

Nomenclatural changes in cyanoprokaryotic order *Oscillatoriales*

Nomenklatorické změny v cyanoprokaryotním řádu *Oscillatoriales*

† Konstantinos Anagnostidis¹

Anagnostidis K. (2001): Nomenclatural changes in cyanoprokaryotic order *Oscillatoriales*. – Preslia, Praha, 73: 359–375.

The taxonomic criteria in *Cyanoprokaryotes* (cyanophytes = cyanobacteria) were changed considerably in last decades, respecting numerous new data derived mainly from modern electron-microscopic, ecological and molecular studies. The substantial revision of the cyanobacterial system was therefore necessary, and all names of revised taxa should be corrected in agreement with nomenclatural rules before the edition of all new monographs and manuals concerning this important group. The content of the present article is the correct and valid publication of nomenclatural transfers of specific and generic names for the second volume of *Cyanoprokaryotes* in the frame of the Süsswasserflora von Mitteleuropa (19/2, order *Oscillatoriales*), which is now prepared for press. The paper (including Appendix 1 by J. Komárek) contains 208 nomenclatural combinations, 17 new species, and description of 2 new genera of oscillatoriallean cyanobacteria, as a result of a modern revision of the whole order. The species are arranged according to the recent phenotype system of *Cyanoprokaryotes* (cyanobacteria).

Key words: *Cyanoprokaryotes*, *Cyanobacteria*, *Cyanophyceae*, taxonomy, nomenclature, new combinations, new taxa

Introduction

The following nomenclatural changes are proposed, resulting from the final elaboration of the European monograph of oscillatoriallean cyanobacteria. They were elaborated for the second volume of *Cyanoprokaryotes*, now prepared for press within the frame of the Süsswasserflora von Mitteleuropa (19/2, order *Oscillatoriales*). The species are arranged according to the recent phenotype system of cyanoprokaryotes.

¹ Prof. Dr. Konstantinos Anagnostidis, professor of botany at Athens University, Greece, prepared taxonomically the great part of the material of the second volume of *Cyanoprokaryotes* (*Cyanobacteria*) for publication in the compendium Süsswasserflora von Mitteleuropa, which contains the order *Oscillatoriales*. Numerous consequent taxonomic transfers and nomenclatural changes resulting from the modern revisions of this difficult cyanobacterial group, were proposed in his materials. Unfortunately, Prof. Anagnostidis died before the final elaboration of this manuscript, but all his proposals included in protocols and prepared by him for this volume were included in this article. Now, before the termination of the oscillatoriallean volume for press, the valid publication of all proposed nomenclatural changes accepted in his materials is necessary. Original manuscript with all proposals of Prof. Anagnostidis is deposited at the Algological Department of the Botanical Institute of the Czech Academy of Sciences in Třeboň. Several other nomenclatoric changes, following from the final elaboration of the whole volume and not explicitly proposed by K. Anagnostidis, are added to this manuscript (in Appendix) under my name. My special thanks are due to Dr. Zdeněk Pouzar, CSc. from the Mycological Department of the National Museum, Prague, and to Prof. Dr. Jiří Váňa, DrSc., from the Department of Botany, Faculty of Sciences, Charles University, Prague, for very valuable remarks and for nomenclatural revision of the article. – Jiří Komárek, Institute of Botany, Třeboň, Czech Republic.

Pseudanabaenaceae

- Romeria westii* (Kufferath) Anagnostidis comb. nova. – Bas.: *Phormidium westii* Kufferath, Ann. Crypt. Exot. 2 (1): 46, 1929.
- Pseudanabaena amphigranulata* (Van Goor) Anagnostidis comb. nova. – Bas.: *Oscillatoria amphigranulata* Van Goor, Rec. Trav. Bot. Néerl. 15: 257, 1918.
- Pseudanabaena curta* (Hollerbach) Anagnostidis comb. nova. – Bas.: *Phormidium curtum* Hollerbach, Acta Inst. Bot. Acad. Sci. URSS, ser. 2, 2: 45, 1935.
- Pseudanabaena dictyothalla* (Skuja) Anagnostidis comb. nova. – Bas.: *Phormidium dictyothallum* Skuja, Symb. Bot. Upsal. 9 (3): 51, 1948.
- Pseudanabaena endophytica* (Elenkin et Hollerbach) Anagnostidis comb. nova. – Bas.: *Lyngbya endophytica* Elenkin et Hollerbach, Not. Syst. Inst. Crypt. Horti Bot. Petropol. 2 (10): 160, 1923.
- Pseudanabaena frigida* (Fritsch) Anagnostidis comb. nova. – Bas.: *Phormidium frigidum* Fritsch, Nat. Antarct. (Discovery) Exped. 1901–04, 6 (Freshw. Algae): 31, 1912.
- Pseudanabaena minima* (G. S. An) Anagnostidis comb. nova. – Bas.: *Achroonema minimum* G. S. An, Fragm. Flor. Geobot., 37 (2): 412, 1992.
- Pseudanabaena persicina* (Reinke ex Gomont) Anagnostidis comb. nova. – Bas.: *Lyngbya persicina* Reinke ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 164, 1892; [= *Lyngbya persicina* Reinke Ber. Komm. Unters. Dtsch. Meere, Kiel, 6: 91, 1889].
- Pseudanabaena rosea* (Skuja) Anagnostidis comb. nova. – Bas.: *Phormidium mucicola* f. *rosea* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 16 (3): 66, 1956.
- Pseudanabaena spelaea* Anagnostidis spec. nova. – Diagn.: Thallus tenuis, membranaceus. Filamenta paucim curvata vel plus minusve parallele ordinata. Vaginae rarissimae, tenues, diffuentes. Trichomata ad dissepimenta constricta, 0.8–1.5 μm lata, ad apices not attenuata. Cellulae cylindricae ad doliiformes, isodiametricae ad $2\times$ longiores quam latae, saepe cum granulis subpolaribus. Cellula apicalis rotundata. – Habitatio: Subaerophytice ad locis calcareis, praecipue in cavernis; locus classicus: Graecia, caverna Perama dicta prope Ioannina. – Holotypus (protologue): Anagnostidis, Economou-Amilli et Pantazidou, Bull. Soc. Spelaeol. Grece 18: 478–479, 1981, sub "*Phormidium frigidum* Fritsch".
- Pseudanabaena starmachii* Anagnostidis nom. nov. – Diagn. et syn.: *Pseudanabaena catenata* f. *epiphytica* Starmach, Fragm. Florist. Geobot. 26, 1: 173, 1980, [= fig. nostra 2].
- Pseudanabaena thermalis* Anagnostidis spec. nova. – Diagn.: Filamenta solitaria vel in coloniis mucilaginosi, prostratis, aeruginosis; mucilago incolor, homogenea, diffuens; trichomata paucim flexuosa, plus minusve parallele ordinata vel circulatim contorta, paucim ad dissepimenta constricta, 0.8–2.4 (2.7) μm lata, mobilia. Cellulae pallide vel vivide aeruginosae, cylindricae, (1.2) 2.5–8 (15) μm longae, cum 1–2 aerotopis polaribus, rarius subpolaribus; cellulae terminales cylindricae, apice rotundatae. – Habitatio: In aquis thermalibus. – Holotypus (icona typica): Anagnostidis 1961, l.c., fig. 88 [= fig. nostra 3]. – Syn.: *Pseudanabaena galeata* sensu Anagnostidis 1961 non orig.; *Oscillatoria amphigranulata* sensu Castenholz 1976 non orig.
- Pseudanabaena ulula* (Welsh) Anagnostidis comb. nova. – Bas.: *Anabaenella ulula* Welsh, Nova Hedwigia 7 (1–2): 20, 1964.
- Pseudanabaena voronichinii* Anagnostidis nom. nov. – Diagn. et syn.: *Oscillatoria mucicola* Voronichin ex Hollerbach et al., Opred. Presnov. Vodor. SSSR 2: 439, 1953; non *Phormidium mucicola* Naumann et Huber-Pestalozzi 1929 = *Pseudanabaena mucicola* (Naumann et Huber-Pestalozzi) Schwabe 1964.
- Pseudanabaena westiana* Anagnostidis nom. nov. – Diagn. et syn.: *Aphanothece nidulans* var. *endophytica* W. et G.S. West, J. Linn. Soc. Bot. 40: 432, 1938 = *Phormidium endophyticum* (W. et G.S. West) Skuja 1956; non *Lyngbya endophytica* Elenkin et Hollerbach 1923 = *Pseudanabaena endophytica* (Elenkin et Hollerbach) Schwabe 1964.
- Limnothrix borgertii* (Lemmermann) Anagnostidis comb. nova. – Bas.: *Lyngbya borgertii* Lemmermann, Zool. Jahrb. 25 (2): 265, 1907.
- Limnothrix borodinii* (Kongisser) Anagnostidis comb. nova. – Bas.: *Lyngbya borodinii* Kongisser, J. Soc. Bot. Russie 16 (5–6): 502, 1931.
- Limnothrix guttulata* (van Goor) Anagnostidis comb. nova. – Bas.: *Oscillatoria guttulata* Van Goor, Réc. Trav. Bot. Néerl. 15: 255, 1918.
- Limnothrix hypersalina* (Campbell et Golubić) Anagnostidis comb. nova. – Bas.: *Phormidium hypersalinum* Campbell et Golubić, Arch. Hydrobiol./Algol. Stud. 38/39: 325, 1985.
- Limnothrix lauterbornii* (Schmidle) Anagnostidis comb. nova. – Bas.: *Oscillatoria lauterbornii* Schmidle, Beih. Bot. Centralbl. 10: 179, 1901.

