

Freshwater Biological Association

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Title: Anabaena circinalis Rabenhorst & A. flos aquae
Brebisson, ex Bornet et Flahault. [Identification Key]

Author(s) STARMACH K.

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32. Anabaena circinalis Rabenhorst (= A. circinalis [Kütz] Hansgirg, A. Hassalij [Kütz] Wittrock) figs 756-9.

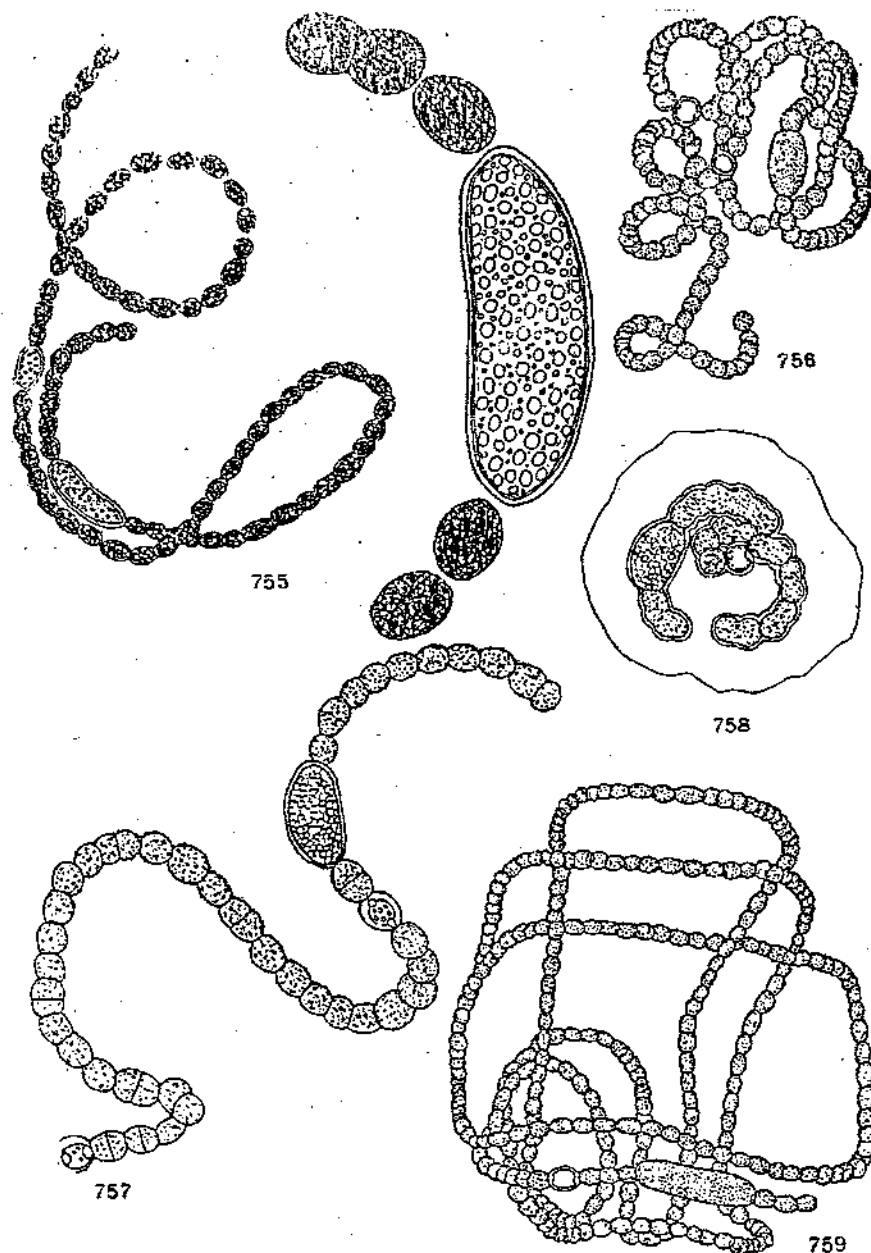
Curved trichomes form regular or irregular spirals, sometimes almost straight, 8-11-(14) μ wide, without a mucilage sheath or with diffuse mucilage, floating, single or aggregated in amorphous bundles. The cells are oval or barrelshaped, with gas vacuoles. Heterocysts intercalary, single, oval or widely oval, (6.5)-9-12 μ wide. Lengthwise the spores are oval, or cylindrical, 15-21 μ wide and 20-28 μ long. Is common in the plankton of calm waters. Varieties are dependent on the width and shapes of the filament and also the size of the spores.

