrichaceae (Elenkin 1934)

Genus: **Homoeothrix** (Thuret) Kirchner 1898

- (*H. violacea* (Kützing) Komárek et Kalina)

Order: Nostocales ((Borzi 1914) Geitler 1925)

Key to the families:

1. Trichomes heteropolar (different ends) with basal heterocytes; false branching present.....**2**
- 1a. Trichomes isopolar (without differentiation of ends); heterocytes in diverse places; lack of false branching**Nostocaceae**
2. Terminal part of trichomes narrowed and changing in long, cellular hair**Rivulariaceae**
- 2a. Terminal part of trichomes without elongated hair**Microchaetaceae**

Family: Microchaetaceae (Lemmermann 1910)

Key to the genus:

1. Filaments with scarce or lacking false branching**Microchaete**
- 1a. Filaments always common false branching.....**Tolypothrix**

Genus: **Microchaete** Thuret 1875

- (*M. grisea* Thuret)

Genus: **Tolypothrix** Kützing 1843

- (*T. tenuis* Kützing)
- (*T. distorta* (Fl. Dan.) Kützing)

Family: Rivulariaceae (Kützing 1843)

Key to the genus:

1. Filaments solitary or in bushy colonies never in spherical gelatinous balls **Calothrix**
- 1a. Filaments never solitary; always radially arranged in spherical gelatinous colonies..... **2**
2. Akinetes present, developed near the basal heterocytes .. **Gloeoethrichia**
- 2a. Akinetes lacking..... **Rivularia**

Genus: **Rivularia** (Roth) C. Agardh 1886

- *R. atra* Roth
- (*R. biasoletiana* Menrghini)
- (*R. nitida* C.A. Agardh)

Genus: **Gloeoethrichia** J.G. Agardh ex Bornet et Flahault 1886

- (*G. pisum* (Agardh) Thuret)
- (*G. echinulata* (Smith) P. Richter)
- (*G. natans* (Hedwig) Rabrnhorst)

Genus: **Calothrix** Agardh 1824

- *C. scopulorum* (Web. et Mohr) C. A. Agardh
- (*C. confervicola* (Roth.) C. A. Agardh)
- (*C. parietina* Thuret)

Family: Nostocaceae (Dumort. 1829)

Key to the genus:

1. Akinetes apoheterocytic (form from vegetative cells between two heterocytes and occur near each other) **2**
- 1a. Akinetes paraheterocytic (form near heterocytes or are separated from them by one to several vegetative cells)..... **4**
2. Heterocytes flattened..... **Nodularia**
- 2a. Heterocytes spherical..... **3**
3. Trichomes in gelatinous colonies **Nostoc**
- 3a. Trichomes solitary or in mats..... **Trichormus**

4. Heterocytes terminal (in adult trichomes).....5
 4a. Heterocytes intercalary6
 5. Akinetes near heterocytes on the ends of trichomes; heterocytes spherical or oval formed from whole terminal cells.....
**Cylindrospermum**
 5a. Akinetes not connected with heterocytes; apical cells divide asymmetrically and smaller part forms conical heterocytes.....
**Cylindrospermopsis**
 6. Cells to the ends of trichomes narrowed and elongated.....
**Aphanizomenon**
 6a. All cells in trichome have same shape.....7
 7. Heterocyte solitary formed from whole vegetative cell.....**Anabaena**
 7a. Heterocytes twice near each other formed after asymmetrical division of two adjacent cells from their smaller parts.....**Anabaenopsis**

Genus: **Nostoc** Adanson 1763

- *N. pruniforme* Agardh

Genus: **Nodularia** Mertens ex Bornet et Flahault 1886

- *N. harveyana* Thuret ex Bornet et Flahault
- (*N. baltica* Komárek)
- (*N. litorea* (Kützing) Thuret ex Komárek)
- *N. spumigena* Mertens ex Bornet et Flahault

Genus: **Anabaena** Bory ex Bornet et Flahault 1886

- *A. affinis* Lemmermann
- *A. baltica* J. Schmidt
- *A. crassa* (Lemm.) Kom.-Leg et Cronberg = *A. spiroides* v. *crassa* L.
- (*A. cylindrica* Lemmermann)
- (*A. echinospora* Skuja)
- *A. flos-aquae* Bréb. ex Bor. et Flau.
- (*A. inaequalis* Kütz.ex Bor.et Flau.)
- (*A. lemmermanii* P. Richter)
- (*A. longicellularis* (Pank.) Kom.-Leg. et Eloranta)
- (*A. macrospora* Klebahn)
- (*A. oscillarioides* Bory ex Born. et Flau.)
- (*A. planctonica* Brunthaler)

Genus: **Anabaenopsis** (Wołoszyńska) V. Miller 1923

- (*A. elenkinii* V. Miller)

Genus: **Aphanizomenon** Morren ex Bornet et Flahault 1886

- *Aph. flos-aquae* (L.) Ralfs ex Bornet et Flahault

- (Aph. "baltica" ?)

Genus: **Trichormus** (Ralfs ex Born. et Flah.) Kom. et Anagn. 1989

- *T. variabilis* (Kütz. ex. Bornet et Flahault) Komárek et Anagnostidis
= *Anabaena variabilis* Kützing ex Bornet et Flahault

Genus: **Cylindrospermum** Kützing ex Bornet et Flahault 1886

- (*C. maius* Kützing)

Genus: **Cylindrospermopsis** Seenayya et Subba Raju 1972

- (*C. raciborski* (Wołoszyńska) Subba-Raju)

Order: Stigonematales (Geitler 1925)

Family: Nostochopsaceae (Geitler 1925)

Genus: **Mastigocoleus** Lagerheim 1886

- (*M. testarum* Lagerheim)

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