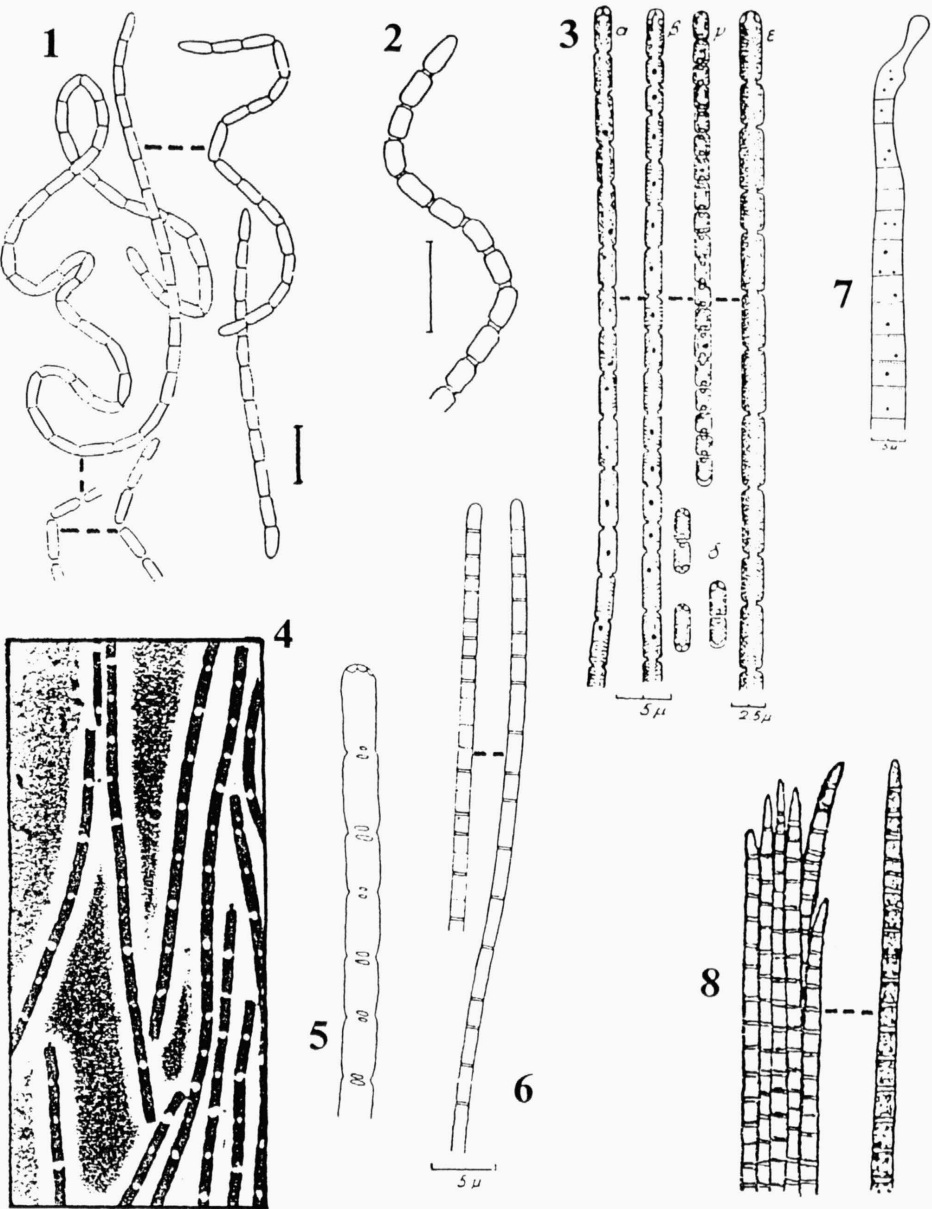


Fig. 1–8. – 1. *Romeria obtuseacuminata* Kom. (after Starmach 1980, sub *Oscillatoria obtuseacuminata*); 2. *Pseudanabaena starmachii* Anagn. (after Starmach 1980, sub *P. catenata* f. *epiphytica*); 3. *Pseudanabaena thermalis* Anagn. (after Anagnostidis 1961, sub *Pseudanabaena galeata*); 4. *Limnothrix meffertiae* Anagn. (after Meffert & Oberhäuser 1982, sub *Oscillatoria amphigranulata*); 5. *Limnothrix amphigranulata* (van Goor) Meffert (after van Goor 1918, sub *Oscillatoria amphigranulata*); 6. *Jaaginema thermale* Anagn. (after Anagnostidis 1961, sub *Oscillatoria subtilissima*); 7. *Geitlerinema apolloniae* Anagn. (after Anagnostidis 1961, sub *Oscillatoria splendida* f. *maior*); 8. *Geitlerinema epiphloeophyticum* Anagn. (after Brühl & Biswas 1923, sub *Oscillatoria kuetzingiana*).

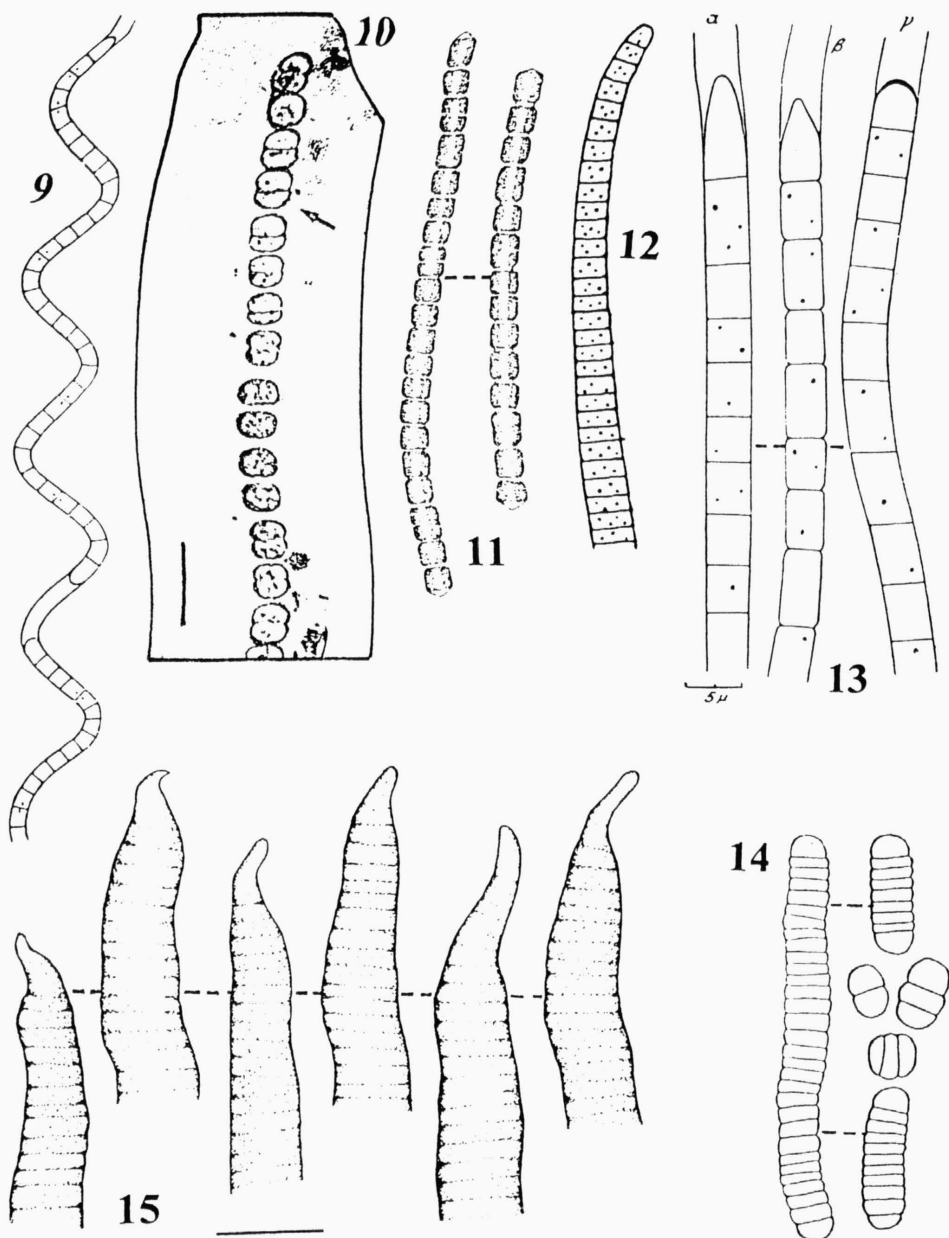


Fig. 9–15. – 9. *Leptolynghya thermobia* Anagn. (after Anagnostidis 1961, sub *Lyngbya lagerheimii*); 10. *Komvophoron halobium* Anagn. (after Kaas et al. 1985, sub *Pseudanabaena crassa*); 11. *Komvophoron skujae* Anagn. et Kom. in Anagn. (after Skuja 1956, sub *Pseudanabaena minuta* forma); 12. *Phormidium kolkwitzii* Kom. (after Kolkwitz & Krieger 1936, sub *Oscillatoria curviceps* var. *angustata*); 13. *Phormidium thermobium* Anagn. (after Anagnostidis 1961, sub *Phormidium corium* forma); 14. *Hormoscilla feldmannii* Anagn. (after Feldmann 1958, sub *Borzia spongelliae*); 15. *Oscillatoria rhamphoidea* Anagn. (after Anagnostidis et al. 1981, sub *Oscillatoria salina* f. *major*).

- Limnothrix meffertae* Anagnostidis spec. nova.** – Diagn.: Trichomata cyanophycearum solitaria, libere natantes, isopolaria, plus minusve recta, pallide aeruginosa, ad dissepimenta constricta, cylindrica, ad apices not attenuata, 1.8–2 µm lata. Cellulae plus minusve isodiametricae usque ad 2x longiores quam latae, cum aerotopis solitariis vel duobus terminalibus; cellula apicalis cylindrica, apice rotundata. – Habitatio: Benthice vel planctice lacubus aquae dulcis; descriptio: Germania septentrionalis. – Holotypus (icona typica): Meffert & Oberhäuser 1982, Arch. Hydrobiol. 95: 242–243 (sub “*Oscillatoria amphigranulata*”), fig. 7 [= fig. nostra 4]. – Syn.: *Limnothrix amphigranulata* (van Goor) Meffert 1987 sensu Meffert, non *Oscillatoria amphigranulata* van Goor 1918 = *Limnothrix amphigranulata* (van Goor) Meffert sensu orig. van Goor [= fig. nostra 5].
- Limnothrix mirabilis* (Böcher) Anagnostidis comb. nova.** – Bas.: *Oscillatoria mirabilis* Böcher, Kong. Danske Vid. Selsk. Biol. Medd. 21 (1): 23, 1949.
- Limnothrix pseudospirulina* (Pascher in Geitler) Anagnostidis comb. nova.** – Bas.: *Lyngbya pseudospirulina* Pascher in Geitler, Süßwasserfl. Mitteleur. 12: 446, 1925; syn.: *Lyngbya spirulinoides* Utermöhl, Arch. Hydrobiol., Suppl. 5: 288, 1925.
- Limnothrix pseudovacuolata* (Utermöhl ex Koppe) Anagnostidis comb. nova.** – Bas.: *Spirulina pseudovacuolata* Utermöhl ex Koppe, Arch. Hydrobiol. 14: 641, 1924.
- Limnothrix subgeminata* (Archibald) Anagnostidis comb. nova.** – Bas.: *Oscillatoria subgeminata* Archibald, Nova Hedwigia 12 (3–4): 528, 1965.
- Jauginema cavanillesianum* (Gonzalez Guerrero) Anagnostidis comb. nova.** – Bas.: *Oscillatoria cavanillesiana* Gonzalez Guerrero, Anal. Jard. Bot. Madrid 6: 264, 1946.
- Jauginema crassum* (Voronichin) Anagnostidis comb. nova.** – Bas.: *Oscillatoria kuetzingiana* var. *crassa* Voronichin, Arch. Hydrobiol. 17: 642, 1926.
- Jauginema filiforme* (Copeland) Anagnostidis comb. nova.** – Bas.: *Oscillatoria filiformis* Copeland, Ann. New York Acad. Sci. 36: 150, 1936.
- Jauginema lanciforme* (Kalbe) Anagnostidis comb. nova.** – Bas.: *Oscillatoria lancaeformis* Kalbe, Arch. Protistenk. 106 (4): 591, 1963; (*lancaeformis* = *lanciformis*; grammat. correction).
- Jauginema thermale* Anagnostidis spec. nova.** – Diagn.: Trichomata solitaria, raro aggregata, thallum membranaceum, lutescentem, olivaceo-viridem vel virescentem formantes, paulatim irregulariter vel spiraliter flexuosa vel plus minusve recta, 0.8–1.5 µm lata, immobilia, cylindracea, ad dissepimenta not constricta, ad apices not vel paucim attenuata. Cellulae isodiametricae ad 3.2 µm longae, cum granulis solitariis subapicalibus. Cellula apicalis rotundato-conica. – Habitatio: In aquis thermalibus; locus classicus: Graecia, Nigrita. – Holotypus (icona typica): Anagnostidis 1961, Unters. Cyanoph. Thermen Griechenl., fig. 15: 78 [= fig. nostra 6]. – Syn.: *Oscillatoria subtilissima* Kützing ex DeToni sensu Anagnostidis, l.c., 1961, p. 175–176 non orig.
- Jauginema trinkleri* (Skuja) Anagnostidis et Komárek comb. nova.** – Bas.: *Oscillatoria trinkleri* Skuja, Fedde's Repert., Spec. Nov. 31: 10, 1933.
- Jauginema unigranulatum* (Biswas) Anagnostidis comb. nova.** – Bas.: *Oscillatoria pseudogeminata* var. *unigranulata* Biswas, J. Feder. Malay States Mus. 14: 409, 1929.
- Geitlerinema acuiforme* (Skuja) Anagnostidis comb. nova.** – Bas.: *Oscillatoria acuiformis* Skuja, Symb. Bot. Upsal. 9 (3): 48, 1948.
- Geitlerinema acuminatum* Anagnostidis spec. nova.** – Diagn.: Thallus membranaceus, vivide aeruginosus, tenuis; trichomata plus minusve recta, aeruginosa, 2.3–2.6 µm lata, mobilia, ad apices gradatim attenuata et arcuata, raro recta et acuminata. Cellulae semper elongatae, 2.8–6.5 µm longae, contento homogeneo vel paucim granuloso, saepe cum 1–2 granulis magnis. Cellula apicalis curvata, conica, acuminata. – Habitatio: In aquis thermalibus (40–47 °C), sulphurantibus; locus classicus: Graecia, Nea Apollonia. – Holotypus (protologus): Anagnostidis 1961, Unters. Cyanoph. Thermen Griechenl. (sub “*Oscillatoria acuminata* forma”), p. 172.
- Geitlerinema apolloniae* Anagnostidis spec. nova.** – Diagn.: Trichomata solitaria, inter cyanophyceas intermixta, plus minusve recta vel paucim curvata, vivide aeruginosa, 4.7–5 µm lata, vivide mobilia, ad dissepimenta not constricta, ad apices attenuata et plus minusve arcuata. Cellulae plus minusve isodiametricae, (2.7)4–9 µm longae, contento homogeneo, plerumque cum 1–2 granulis magnis. Cellulae apicales claviformes, ad 10 µm longae. – Habitatio: In aquis thermalibus (± 42 °C) sulphurantibus; locus classicus: Graecia, Nea Apollonia. – Holotypus (protologus): Anagnostidis 1961, l.c. (sub “*Oscillatoria splendida* Grev. fa. *maior* Kufferath”), p. 160–161, fig. 70 [= fig. nostra 7].
- Geitlerinema attenuatum* (Voronichin) Anagnostidis comb. nova.** – Bas.: *Oscillatoria attenuata* Voronichin, Trav. Mus. Bot. Acad. Sci. URSS 25: 447, 1932.