f. tenuis (W. et G.S. West) Elenkin. Trichomes 5-7 μ wide, heterocysts the same size as vegetative cells, spores 8.5-10 μ wide and 12.5-25 μ long.

f. minor. V. Poljanskij fig. 757. Trichomes 6.9-8 μ wide, heterocysts 10.3-11.5 μ wide, spores 10.3-12.6 μ wide and 21.8-31.6 μ long.

f. brevispora Schkorbatow. fig. 758. Spores 21 μ long and 15 μ wide, trichomes surrounded by mucilage.

f. macrospora (Wittr.) Elenkin fig. 759. Trichomes 7-8 μ wide, heterocysts 7.5-8.5 μ long, spores 9-10.5 μ wide and 25-36 μ long.



Rys. 755-759. 755 — *Anabaena ellipsoides* (według Woronichina), 756 — *A. circinalis* (według Smitha), 757 — *A. circinalis* f. *minor* (według Poljanskiego), 758 — *A. circinalis* f. *brevispora* (według Szkorbatowa), 759 — *A. circinalis* f. *macrospora* (według Smitha)

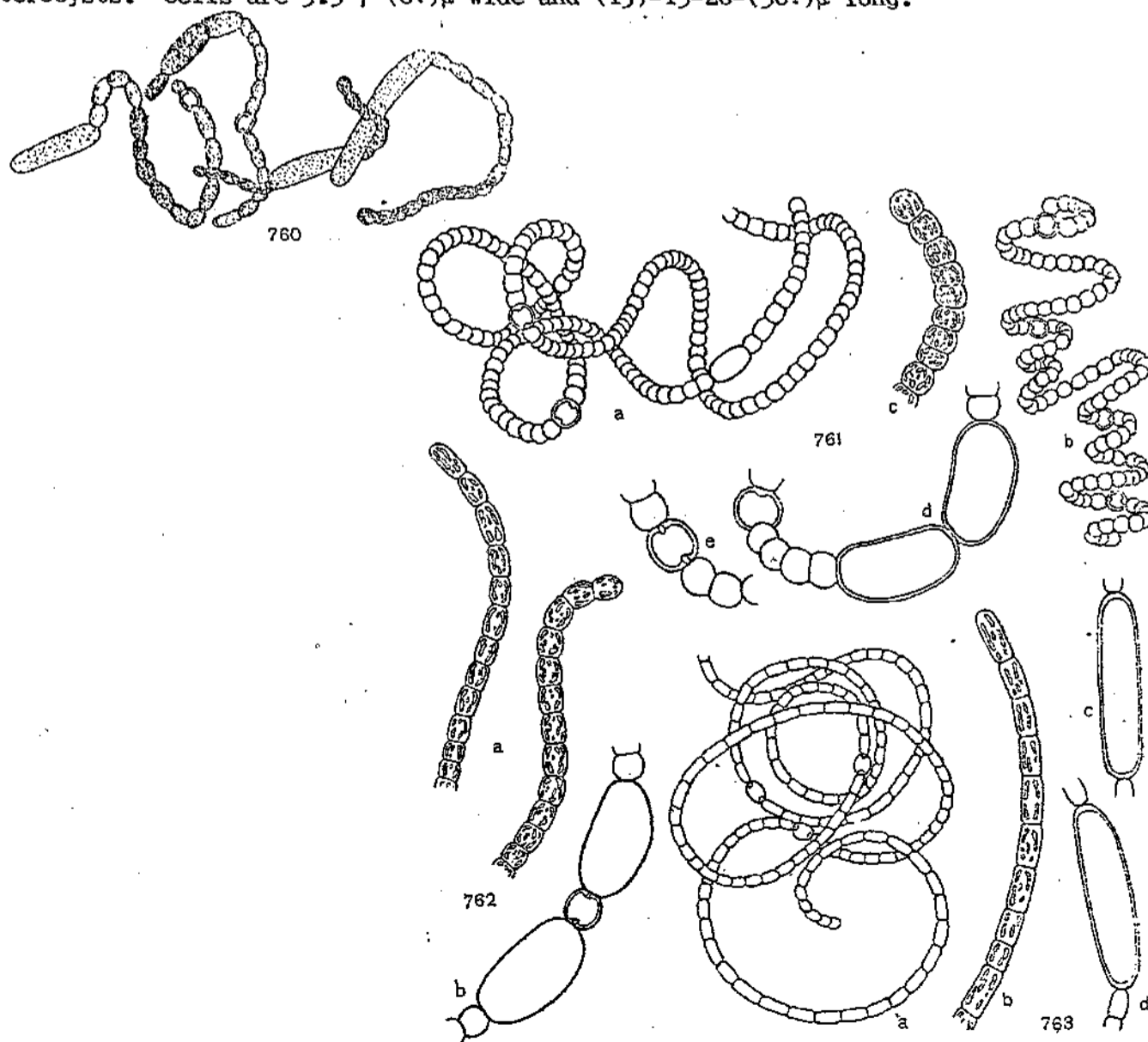
33. Anabaena flos aquae Brebisson, ex Bornet et Flahault (figs. 760-6, 772)