- Geitlerinema bigranulatum* (C. B. Rao) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria claricentrosa* f. *bigranulata* C.B. Rao, Proc. Ind. Acad. Sci. 6 (6): 367, 1937.
- Geitlerinema chilense* (Schwabe) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria animalis* f. *chilensis* Schwabe, Verh. Dtsch. Wiss. Verein. Santiago de Chile 3: 139, 1936.
- Geitlerinema crassum* (Voronichin) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria deflexa* var. *crassa* Voronichin, Izv. Glavn. Bot. Sada, Leningrad, 1929: 38, 1929.
- Geitlerinema epiphloeophyticum* *Anagnostidis* spec. nova. – Diagn.: Thallus planus, mucilaginosus, superficie laevis, plus minusve membranaceus, ad 0.5 mm latus, atroviridis vel aeruginosus; trichomata plus minusve recta, parallele ordinata, aeruginosa, 1.5–2 μ m lata, ad dissepimenta constricta, ad apices paucim attenuata. Cellulae 2.5–3 μ m longae, contentu subtiliter granuloso, cum 1–2 granulis magnis centralibus vel subapicalibus. – Habitatio: Subacrophytice, epiphytice ad corticem *Tectonae grandis*; locus classicus: India, prope Calcutta (Brühl et Biswas 1923). – Holotypus (icona typica): Brühl et Biswas 1923, J. Dept. Sci. Calcutta Univ. 4: 3, pl.1: 5a–b [= fig. nostra 8]. – Syn.: *Oscillatoria kuetzingiana* Nägeli sensu Brühl et Biswas 1923 non orig.
- Geitlerinema lacus-solaris* (Campbell et Golubić) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria lacus-solaris* Campbell et Golubić, Arch. Hydrobiol./Algol. Stud. 38/39: 342, 1985.
- Geitlerinema maius* (Kufferath) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria splendida* var. *attenuata* f. *major* Kufferath, Ann. Crypt. Exot. 2 (1): 46, 1929.
- Geitlerinema nematodes* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria nematodes* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 52, 1964.
- Geitlerinema sandbergii* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria sandbergii* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 53, 1964.
- Geitlerinema sulphureum* (Strzeszewski) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria geminata* var. *sulphurea* Strzeszewski, Bull. Int. Acad. Sci. Cracovie, cl. sci. mat. nat., ser. B, 6: 323, 1913.
- Geitlerinema tenue* (Anissimova in Elenkin) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria amphibia* f. *tenuis* Anissimova in Elenkin, Monogr. Alg. Aquidulc., Pars spec. 2: 1326, 1949.
- Geitlerinema tenuius* (Stockmayer) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria animalis* f. *tenuior* Stockmayer, Ann. k.k. naturh. Hofmus. Wien 15 (2): 176, 1900.
- Geitlerinema thermale* *Anagnostidis* spec. nova. – Diagn.: Thallus plus minusve membranaceus, vivide aeruginosus vel smaragdinus; trichomata irregulariter flexuosa vel spiraliter contorta, dense aggregata, aeruginosa, 1.5–2.4 μ m lata, mobilia, ad dissepimenta haud constricta, ad apices paulo attenuata et paulo curvata. Cellulae plus minusve isodiametricae ad 2–5 μ m longae, contentu homogeneo, cum chromatoplasmate distincto, interdum cum granulis solitariis. Cellula apicalis plus minusve rotundata. – Habitatio: In aquis thermalibus salinis; locus classicus: Graecia, Kamenna Vourla. – Holotypus (protologus): *Anagnostidis* 1961, Unters. Cyanoph. Therman Griechenl. (sub "*Oscillatoria willei* Gardner emend. Drouet forma"), p. 176–177.
- Spirulina magnifica* (Copeland) *Anagnostidis* comb. nova. – Bas.: *Spirulina caldaria* var. *magnifica* Copeland, Ann. New York Acad. Sci. 36: 162, 1936.
- Leibleinia aeruginea* (Gardner) *Anagnostidis* comb. nova. – Bas.: *Lyngbya baculum* var. *aeruginea* Gardner, New York Acad. Sci., Sci. Surv., Porto Rico, 8 (2): 275, 1932.
- Leptolyngbya andina* (Schwabe) *Anagnostidis* comb. nova. – Bas.: *Plectonema andinum* Schwabe, Nova Hedwigia 2 (1–2): 257, 1960.
- Leptolyngbya angusta* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Lyngbya perelegans* var. *angusta* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 58, 1964.
- Leptolyngbya aspera* (Schwabe) *Anagnostidis* comb. nova. – Bas.: *Lyngbya ferruginea* var. *aspera* Schwabe, Mitt. Dtsch. Ges. Natur- u. Völkerk. Ostasiens (Shanghai), Suppl. 21: 178, 1944.
- Leptolyngbya batrachosperma* *Anagnostidis* spec. nova. – Diagn.: Filamenta solitaria, flexuosa, plus minusve 1.7 μ m lata; vaginae tenues, firmae; trichomata cylindrica, ad dissepimenta haud constricta, ad apices haud attenuata. Cellulae plus minusve isodiametricae, aeruginosae; cellula apicalis rotundata. – Habitatio: In muco algarum, praecipue *Batrachospermi*; locus classicus: Latvia (Skuja 1926). – Holotypus (protologus): Skuja 1926, Acta Horti Bot. Univ. Latv. 1: 176. – Syn.: *Lyngbya rivulariorum* Gomont sensu Skuja, l.c., p. 176, 1926 non orig.
- Leptolyngbya benthonica* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Lyngbya bipunctata* var. *benthonica* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 57, 1964.
- Leptolyngbya bijahensis* (Copeland) *Anagnostidis* comb. nova. – Bas.: *Phormidium bijahense* Copeland, Ann. New York Acad. Sci. 36: 188, 1936.

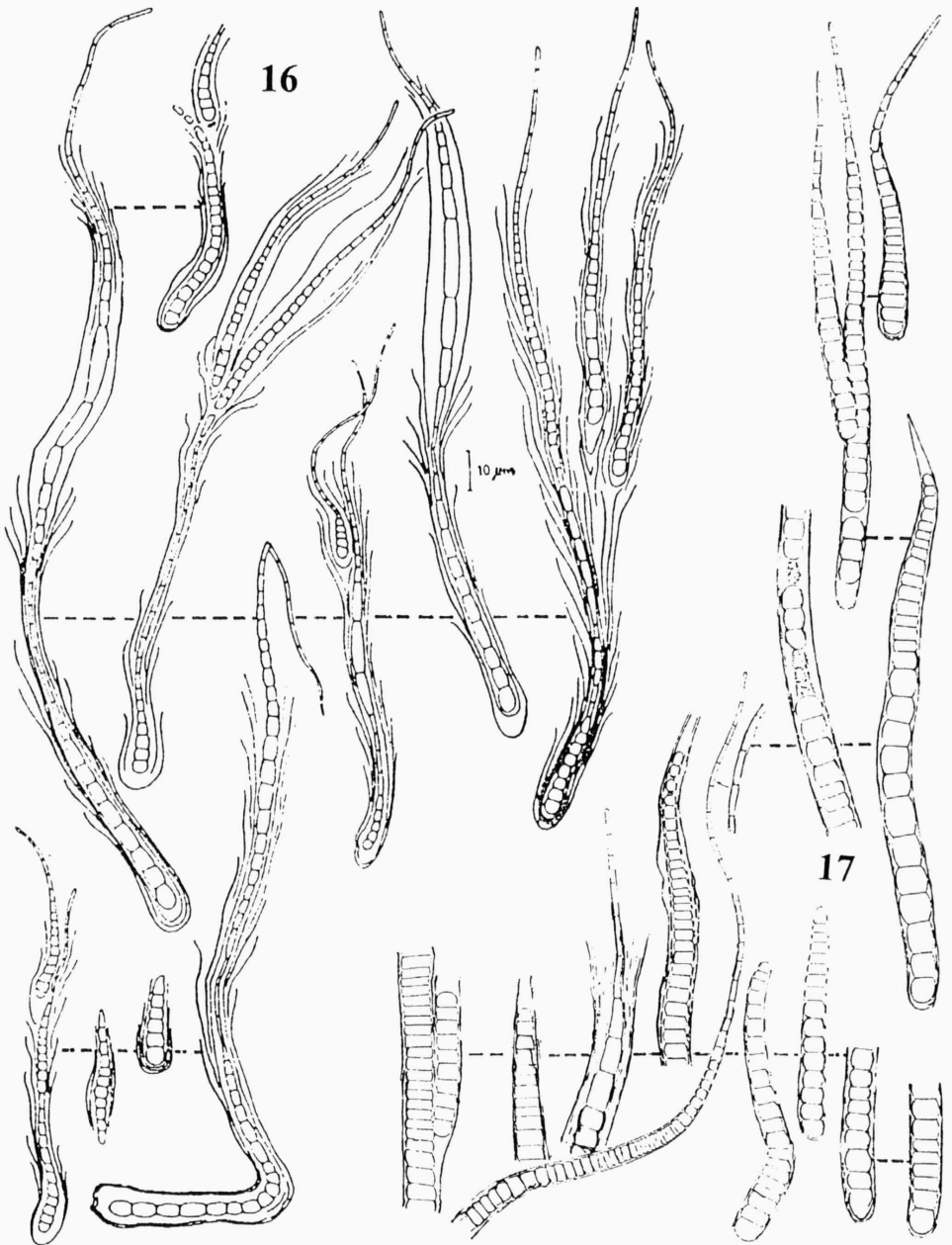


Fig. 16–17. – *Phormidiochaete balearica* ([Born. et Flah.] ex Born. et Flah.) Kom. (after Starmach 1980, sub *Homoeothrix balearica*); 17. *Phormidiochaete nordstedtii* (Born. et Flah.) Kom. (after Komárek & Kann 1973, sub *Homoeothrix nordstedtii*).

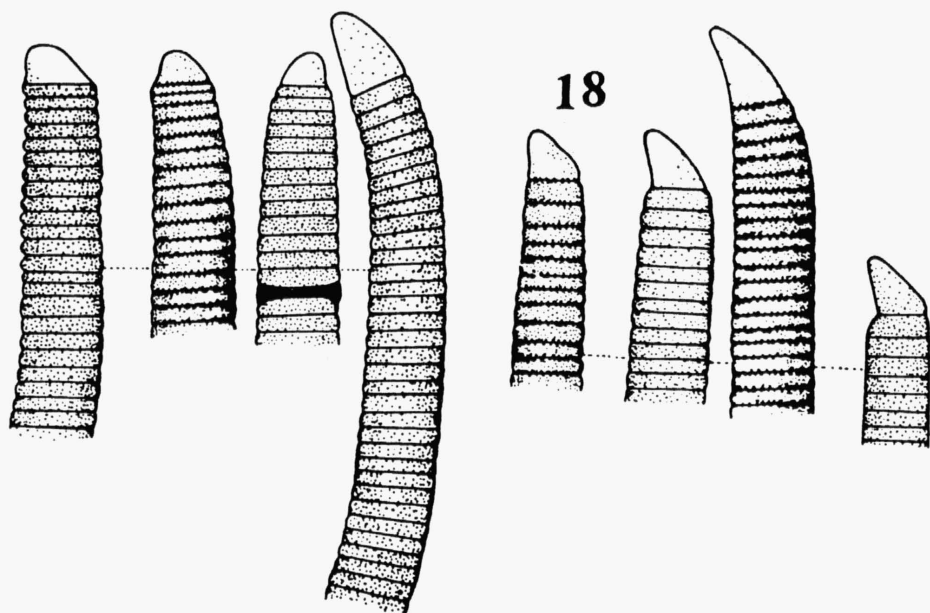


Fig. 18. – *Oscillatoria euboica* Anagn. (after Roussomoustakaki 1983, sub *Oscillatoria dzeman-sor* forma).

***Leptolynghya breviarticulata* (Claus) Anagnostidis comb. nova.** – Bas.: *Phormidium treleasei* f. *breviarticulatum* Claus, Int. Rev. ges. Hydrobiol. 46 (4): 526, 1961.

***Leptolynghya cartilaginea* (Copeland) Anagnostidis comb. nova.** – Bas.: *Phormidium valderianum* var. *cartilagineum* Copeland, Ann. New York Acad. Sci. 36: 180, 1936.

***Leptolynghya cebennensis* (Gomont) Anagnostidis comb. nova.** – Bas.: *Phormidium cebennense* Gomont, Bull. Soc. Bot. France 46: 38, 1899.

***Leptolynghya copelandii* Anagnostidis nom. nov.** – Diagn. et syn.: *Phormidium truncatum* var. *thermale* Copeland, Ann. New York Acad. Sci. 36: 181, 1936; non *Leptolynghya thermalis* Anagnostidis in Anagnostidis et Komárek 1988.

***Leptolynghya crassior* (Skuja) Anagnostidis comb. nova.** – Bas.: *Lyngbya perelegans* var. *crassior* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 57, 1964.

***Leptolynghya delicatula* (Compère) Anagnostidis comb. nova.** – Bas.: *Lyngbya delicatula* Compère, Bull. Jard. Bot. Nat. Belg. 55: 488, 1985 = *Phormidium tenuissimum* Voronichin, Tr. Leningr. Obšč. Estestv. 60 (3): 68, 1930; non *Lyngbya tenuissima* Hansgirg, nec *Leptolynghya tenuissima* (Gardner) Anagnostidis et Komárek.

***Leptolynghya edaphica* (Elenkin) Anagnostidis et Komárek comb. nova.** – Bas.: *Plectonema puteale* f. *edaphicum* Elenkin, Monogr. Alg. Cyanoph., pars spec. 2: 1782, 1949.

***Leptolynghya elongata* (Thomas et Gonzalves) Anagnostidis comb. nova.** – Bas.: *Phormidium africanum* f. *elongatum* Thomas et Gonzalves, Hydrobiologia 26 (1–2): 52, 1965.

***Leptolynghya fritschii* Anagnostidis nom. nov.** – Diagn. et syn.: *Plectonema notatum* var. *africanum* Fritsch et Rich, Trans. Roy. Soc. South Africa 18: 90, 1929; non *Leptolynghya africana* (Lemmermann) Anagnostidis et Komárek 1988.

***Leptolynghya gardneriana* Anagnostidis nom. nov.** – Diagn. et syn.: *Plectonema tenuissima* Gardner, Mem. New York Bot. Gard. 7: 47, 1927; non *Leptolynghya tenuissima* (Nägeli ex Hansgirg) Komárek 2001.

***Leptolynghya gelatinicola* (Geitler) Anagnostidis comb. nova.** – Bas.: *Phormidium gelatinicola* Geitler, Arch. Hydrobiol., Suppl. 12: 633, 1933.

***Leptolynghya geysericola* (Copeland) Anagnostidis comb. nova.** – Bas.: *Phormidium geysericola* Copeland, Ann. New York Acad. Sci. 36: 186, 1936.

***Leptolynghya granulifera* (Copeland) Anagnostidis comb. nova.** – Bas.: *Phormidium tenue* var. *granuliferum* Copeland, Ann. New York Acad. Sci. 36: 178, 1936.

- Leptolyngbya henningsii* (Lemmermann) Anagnostidis comb. nova. – Bas.: *Phormidium henningsii* Lemmermann, Krypt.-Fl. Mark Brandenb. 3 (Alg.1): 124, 1910.
- Leptolyngbya homogenea* (Gardner) Anagnostidis comb. nova. – Bas.: *Phormidium purpurascens* var. *homogeneum* Gardner, Mem. New York Bot. Gard. 7: 45, 1927.
- Leptolyngbya hormoides* (Setchell et Gardner) Anagnostidis comb. nova. – Bas.: *Phormidium hormoides* Setchell et Gardner in Gardner, Univ. Calif. Publ. Bot. 6 (17): 467, 1918.
- Leptolyngbya hypolimnetica* (Campbell) Anagnostidis comb. nova. – Bas.: *Phormidium hypolimneticum* Campbell, Arch. Hydrobiol./ Algal. Stud. 38/39: 184, 1985.
- Leptolyngbya jadertina* (Kützing ex Hansgirg) Anagnostidis comb. nova. – Bas.: *Lyngbya jadertina* Kützing ex Hansgirg, Sitzungsber. k. böhm. Ges. Wiss., mat.-nat. Cl., 1892: 224, 1893 = [*Leptothrix jadertina* Kützing, Spec. Alg., p. 265, 1849 (pre-start.-point syn.)].
- Leptolyngbya lapidea* (Geitler) Anagnostidis comb. nova. – Bas.: *Phormidium lapideum* Geitler, Arch. Hydrobiol., Suppl. 12: 633, 1933.
- Leptolyngbya leptotrichiformis* (Krieger) Anagnostidis et Komárek comb. nova. – Bas.: *Lyngbya leptotrichiformis* Krieger, Ber. Dtsch. Bot. Ges. 61 (5): 257, 1944.
- Leptolyngbya maior* (Claus) Anagnostidis comb. nova. – Bas.: *Phormidium fragile* f. *maius* Claus, Nova Hedwigia 4 (1–2): 69, 1962.
- Leptolyngbya margaritata* (Kufferath) Anagnostidis comb. nova. – Bas.: *Lyngbya margaritata* Kufferath, Ann. Crypt. Exot. 2 (1): 48, 1929.
- Leptolyngbya marina* (Gardner) Anagnostidis comb. nova. – Bas.: *Phormidium tenue* var. *marinum* Gardner, New York Acad. Sci., Sci. Surv., Porto Rico, 8 (2): 282, 1932.
- Leptolyngbya minor* (Gardner) Anagnostidis comb. nova. – Bas.: *Phormidium scytonematicola* var. *minus* Gardner, Mem. New York Bot. Gard. 7: 42, 1927.
- Leptolyngbya minutissima* (Kufferath) Anagnostidis comb. nova. – Bas.: *Lyngbya minutissima* Kufferath, Ann. Crypt. Exot. 2 (1): 48, 1929.
- Leptolyngbya mycoidea* (Frémy in Feldmann) Anagnostidis comb. nova. – Bas.: *Phormidium mycoideum* Frémy in Feldmann, Notes Stat. Oceanogr. Salammbo (Tunis) 29: 7, 1935.
- Leptolyngbya nostochoides* (Jao) Anagnostidis comb. nova. – Bas.: *Phormidium nostochoides* Jao, Bot. Bull. Acad. Sinicae 2: 169, 1948.
- Leptolyngbya ochridana* (Čado) Anagnostidis et Komárek comb. nova. – Bas.: *Phormidium gelatinosum* f. *ochridanum* Čado, Zborn. Rab. Filoz. Fak. Univ. Skopje, Hidrob. Zav., Ochrid, 6 (5): 12, 40, 1958.
- Leptolyngbya olivacea* (Kützing ex Hansgirg) Anagnostidis comb. nova. – Bas.: *Lyngbya olivacea* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 87, 1892 = [*Leptothrix olivacea* Kützing, Bot. Ztg. 5 (13): 220, 1847 (pre-start.-point syn.)].
- Leptolyngbya patinae* (Schwabe) Anagnostidis comb. nova. – Bas.: *Lyngbya patinae* Schwabe, Mitt. Dtsch. Ges. Natur- u. Völkerk. Ostasiens (Shanghai), Suppl. 21: 180, 1944.
- Leptolyngbya polymorpha* (Schwabe) Anagnostidis comb. nova. – Bas.: *Plectonema polymorphum* Schwabe, Nova Hedwigia 2 (1–2): 251, 1960.
- Leptolyngbya polysiphoniae* (Frémy) Anagnostidis comb. nova. – Bas.: *Lyngbya polysiphoniae* Frémy, Arch. Bot. (Caen) 3 (Mém.2): 194, 1930.
- Leptolyngbya protospira* (Skuja) Anagnostidis comb. nova. – Bas.: *Lyngbya protospira* Skuja, Acta Horti Bot. Univ. Latv. 11–12: 50, 1939.
- Leptolyngbya pseudotenueis* (Stockmayer et Skuja) Anagnostidis comb. nova. – Bas.: *Phormidium pseudotenue* Stockmayer et Skuja in Skuja, Symb. sinicae 1: 39, 1937.
- Leptolyngbya rubra* (Tilden) Anagnostidis comb. nova. – Bas.: *Phormidium rubrum* Tilden, Amer. Alg. 2: 186, 1896.
- Leptolyngbya saxicola* (Gardner) Anagnostidis comb. nova. – Bas.: *Phormidium angustissimum* var. *saxicola* Gardner, New York Acad. Sci., Sci. Surv., Porto Rico, 8 (2): 279, 1932.
- Leptolyngbya spiralis* (Jao) Anagnostidis comb. nova. – Bas.: *Phormidium spirale* Jao, Bot. Bull. Acad. Sinicae 2: 169, 1948.
- Leptolyngbya subcapitata* (Boye-Petersen) Anagnostidis comb. nova. – Bas.: *Phormidium subcapitatum* Boye-Petersen, Bot. Icel. 2 (2): 282, 1928.
- Leptolyngbya subterranea* (Copeland) Anagnostidis comb. nova. – Bas.: *Phormidium subterraneum* Copeland, Ann. New York Acad. Sci. 36: 188, 1936.
- Leptolyngbya subtilis* (W. West) Anagnostidis comb. nova. – Bas.: *Lyngbya subtilis* W. West, J. Roy. Microsc. Soc. London 1892: 741, 1892.