Forms of floating plants composed from trichomes which are coiled and entangled with each other, sometimes irregularly coiled, surrounded with an indistinct mucilage sheath. Cells are oval, barrelshaped or cylindrical, pale grey bluegreen occasionally yellowish green, with gas vacuoles. They are (2.5)-3-7-(8?) μ wide and 2.5-11-12 μ long; the terminal cells of the trichomes are rounded. The heterocysts are single, intercalary, round, barrelshaped or lengthwise oval, (2)-5-7-(8.5) μ wide, 5-8.5-(11) μ long. Spores develop singly or up to four in a row, they are oval to cylindrical, sometimes bent, developing either near to or at a distance from the heterocysts, 5.5-13-(14) μ wide, and (13)-15-35-(55?) μ long Reproduces by hormogonia and spores as well as fragmentation of trichomes and plants.

The species is most variable, in particular with regard to the shape of the filaments and thalli, the shape and size of the cells and the shape and size of heterocysts and spores. Numerous varieties are described, but only three clearly defined forms can be accepted. Komarek (1958) devoted a special study to this species, but in spite of this he requires further data.

f.flos aquae (A.flos aquae f.typica Elenkin (figs. 760, 761), A.circinalis [Kutzing] Hansgirg, A.flos aquae var.gracilis Klebahn et f.gracilis Elenkin, A.helicoidea Bernard, A.contorta Bachmann, A.flos aquae var.intermedia Woronichin et f.intermedia Elenkin, A.flos aquae var.jacutica Kisselev et f.jacutica Elenkin and others.)

Cells are oval or barrelshaped, spores 1-4 in a row, in the main not next to the heterocysts. Cells are 3.5-7-(8?) μ wide and (13)-15-28-(50?) μ long.