- Leptolynghya subtruncata* (Voronichin) *Anagnostidis* comb. nova. – Bas.: *Phormidium subtruncatum* Voronichin, Tr. Leningr. Obšč. Estestv. 60 (3): 69, 1930.
- Leptolynghya subuliformis* (Gomont) *Anagnostidis* comb. nova. – Bas.: *Phormidium subuliforme* Gomont, Ann. Sci. Nat., VII. Bot., 16: 169, 1892.
- Leptolynghya thermobia* *Anagnostidis* spec. nova. – Diagn.: Filamenta solitaria vel in fasciculos contorta, irregulariter vel plus minusve regulariter spiralter flexuosa (spirae 10–12 µm latae, 18–24 µm longae), plus minusve 1.8–2 µm lata; vaginae tenues, sine colore; trichomata pallide aeruginea, 1.5–2 µm lata, ad dissepimenta haud, seu paulum constricta, cylindrica, ad apices haud attenuata. Cellulae 1.2–3 µm longae, contentu homogeneo, interdum cum granulis solitariis subapicalibus. Cellulae apicales cylindricae rotundataeque. – Habitatio: In aquis thermalibus; locus classicus: Graecia, Kammēna Vourla. – Holotypus (protologus): *Anagnostidis* 1961, l.c. (sub "*Lyngbya lagerheimii* (Möb.) Gomont" non orig.), p. 125–126, fig. 52 [= fig. nostra 9].
- Leptolynghya thermophila* (Elenkin) *Anagnostidis* comb. nova. – Bas.: *Phormidium thermophilum* Elenkin, Kamčat. Eksped. F.P. Rjabuškinskogo, Bot. Otd. 2: 171, 1914.
- Leptolynghya vandenberghenii* (Symoens) *Anagnostidis* comb. nova. – Bas.: *Lyngbya vandenberghenii* Symoens in Symoens et van den Werff, Bull. Soc. Roy. Bot. Belg. 83: 214, 1951.
- Leptolynghya vesiculosa* (Copeland) *Anagnostidis* comb. nova. – Bas.: *Phormidium vesiculosum* Copeland, Ann. New York Acad. Sci. 36: 172, 1936.
- Leptolynghya weedii* (Tilden) *Anagnostidis* comb. nova. – Bas.: *Phormidium laminosum* f. *weedii* Tilden, Bot. Gaz. 25: 99, 1898.
- Leptolynghya weissii* (Drouet) *Anagnostidis* comb. nova. – Bas.: *Phormidium weissii* Drouet, Field. Mus. Bot. Ser. 20 (1): 10, 1939.
- Heteroleibleinia akkeshiensis* (Hirose) *Anagnostidis* et Komárek comb. nova. – Bas.: *Lyngbya akkeshiensis* Hirose, J. Japan. Bot. 14 (3): 168, 1938.
- Heteroleibleinia aquae-dulcis* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Lyngbya nordgaardii* var. *aquae-dulcis* Skuja, Symb. Sinicae 1: 42, 1937.
- Heteroleibleinia erecta* (Gardner) *Anagnostidis* comb. nova. – Bas.: *Lyngbya erecta* Gardner, Mem. New York Bot. Gard. 7: 38, 1927.
- Heteroleibleinia koreana* (G. S. An) *Anagnostidis* comb. nova. – Bas.: *Phormidium koreanum* G. S. An, Fragm. Florist. Geobot. 37 (2): 407, 1992.
- Heteroleibleinia kwangsiensis* (Jao) *Anagnostidis* comb. nova. – Bas.: *Phormidium molle* var. *kwangsiense* Jao, Sinensia 15 (1–6): 87, 1944.
- Heteroleibleinia major* (Geitler) *Anagnostidis* comb. nova. – Bas.: *Lyngbya kuetzingii* var. *major* Geitler, Arch. Hydrobiol./ Suppl. 12: 633, 1933.
- Heteroleibleinia schwabei* *Anagnostidis* nom. nov. – Diagn.: *Lyngbya erecta* Schwabe, Mitt. Dtsch. Ges. Natur- u. Völk. Ostasiens (Tokyo) 33E: 95, 1943; non *Lyngbya erecta* Gardner 1927 = *Heteroleibleinia erecta* (Gardner) *Anagnostidis* 2001.
- Heteroleibleinia subhormoides* (G. S. An) *Anagnostidis* comb. nova. – Bas.: *Phormidium subhormoides* G.S. An, Fragm. Florist. Geobot. 37 (2): 408, 1992.

Schizotrichaceae

- Schizothrix diplosiphon* (Voronichin) *Anagnostidis* comb. nova. – Bas.: *Plectonema diplosiphon* Voronichin, Not. Syst. Inst. Crypt. Horti Bot. Petropol. 2 (8): 114, 1923.
- Schizothrix epilithica* (Ercegović) *Anagnostidis* comb. nova. – Bas.: *Schizothrix affinis* var. *epilithica* Ercegović, Acta Bot. Inst. Bot. Univ. Zagreb. 1: 86, 1925.
- Schizothrix facilis* (Skuja) *Anagnostidis* comb. nova. – Bas.: *Schizothrix lacustris* var. *facilis* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 18 (3): 59, 1964.
- Schizothrix incrustans* (Ercegović) *Anagnostidis* comb. nova. – Bas.: *Schizothrix braunii* var. *incrustans* Ercegović, Acta Bot. Inst. Univ. Zagreb. 1: 86, 1925.
- Schizothrix longearticulata* (Geitler) *Anagnostidis* comb. nova. – Bas.: *Schizothrix braunii* var. *longearticulata* Geitler, Krypt.-Fl. 14: 1109, 1932.
- Schizothrix minor* (Gardner) *Anagnostidis* comb. nova. – Bas.: *Schizothrix telephoroides* var. *minor* Gardner, Mem. New York Bot. Gard. 7: 53, 1927.
- Schizothrix yellowstonensis* (Copeland) *Anagnostidis* et Komárek comb. nova. – Bas.: *Dasygloea yellowstonensis* Copeland, Ann. New York Acad. Sci. 36: 205, 1936.

- Trichocoleus Anagnostidis* gen. nov.** – Diagn.: Filamenta solitaria, praecipue metaphytica vel subaerophytica, raro in coloniis planis aggregata, haud vel rarissime divaricata, cum trichomatibus sparsis vel numerosis. Vaginae plus minusve cylindricae vel (raro) ad apices attenuatae, non striatae vel tenuissime striatae, limitatae vel mucilaginosae, diffuentes, sine colore, a trichomatibus distantes. Trichomata 0.5–3 μm lata. Cellulae semper longiores quam latae, cylindricae, contentu plus minusve homogeneo. Cellula apicalis conica, apiculata vel rotundata, sine calyptra. – Typus generis: *Trichocoleus delicatulus* (W. et G.S. West) Anagnostidis comb. nova (syn.: *Microcoleus delicatulus* W. et G.S. West 1896).
- Trichocoleus acutissimus* (Gardner) Anagnostidis comb. nova.** – Bas.: *Microcoleus acutissimus* Gardner, Mem. New York Bot. Gard. 7: 55, 1927.
- Trichocoleus attenuatus* (Ghose) Anagnostidis comb. nova.** – Bas.: *Microcoleus delicatulus* var. *attenuatus* Ghose, J. Burma Res. Soc. 16: 223, 1926.
- Trichocoleus cavanillesii* (Gonzalez Guerrero) Anagnostidis comb. nova.** – Bas.: *Microcoleus cavanillesii* Gonzalez Guerrero, Anal. Jard. Bot. Madrid 6: 268, 1946.
- Trichocoleus delicatulus* (W. et G.S. West) Anagnostidis comb. nova.** – Bas.: *Microcoleus delicatulus* W. et G.S. West, J. Roy. Micr. Soc. London 1896: 164, 1896.
- Trichocoleus erectiusculus* (Starmach) Anagnostidis et Komárek comb. nova.** – Bas.: *Microcoleus erectiusculus* Starmach, Fragm. Florist. Geobot. 6 (4): 771, 1960.
- Trichocoleus hospitus* (Hansgirg ex Gomont) Anagnostidis comb. nova.** – Bas.: *Microcoleus hospitus* Hansgirg ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 361, 1892 = [*Microcoleus hospitus* Hansgirg, Sitzungsber. k. Böhm. Ges. Wiss., mat.-nat. Cl., 1890 (1): 15, 1890].
- Trichocoleus minimus* (Frémy) Anagnostidis comb. nova.** – Bas.: *Microcoleus minimus* Frémy, Arch. Bot. (Mém. 2): 82, 1930.
- Trichocoleus minor* (Gardner) Anagnostidis comb. nova.** – Bas.: *Microcoleus sociatus* var. *minor* Gardner, Mem. New York Bot. Gard. 7: 57, 1927.
- Trichocoleus polythrix* (Hansgirg ex Gomont) Anagnostidis comb. nova.** – Bas.: *Microcoleus polythrix* Hansgirg ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 361, 1892 = [*Microcoleus polythrix* Hansgirg, Sitzungsber. k. Böhm. Ges. Wiss., mat.-nat. Cl. 1890 (1): 14, 1890].
- Trichocoleus sanctae-crucis* (Frémy) Anagnostidis comb. nova.** – Bas.: *Microcoleus sanctae-crucis* Frémy, Dansk Bot. Ark. 9 (7): 17, 1939.
- Trichocoleus sociatus* (W. et G.S. West) Anagnostidis comb. nova.** – Bas.: *Microcoleus sociatus* W. et G.S. West, J. Bot. 35: 272, 1897.
- Trichocoleus tenerimus* (Gomont) Anagnostidis comb. nova.** – Bas.: *Microcoleus tenerimus* Gomont, Ann. Sci. Nat., VII. Bot., 15: 355, 1892.
- Trichocoleus thermalis* (Vouk) Anagnostidis comb. nova.** – Bas.: *Microcoleus thermalis* Vouk, Jugosl. Akad. Priir. Istraž. Hrvatske Slavonije, mat.-priir. Razr. 8: 12, 1916.
- Trichocoleus voukii* (Frémy) Anagnostidis comb. nova.** – Bas.: *Microcoleus voukii* Frémy ex Frémy, Compt. Rend. Acad. Sci. Paris 195: 1414, 1932.
- Trichocoleus wuitheri* (Frémy ex Frémy) Anagnostidis comb. nova.** – Bas.: *Microcoleus wuitheri* Frémy ex Frémy, Compt. Rend. Acad. Sci. Paris 195: 1413, 1932.