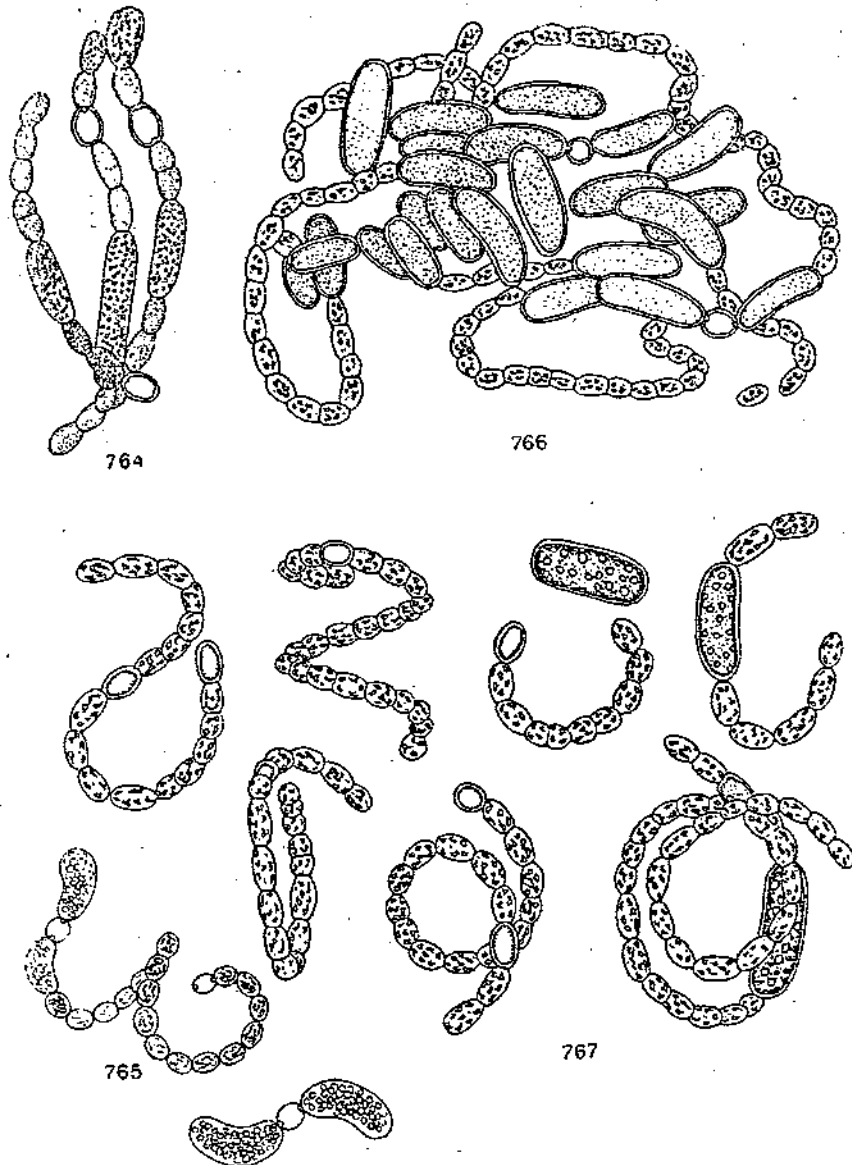
Rys. 760—763. 760 — *Anabaena flos-aquae* (według Smitha), 761 — *A. flos-aquae* f. *flos-aquae* (a, b — nici wegetatywne, c — koniec trychomu, d — spory, e — heterocysta) (według Komárka), 762 — *A. flos-aquae* f. *Lemmermannii* (a — końce trychomów, b — spory obok heterocysty) (według Komárka), 763 — *A. flos-aquae* f. *Trelasii* (a — nici wegetatywne, b — koniec trychomu, c, d — spory) (według Komárka).

f. Lemmermanni (P. Richter) Canabaeus (A. Lemmermanni P. Richter, A. flos-aquae f. Lemmermanni Canabaeus, A. flos-aquae [Lyngb.] Bréb. sensu Geitler [1932] et Klebs [1895], A. flos-aquae f. maior Elenkin, A. spiroides var. minor Utermöhl [1925] and probably A. Utermoehli Geitler [1925], A. flos-aquae var. laxa Skuja) (figs. 762, 765, 766, 772.)