Borziaceae

- Borzia brevis* (Kufferath) Anagnostidis comb. nova.** – Bas.: *Homoeothrix brevis* Kufferath, Ann. Biol. Lac. 7: 278, 1914.
- Komvophoron breve* (Carter) Anagnostidis comb. nova.** – Bas.: *Pseudanabaena brevis* Carter, J. Ecol. 21 (1): 158–160, 1933.
- Komvophoron halobium* Anagnostidis spec. nova.** – Diagn.: Trichomata curta, interdum mobilia, sine vaginis, recta vel arcuata, 4–5 μm lata, ad apices haud attenuata, ad dissepimenta valde constricta, cum tegumento mucilaginoso, incolore, diffuente, ad 2 μm lato. Cellulae plus minusve doliiformes, subsphaericae, plus minusve isodiametricae, 2–6 μm longae, aeruginosae vel griseo-virides, contentu homogeneo, interdum cum chromatoplasmate visibili. Cellulae apicales rotundatae. – Habitatio: In aquis salinis, benthice; locus classicus: Dania, mare Wadden Sea. – Typus: specimen MHC 28C7 (Kaas 1985); holotypus (icona typica): Kaas et al. 1985, Opera Bot. 79: 55, fig. 44 [= fig. nostra 10], (sub “*Pseudanabaena crassa* Vozžennikova” non orig.).
- Komvophoron skujae* Anagnostidis et Komárek spec. nova.** – Diagn.: Trichomata solitaria, inter algas intermixta, sine vaginis, plus minusve recta vel curvata, curta, ad 100 μm longa, mobilia, 2–3.5 μm lata, ad apices haud attenuata, ad dissepimenta valde constricta. Cellulae pallide aeruginosae, plus minusve

isodiametricae, subcylindricae, contentu homogeneo, cum chromatoplasmate visibili. Cellulae apicales rotundato-conicae, vel rotundatae. – Habitatio: Benthice (epipelice) in lacubus, in aquis sulphurantibus; descriptio e Suecia (Skuja 1956). – Holotypus (icona typica): Skuja 1956, Nova Acta Reg. Soc. Sci. Upsal., Ser. IV., 16 (3): 70, fig. VI: 27–28 [= fig. nostra 11]; syn.: *Pseudanabaena minuta* f. sensu Skuja 1956, l.c., p. 70.

Phormidiaceae

- Pseudophormidium battersii* (Gomont) Anagnostidis comb. nova. – Bas.: *Plectonema battersii* Gomont, Bull. Soc. Bot. France 46: 36, 1899.
- Pseudophormidium golenkinianum* (Gomont) Anagnostidis comb. nova. – Bas.: *Plectonema golenkinianum* Gomont, Bull. Soc. Bot. France 46: 35, 1899.
- Pseudophormidium hollerbachianum* (Elenkin) Anagnostidis comb. nova. – Bas.: *Plectonema boryanum* f. *hollerbachianum* Elenkin, Monogr. Alg. Cyanoph., Pars Spec. 2: 1787, 1949.
- Pseudophormidium mucicola* (G. S. An) Anagnostidis comb. nova. – Bas.: *Plectonema mucicola* G. S. An, Fragm. Florist. Geobot. 37 (2): 410, fig. 5, 1992.
- Pseudophormidium spelaeoides* (Anissimova) Anagnostidis comb. nova. – Bas.: *Plectonema purpureum* f. *pauciramosum* Anissimova in Elenkin, Monogr. Alg. Cyanoph., Pars Spec. 2: 1798, 1949.
- Pseudophormidium rhenanum* (Schmidle) Anagnostidis comb. nova. – Bas.: *Plectonema rhenanum* Schmidle, Hedwigia 36: 19, 1897.
- Pseudophormidium spelaeoides* (Čado) Anagnostidis comb. nova. – Bas.: *Plectonema spelaeoides* Čado, Zborn. Rab. Prirod.-Mat. Fak. Univ. Skopje, Hidrob. Zavod, Ochrid, 7 (5): 2,5, 1959.
- Pseudophormidium tatricum* (Starmach) Anagnostidis comb. nova. – Bas.: *Plectonema tatricum* Starmach, Acta Hydrobiol., Kraków, 10 (4): 431, 1963.
- Phormidium arvense* (Rao) Anagnostidis comb. nova. – Bas.: *Phormidium mucosum* var. *arvense* Rao, Proc. Ind. Acad. Sci. 6 (6): 368, 1937.
- Phormidium baculum* (Gomont) Anagnostidis comb. nova. – Bas.: *Lyngbya baculum* Gomont, Ann. Sci. Nat., VII. Bot., 16: 123, 1892.
- Phormidium caeruleum* (Gicklhorn) Anagnostidis comb. nova. – Bas.: *Oscillatoria caeruleum* Gicklhorn, Österr. Bot. Ztschr. 70 (1–2): 4, 1921.
- Phormidium caucasicum* (Elenkin et Kosinskaja) Anagnostidis comb. nova. – Bas.: *Oscillatoria terebriformis* f. *caucasica* Elenkin et Kosinskaja in Elenkin, Monogr. Alg. Cyanoph., Pars spec. 2: 1486, 1949.
- Phormidium chlorinum* (Kützing ex Gomont) Anagnostidis comb. nova. – Bas.: *Oscillaria chlorina* Kützing ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 223, 1892 = [*Oscillaria chlorina* Kützing, Phyc. Gener., p. 185, 1843 (pre-start.-point syn.)].
- Phormidium corbierei* (Frémy) Anagnostidis comb. nova. – Bas.: *Lyngbya corbierei* Frémy, Bull. Soc. Linn. Normandie, sér. 7, 6: 12, 1923.
- Phormidium crassius* (Behre) Anagnostidis comb. nova. – Bas.: *Lyngbya allorgei* f. *crassior* Behre, Veröff. Inst. Meeresf. Bremerhaven 4: 313, 1956.
- Phormidium deflexoides* (Elenkin et Kosinskaja) Anagnostidis comb. nova. – Bas.: *Oscillatoria deflexoides* Elenkin et Kosinskaja in Elenkin, Monogr. Alg. Cyanoph., Pars spec. 2: 1374, 1949.
- Phormidium dudicsianum* (Claus) Anagnostidis comb. nova. – Bas.: *Oscillatoria dudicsiana* Claus, Acta Bot. Acad. Sci. Hung. 2 (1–2): 6, 1955.
- Phormidium exosporum* (Skuja) Anagnostidis comb. nova. – Bas.: *Oscillatoria exospora* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. IV, 16 (3): 56, 1955.
- Phormidium gracile* (Meneghini ex Gomont) Anagnostidis comb. nova. – Bas.: *Lyngbya gracilis* (Meneghini) ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 124, 1892.
- Phormidium granulatum* (Gardner) Anagnostidis comb. nova. – Bas.: *Oscillatoria granulata* Gardner, Mem. New York Bot. Gard. 7: 37, 1927.
- Phormidium griseo-violaceum* (Skuja) Anagnostidis comb. nova. – Bas.: *Oscillatoria griseo-violacea* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. IV, 16 (3): 55, 1955.
- Phormidium hiemale* (Jaag) Anagnostidis comb. nova. – Bas.: *Oscillatoria hiemalis* Jaag, Mitt. Naturf. Ges. Schaffhausen 14 (1): 117, 1938.
- Phormidium holdenii* (Forti) Anagnostidis comb. nova. – Bas.: *Lyngbya holdenii* Forti, Syll. Myxoph., p. 260, 1907; syn.: *Lyngbya subtilis* Holden in Collins et al. 1904, non *Lyngbya subtilis* Hansgirg 1888 ex Forti 1907, nec *Lyngbya subtilis* W. West 1892.
- Phormidium insigne* (Skuja) Anagnostidis comb. nova. – Bas.: *Oscillatoria insignis* Skuja, Nova Acta Reg. Soc. Sci. Upsal., ser. 4, 16 (3): 58, 1956.

- Phormidium jasorvense* (Vouk) Anagnostidis comb. nova. – Bas.: *Oscillatoria jasorvensis* Vouk, Jugosl. Akad. Prir. Istraž. Hrvatske, Slovenije, Mat.-prir. Razr., 14: 133, 1919.
- Phormidium koprophilum* (Skuja) Anagnostidis comb. nova. – Bas.: *Oscillatoria koprophila* Skuja, Symb. Bot. Upsal. 9 (3): 46, 1948.
- Phormidium lacustre* (Čado) Anagnostidis comb. nova. – Bas.: *Phormidium endolithicum* f. *lacustre* Čado, Zborn. Rabot. Filoz. Fac. Univ. Skopje, Hidrob. Zav., Ochrid, 6 (3): 4, 11, 1958.
- Phormidium lusitanicum* (Sampaio fil.) Anagnostidis comb. nova. – Bas.: *Oscillatoria lusitanica* Sampaio fil., Bol. Soc. Broter., ser. 2, 5: 13, 1941.
- Phormidium numidicum* (Gomont) Anagnostidis comb. nova. – Bas.: *Oscillatoria numidica* Gomont, Ann. Sci. Nat., VII. Bot., 16: 231, 1892.
- Phormidium pseudocortianum* (Starmach) Anagnostidis comb. nova. – Bas.: *Oscillatoria pseudocortiana* Starmach, Fragm. Florist. Geobot. 19:4: 491, 1973.
- Phormidium roseum* (Crouan ex Gomont) Anagnostidis comb. nova. – Bas.: *Oscillaria rosea* Crouan ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 239, 1892 = [*Oscillaria rosea* Crouan, Fl. Finistère, p. 113, 1867 (pre-start.-point syn.)].
- Phormidium schroeteri* (Hansgirg ex Hansgirg) Anagnostidis comb. nova. – Bas.: *Lyngbya schroeteri* Hansgirg ex Hansgirg, Prodr. Algenfl. Böhmen 2: 117, 1892 = [*Lyngbya schroeteri* Hansgirg, Physiol. Algolog. Stud., p. 164, 1887 (pre-start.-point syn.)].
- Phormidium stagninum* (Kützing ex Gomont) Anagnostidis comb. nova. – Bas.: *Lyngbya stagnina* Kützing ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 128, 1892 = [*Lyngbya stagnina* Kützing, Phyc. Gener., p. 222, 1843 (pre-start.-point syn.)].
- Phormidium taylori* (Drouet et Strickland) Anagnostidis comb. nova. – Bas.: *Lyngbya taylori* Drouet et Strickland in Strickland, Amer. J. Bot. 27 (8): 613, 1940.
- Phormidium thermobium* Anagnostidis spec. nova. – Diagn.: Thallus tenuis, membranaceus, aeruginosus vel cinereo-viridis. Filamenta elongata, plus minusve curvata, plus minusve contorta. Vaginae tenues, firmae, interdum diffluentes, mucilaginosae. Trichomata aeruginosa vel violascentes, 4–5.3 µm lata, ad dissepimenta valde constricta, non granulata, ad apices haud attenuata. Cellulae plus minusve isodiametricae, 2.6–8 µm longae, contentu homogeneo, paucim granuloso. Cellula apicalis paucim elongata (ad 10µm longa), rotundato-conica, sine calyptra. – Habitatio: In aquis thermalibus, locus classicus: Graecia, Kammena Vourla. – Holotypus (protologus): Anagnostidis 1961, l.c., p. 140 (no. 62), fig. 60a [= fig. nostra 13]. – Syn.: *Phormidium corium* (C. Agardh) Gomont forma sensu Anagnostidis 1961, l.c. p. 140.
- Phormidium violaceum* (Wallroth ex Gomont) Anagnostidis comb. nova. – Bas.: *Oscillatoria violacea* Wallroth ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 240, 1892 = [*Oscillatoria violacea* Wallroth, Fl. Crypt. Germ 2: 18, 1833 (pre-start.-point syn.)].
- Phormidium woronichinii* (Ponomarev) Anagnostidis comb. nova. – Bas.: *Lyngbya woronichinii* Ponomarev, Učen. Zap. Kazansk. Gos. Univ. 89 (2): 299, 1929.
- Porphyrosiphon stagninus* (Kützing ex Gomont) Anagnostidis et Komárek comb. nova. – Bas.: *Lyngbya stagnina* Kützing ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 128, 1892 = [*Lyngbya stagnina* Kützing, Phyc. Gener., p. 222, 1843 (pre-start.-point syn.)].
- Symplocastrum albanienae* (Drouet) Anagnostidis comb. nova. – Bas.: *Schizothrix albanienae* Drouet, Rév. Algol., N.S., 5 (2): 112, 1960.
- Symplocastrum aurantiacum* (Hansgirg ex Hansgirg) Anagnostidis comb. nova. – Bas.: *Microcoleus aurantiacus* Hansgirg ex Hansgirg, Prodr. Algenfl. Böhmen 2: 78, 1892 = [*Microcoleus aurantiacus* Hansgirg, Physiol. Algolog. Stud., p. 169, 1887 (pre-start.-point syn.)].
- Symplocastrum coccineum* (Gomont) Anagnostidis comb. nova. – Bas.: *Hydrocoleum coccineum* Gomont, Ann. Sci. Nat., VII. Bot., 15: 342, 1892.
- Symplocastrum grunovianum* (Elenkin) Anagnostidis comb. nova. – Bas.: *Schizothrix grunoviana* Elenkin, Monogr. Alg. Cyanoph. URSS, Pars spec. 2: 1733, 1949.
- Symplocastrum muelleri* (Nägeli ex Gomont) Anagnostidis comb. nova. – Bas.: *Schizothrix muelleri* Nägeli ex Gomont, Ann. Sci. Nat., VII. Bot., 16: 321, 1892; [= *Schizothrix muelleri* Nägeli in Kützing, Spec. Alg., p. 320, 1849 (pre-start.-point syn.)].
- Symplocastrum naegelii* (Kützing ex Gomont) Anagnostidis comb. nova. – Bas.: *Hypheothrix naegelii* Kützing ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 328, 1892; [= *Hypheothrix naegelii* Kützing, Spec. Alg., p. 268, 1849 (pre-start.-point syn.)].
- Symplocastrum oligotrichum* (A. Braun ex Gomont) Anagnostidis comb. nova. – Bas.: *Hydrocoleum oligotrichum* A. Braun ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 345, 1892; [= *Hydrocoleum oligotrichum* A. Braun in Rabenhorst, Fl. Europ. Alg. 2: 294, 1865 (pre-start.-point syn.)].