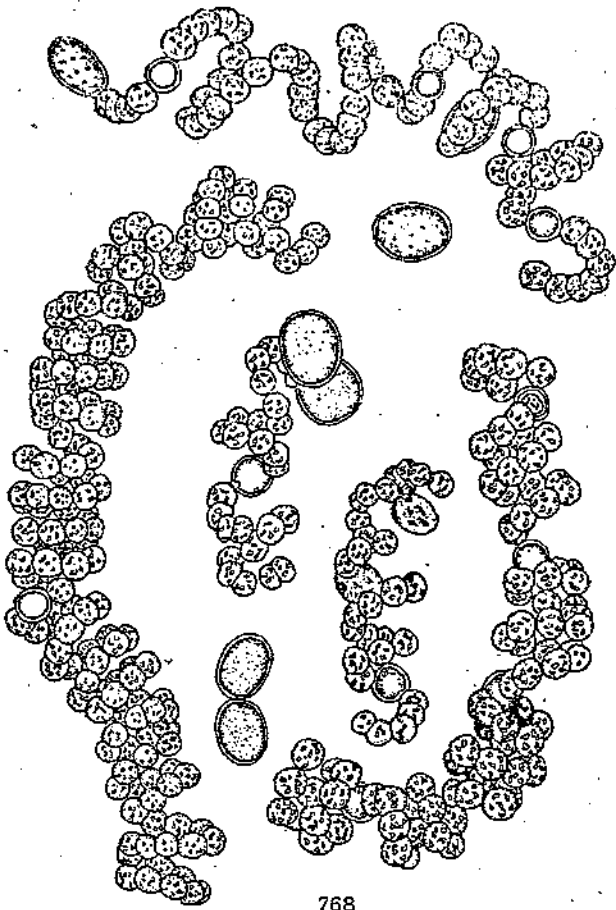
Cells barrelshaped to cylindrical, spores on either side of the heterocysts, cells are 2.5-7 μ wide, 2.5-10 μ long, heterocysts are 5-8.5 μ wide, 5.5-10 μ long and spores 6.8-11 μ wide, 15-35 μ long.

f. Treleasii (Born. et Flah.) Elenkin (A. flos-aquae var. treleasii Bornet Flah. et f. treleasii Elenkin) fig. 763-4.

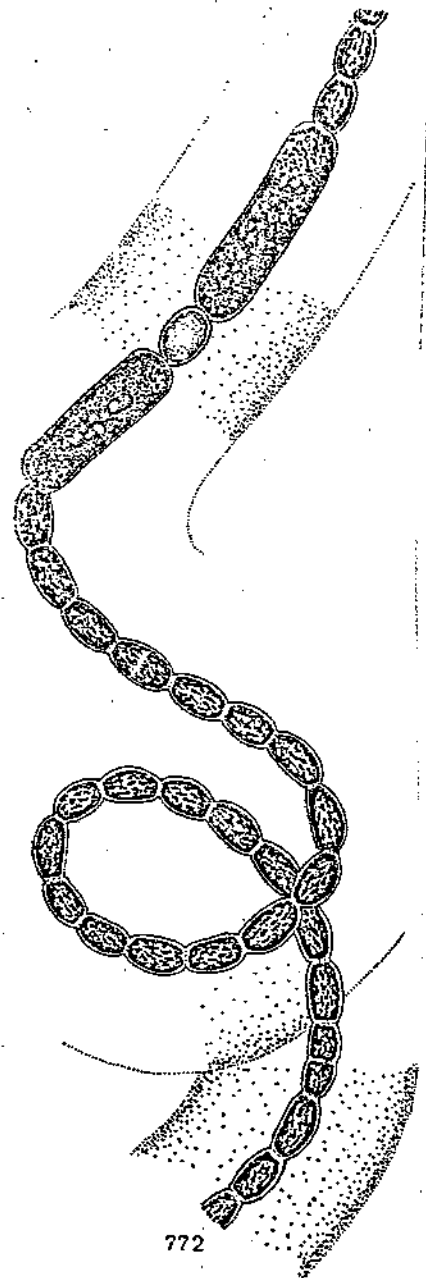
Cells barrelshaped to cylindrical, spores mainly single, positioned at a regular distance from the heterocyst. Cells are 2.5-4.5-(5.6) μ wide, 5.4-11 μ long, spores are 5.5-7-(8.5) μ wide, 16-30 μ long. Probably the following species belong to A. flos-aquae: Anabaena sigmoidea Nygaard (fig. 767), A. spiroides var. tumida Nygaard (fig. 769) and A. spiroides f. minima Nygaard (fig. 768)



Rys. 764—767. 764 — *Anabaena flos-aquae* f. *Treleasii* (według Smitha), 765 — *A. flos-aquae* f. *Lemmermanni* (według Utermöhla), 766 — *A. flos-aquae* f. *Lemmermanni* (według Kossinskij), 767 — *A. sigmoidea* (*A. flos-aquae* f. *flos-aquae*) (według Nygarda).



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Notice

Please note that these translations were produced to assist the scientific staff of the FBA (Freshwater Biological Association) in their research. These translations were done by scientific staff with relevant language skills and not by professional translators.