Symplocastrum penicillatum (Kützinger ex Gomont) *Anagnostidis* comb. nova. – Bas.: *Schizothrix penicillata* Kützinger ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 305, 1892; [= *Leibleinia penicillata* Kützinger, Bot. Ztg. 5 (12): 194, 1847 (pre-start-point syn.)]; syn.: *Lyngbya penicillata* Kützinger ex Forti 1907.

Symplocastrum purpurascens (Gomont ex Gomont) *Anagnostidis* comb. nova. – Bas.: *Schizothrix purpurascens* Gomont ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 320, 1892; [= *Schizothrix purpurascens* Gomont, J. Bot. 4 (20): 352, 1890 (pre-start-point syn.)].

Symplocastrum sauterianum (Grunow ex Geitler) *Anagnostidis* comb. nova. – Bas.: *Schizothrix sauteriana* Grunow ex Geitler, Rabenh. 's Krypt.-Fl. 14: 1094, 1932; syn.: *Inactis sauteriana* Grunow in Rabenhorst, Fl. Eur. Alg. 2: 85, 1865 (pre-start-point syn.).

Gomontiellaceae

Hormoscilla endophytica (Li) *Anagnostidis* comb. nova. – Bas.: *Borzia endophytica* Li, Aquatic Organisms Wulingyuan Nature Res. Hunan, Sci. Press (China), p. 30–31, 1989.

Hormoscilla feldmannii *Anagnostidis* spec. nova. – Diagn.: Trichomata cyanophyceae solitaria, curta, ad 140 µm longa, 11–15 µm lata, ad dissepimenta distincte constricta, sine vaginis, ad apices haud attenuata. Cellulae curtae, minus quam 12 µm longae, barriliformes, contentu rubro, plus minusve homoganeo vel cum granulis solitariis; cellula apicalis hemisphaerica, apice rotundata. Hormogonia 2–3-cellularia. – Habitatio: species marina endozoa in mesenchymate *Cryptonemiae luxuriantis*; descriptio (localitas typi) e Mare mediterraneo (Italia, prope Trieste). – Holotypus (icona typica): Feldmann 1958, Rev. Algol., N.S., 4, 1: 32–33, fig. 1 [= fig. nostra 14]; syn.: *Borzia spongeliae* (Schulze) Feldmann sensu Feldmann l.c., p. 32–33, 1958, non sensu orig. Schulze 1879, nec Gomont 1892.

Katagnymene saxicola (Filarszky) *Anagnostidis* comb. nova. – Bas.: *Lyngbya saxicola* Filarszky, Hedwigia 39: 140, 1900.

Oscillatoriaceae

Oscillatoria anguiformis (Gonzalez Guerrero) *Anagnostidis* comb. nova. – Bas.: *Spirulina breviarticulata* Setchell et Gardner var. *anguiformis* Gonzalez Guerrero, Annal. Jard. Bot. Madrid 6: 260, 1946.

Oscillatoria crassa (Rao) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria ornata* var. *crassa* Rao, Proc. Ind. Acad. Sci. 8 (3): 165, 1938.

Oscillatoria depauperata (Copeland) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria chalybea* var. *depauperata* Copeland, Ann. New York Acad. Sci. 36: 157, 1936.

Oscillatoria euboica *Anagnostidis* spec. nova. – Diagn.: Trichomata cyanophyceae solitaria, inter algas cyanophyceasque intermixta, sine vaginis, heterocytis sporisque, plus minusve cylindrica, ad dissepimenta paucim constricta vel non constricta, ad apices haud attenuata, ad 600 µm longa, 7.7–9.2 µm lata. Cellulae curtae, discoideae, 1.2–2.3 µm longae, contentu aerugineo vel olivaceo-viridi, homoganeo vel tenuiter granuloso; cellulae apicales plus minusve asymmetricae, obtuse conicae et curvatae, pallentes, paucim longiores quam cellulae intercalares, sine calyptra. – Habitatio: Subaerophytice, in solis humidis, arenosis, prope regiones litorales humidis; locus classicus: Graecia, insula Euboea. – Holotypus (icona typica): Roussomoustakaki, Cyanophyta from soils of Euboea Island, PhD-Thesis, Athens, p. 155–156, figurae 34: 96, 59: 228–229, 1983, sub "*Oscillatoria dzeman-sor* Voronichin forma" [fig. nostra 18].

Oscillatoria levis (Gardner) *Anagnostidis* comb. nova. – Bas.: *Oscillatoria tenuis* var. *levis* Gardner, Mem. New York Bot. Gard. 7: 35, 1927.

Oscillatoria rhamphoidea *Anagnostidis* spec. nova. – Diagn.: Trichomata cyanophyceae solitaria, in coloniis macroscopicis, mucilaginosi, membranaceis, planis, sine vaginis, heterocytis sporisque, pallide aeruginea, plus minusve recta vel paucim flexuosa vel ad apices curvata, ad dissepimenta not constricta, gradatim ad apices attenuata, 6.5–7.8 µm lata. Cellulae curtae, discoideae, 1–2 µm longae, contentu homoganeo; cellulae apicales conicae, arcuatae, curvatae, acuminatae, sine calyptra. – Habitatio: In aquis dulcibus, praecipue stagnis temporariis; locus classicus: Graecia, prope Thessaloniki. – Holotypus (icona typica): *Anagnostidis* et al. 1981, Nova Hedwigia 34: 19, fig. 14–19 [= fig. nostra 15], (sub "*Oscillatoria salina* f. *major* Desikachary").

Lyngbya anomala (Rao) *Anagnostidis* comb. nova. – Bas.: *Phormidium anomalum* Rao, Proc. Ind. Acad. Sci. 6 (6): 371, 1937.

Lyngbya capitata (Desikachary) *Anagnostidis* comb. nova. – Bas.: *Phormidium rotheanum* var. *capitatum* Desikachary, Cyanoph., I.C.A.R. Monogr., p. 258, 1959.

- Lyngbya fritschii* Anagnostidis nom. nov. – Diagn. et syn.: *Lyngbya aestuarii* var. *antarctica* Fritsch, Nat. Antarct. Exped. 1901–1904, 6 (Freshw. Alg.): 27, 1912; non *Lyngbya antarctica* Gain 1911.
- Lyngbya kwangsiensis* (Jao) Anagnostidis comb. nova. – Bas.: *Phormidium kwangsiense* Jao, Sinensia 15 (1–6): 87, 1944.
- Lyngbya microtoma* (Skuja) Anagnostidis comb. nova. – Bas.: *Phormidium microtoma* Skuja, Nova Acta Reg. Soc. Sci. Upsal., Ser. IV., 14 (5): 51, 1949.
- Lyngbya singularis* (Jao) Anagnostidis comb. nova. – Bas.: *Lyngbya truncicola* var. *singularis* Jao, Sinensia 15 (1–6): 88, 1944.
- Blennothrix boergesenii* (Gardner) Anagnostidis comb. nova. – Bas.: *Hydrocoleum boergesenii* Gardner, New York Acad. Sci., Sci. Surv., Porto Rico, 8 (2): 289, 1932.
- Blennothrix cavanillesii* (Gonzalez Guerrero) Anagnostidis comb. nova. – Bas.: *Polychlamydom cavanillesii* Gonzalez Guerrero, Annal. Jard. Bot. Madrid 6: 265, 1946.
- Blennothrix glutinosa* (C. Agardh ex Gomont) Anagnostidis et Komárek comb. nova. – Bas.: *Hydrocoleum glutinosum* C. Agardh ex Gomont, Ann. Sci. Nat., VII. Bot., 15: 339, 1892; [= *Hydrocoleum glutinosum* C. Agardh in Gomont, J. Bot. 4 (20): 353, 1890 (pre-start-point syn.)].
- Blennothrix groesbeckiana* (Drouet) Anagnostidis comb. nova. – Bas.: *Hydrocoleum groesbeckianum* Drouet, Field Mus. Bot. Ser. 20 (6): 135, 1942.
- Blennothrix minor* (Geitler) Anagnostidis comb. nova. – Bas.: *Hydrocoleum homoeotrichus* var. *minus* Geitler, Arch. Hydrobiol., Suppl. 12: 634, 1933.
- Blennothrix mirifica* (Jao) Anagnostidis comb. nova. – Bas.: *Hydrocoleum mirificus* Jao, Bot. Bull. Acad. Sinicae 2: 172, 1948.

Souhrn

Pravidla taxonomie sinic (*Cyanoprokaryotes*) se v posledních desetiletích značně změnila v důsledku množství nových dat získaných pomocí moderních metod elektronové mikroskopie, jakož i ekologických a molekulárně biologických studií. Bylo proto třeba provést zásadní přehodnocení systematického pojetí této skupiny a vědecká jména taxonů patřících do revidovaných skupin by měla být upravena s ohledem na nová nomenklatorická pravidla předtím, než budou publikována souborná díla a nové monografie. Článek přináší validní zveřejnění nomenklatorických změn, jež si vyžádala příprava druhého dílu *Cyanoprokaryotes*, který je v současné době připraven k tisku v rámci série Süßwasserflora von Mitteleuropa (19/2, řád *Oscillatoriales*). K článku je připojen Appendix z pera J. Komárka, jež obsahuje kombinace nenavržené přímo K. Anagnostidisem. Celkem tato moderní revize celého řádu *Oscillatoriales* vyústila v 208 nových nomenklatorických kombinací, popis 17 nových druhů a 2 nových rodů.

References

- Anagnostidis K. (1961): Untersuchungen über die Cyanophyceen einiger Thermen in Griechenland. – Inst. Syst. Bot. Pflanzengeogr. Univ. Thessaloniki. [322 pp.]
- Castenholz R. W. (1976): The effect of sulfide on the blue-green algae of hot springs. I. New Zealand and Iceland. – J. Phycol. 12: 54–68.
- Drouet F. (1968): Revision of the classification of the *Oscillatoriaceae*. – Monogr. 15, Acad. Nat. Sci. Philadelphia. [370 pp.]
- Hansgirg A. (1892): Prodrum der Algenflora von Böhmen. 2. – Arch. Naturwiss.– Landesdurchforsch. Böhmen 8 (4): 1–268.
- Kaas H. (1985): Algal studies of the Danish Wadden Sea. III. Blue-green algae in tidal flat sediments (sand flats and lower salt marsh) at Rejsby; taxonomy and ecology. – Opera Bot. 79: 38–61.

Appendix 1. – Other nomenclatural changes in *Oscillatoriales*.

The following nomenclatural changes, which result from the final elaboration of the European monograph of oscillatoriacean cyanobacteria, were not proposed explicitly by K. Anagnostidis; they are published, therefore, under my name in this appendix. K. Kiss contributed to this Appendix with the new combination *Phormidium bekesiense* (I. Kiss) K. Kiss which is to be attributed to him.

Pseudanabaenaceae

***Romeria obtuseacuminata* (Starmach) Komárek comb. nova.** – Bas.: *Oscillatoria obtuseacuminata* Starmach, Fragm. Florist. Geobot. 26, 1: 182–184, 1980, fig. 4 [= fig. nostra 1].

***Leptolyngbya aeruginea* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya aeruginea* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 88, 1892; [= *Leptothrix aeruginea* Kützing, Phyc. Gener., p. 198, 1843 (pre-start.-point syn.)].

***Leptolyngbya cataractarum* (Rabenhorst ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya cataractarum* Rabenhorst ex Hansgirg, Prodr. Algenfl. Böhmen 2: 91, 1892; [= *Phormidium cataractarum* Rabenhorst, Alg. Sachs. 29–30: 294, 1853 (pre-start.-point syn.)].

***Leptolyngbya compacta* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya compacta* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 88, 1892; [= *Leptothrix compacta* Kützing, Phycol. Gener., p. 199, 1843 (pre-start.-point syn.)].

***Leptolyngbya fallax* (Hansgirg ex Forti) Komárek comb. nova.** – Bas.: *Lyngbya fallax* Hansgirg ex Forti, Syll. Myxoph., p. 185, 1907; [= *Lyngbya fallax* Hansgirg Sitzungsber. k. böhm. Ges. Wiss., mat.-nat. Cl., 1891 (1): 348, 1891].

***Leptolyngbya fontana* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya fontana* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 85, 1892; [= *Leptothrix fontana* Kützing, Alg. Aq. Dulc. Dec. 9: 198, 1843 (pre-start.-point syn.)].

***Leptolyngbya gloeophila* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya gloeophila* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 87, 1892; [= *Leptothrix gloeophila* Kützing, Bot. Ztg. 5 (13): 219, 1847 (pre-start.-point syn.)].

***Leptolyngbya hansgirgiana* Komárek nom. nov.** – Diagn. et syn.: *Lyngbya tenuissima* Nägeli in Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 86, 1892; [= *Leptothrix tenuissima* Nägeli in Kützing, Spec. Alg., p. 265, 1849 (pre-start.-point syn.)]; non *Leptolyngbya tenuissima* (Gardner) Anagnostidis et Komárek.

***Leptolyngbya subcyanea* (Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya subcyanea* Hansgirg, Prodr. Algenfl. Böhmen 2: 88, 1892.

***Leptolyngbya subtilissima* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya subtilissima* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 87, 1892; [= *Leptothrix subtilissima* Kützing, Phycol. Gener., p. 200, 1843 (pre-start.-point syn.)].

***Leptolyngbya tenerrima* (Kützing ex Hansgirg) Komárek comb. nova.** – Bas.: *Lyngbya tenerrima* Kützing ex Hansgirg, Prodr. Algenfl. Böhmen 2: 84, 1892; [= *Oscillatoria tenerrima* Kützing, Phyc. Gener., p. 184, 1843 (pre-start.-point syn.)].

***Heteroleibleinia epiphytica* Komárek nom. nov.** – Diagn. et syn.: *Lyngbya epiphytica* Wille, Nyt. Mag. Naturvid. 51 (1): 25, 1913; non *Lyngbya epiphytica* Hieronymus 1900.

Phormidiaceae

***Phormidium bekesiense* (I. Kiss) K. Kiss in Komárek comb. nova.** – Bas.: *Oscillatoria bekesiensis* I. Kiss, Szeged. Pedag. Főisk. évkönyve 1959: 3–37, 1959. (Proposed by K. Kiss.)

***Phormidium kolkwitzii* Komárek spec. nova.** – Diagn.: Thallus plus minusve membranaceus, tenuis aeruginosus vel olivaceus, raro in filis solitariis. Vaginae rarissimae, incolores, diffuentes. Trichomata paucim flexuosa, aeruginosa, ad dissepimenta non constricta nec granulosa, ad apices gradatim attenuata, 5–6 µm lata. Cellulae breviores quam latae, paucim granulosa. Cellula apicalis plus minusve conice rotundata, sine calyptra. – Habitatio: In paludis sphagnosis, Europa centralis (Germania). – Holotypus (icona typica): Kolkwitz et Krieger 1936 [= fig. nostra 12]. – Syn.: *Oscillatoria curviceps* var. *angustata* Ghose sensu Kolkwitz et Krieger 1936.

***Phormidiochaete* Komárek gen. nov.** – Diagn.: Cyanophyceae filamentosa; filamenta solitaria vel in colonias aggregata, praecipue periphytica, e trichomatibus vaginisque composita, heteropolaria, raro false divaricata.

Vaginae plus minusve firmae, praecipue lamellosae, interdum coloratae, ad apices apertae, trichomam unam continentes. Trichomata heteropolaria, basim dilatata (1.5–13.2 μm lata), ad apices gradatim et flagellatim attenuata at elongata, semper sine heterocytis, akinetis et aerotopis. Cellulae contentu homogeneo vel granuloso, perpendiculariter dividuntur, ad apices elongatae, contentu plus minusve hyalino; cellula apicalis tenuis cylindrica, elongata. Reproductio desintegratione trichomatum. – Typus generis: *Cyanochaete nordstedtii* (Bornet et Flahault) Komárek comb. nova (syn.: *Dichothrix nordstedtii* Bornet et Flahault 1886).

***Phormidiochaete balearica* (Bornet et Flahault ex Bornet et Flahault) Komárek comb. nova.** – Bas.: *Calothrix balearica* Bornet et Flahault ex Bornet et Flahault, Ann. Sci. Nat., VII. Bot., 3: 348, 1886 (start. point); syn.: *Homoeothrix balearica* (Bornet et Flahault) Lemmermann, Krypt.-Fl. Mark Brandenb. 3: 239, 1907; [fig. nostra 16].

***Phormidiochaete fusca* (Starmach) Komárek comb. nova.** – Bas.: *Homoeothrix fusca* Starmach, Acta Soc. Bot. Poloniae 11 (3): 294–295, 1934.

***Phormidiochaete nordstedtii* (Bornet et Flahault) Komárek comb. nova.** – Bas.: *Dichothrix nordstedtii* Bornet et Flahault ex Bornet et Flahault, Ann. Sci. Nat., VII. Bot., 3: 374, 1886; [fig. nostra 17].

Oscillatoriaceae

***Oscillatoria funiformis* (Vouk) Komárek comb. nova.** – Bas.: *Arthrospira funiformis* Vouk, Jugosl. Akad. Prirod. Istraž. Hrvatski Slavonije, mat.-prir. Razr. 6: 15, 1915.

Jiří K o m á r e k, Institute of Botany, Academy of Sciences of the Czech Republic, Dukelská 145, CZ-379 01 Třeboň, Czech Republic, e-mail: komarek@butbn.cas.cz

Henderson A. & Borchsenius F.

Evolution, variation and classification of palms

Memoirs of the New York Botanical Garden, Vol. 83., New York Botanical Garden, Bronx, New York 1999, 324 str. [Kniha je v knihovně ČBS.]

Deset let od vydání stěžejního díla N. W. Uhla a J. Dransfielda „Genera Palmarum“ bylo významnou příležitostí k uspořádání mezinárodní konference o palmách konané v Botanické zahradě v New Yorku 18.–20. června 1997. Celkem 28 referátů specialistů z celého světa je souborně publikováno v recenzované knize. V uplynulém desetiletí dosáhly výzkum a šíře poznatků o palmách nebývalého rozvoje, neboť vedle speciálních prací věnovaných některým rodům a využívajících nejmodernějších taxonomických metod vyšly v r. 1995 tři knižní publikace základního významu. Dvě jsou o palmách Ameriky, jedna z Madagaskaru.

Konference pracovala ve čtyřech sekcích, věnovaných koncepci druhu u palem (3 referáty), významu a hodnotě různých znaků v taxonomii (7), problematice druhů vybraných rodů řešené různými metodami (11) a klasifikaci vyšších taxonů než druh (6).

Osou problematiky taxonomie palem, prolínající se většinou příspěvků, bylo nestejné pojetí druhu u různých autorů. Problémy vyvolává již charakter studovaných rostlin, neboť palmy jsou typickou čeledí, v níž studium velmi kusého herbářového materiálu má spíše doplňující charakter a těžiště práce musí být v terénním výzkumu. Ten je značně náročný již z hledem k areálům a rozměrům většiny druhů a obtížnému zjišťování květní morfologie i ekologie. Následkem toho se podle užšího či širšího pojetí druhu celkový počet recentních druhů palem světa pohybuje v rozmezí od zhruba 1500 do téměř 3000. V první sekci výstižně vyjádřili posloupnost názorů na pojem druhu A. Henderson a J. Dransfield, kteří rozdělili dlouhý časový horizont na několik období. První z nich zahrnuje Linného klasické morfologické pojetí, uznávané v podstatě nejméně do konce 19. století, i když určité změny přineslo i dílo Darwinovo. V jižní Americe a především v Amazonii tehdy sbírali, studovali a popisovali palmy zejména A. Oersted, H. Karsten, H. Wendland, C. Martius, A. R. Wallace, R. Spruce, J. Trail a B. Rodrigues. Docházelo však i k extrémům, neboť zejména M. Burret, L. H. Bailey a O. F. Cook popsali jen na základě nepatrných rozdílů v morfologii listů řadu druhů, které později musely být synonymizovány. To potvrdil na této konferenci např. J. J. de Granville sdělením, že jen *Bactris simplicifrons* má přes 60 synonym. Obdobně bylo evropskými botaniky, kteří neměli terénní zkušenosti, v rodu *Hyphaene* v Africe popsáno celkem 75 druhů, z nichž