CYANOPHYCEAE FROM FISH-PONDS IN WEST-JAVA

by

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During the year 1948, Mr. W. H. Schuster, Laboratory of Inland Fisheries, Buitenzorg (Bogor), sent samples for determination from coastal saltwater-ponds kept for raising *Chanos chanos* (bandeng). *Cyanophyceae* have proved to form an important ingredient of the diet of the bandeng-fry.

The cooperation in studying the thick layer of *Cyanophyceae* on the bottom of the ponds stopped at the end of the year, since difficulties of transport arose. The names of the identified species were published previously (Schuster 1949). The present author wishes to draw attention to the *Cyanophyceae* communities of two ponds with different vegetation. The data concerning these ponds were received from Mr. Schuster.

I. Batavia (Djakarta), Benedenstad (= lower town), Luar Batang; bottom with soft mud showing strong chemical reduction; depth 30 cm; water supply through a canal from the harbour, mixed with fresh water much polluted by sewage from the town, salinity 18—22 $^0/_{00}$, temperature 26—33° C.

Oscillatoria brevis Kütz. ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1893, 229, Pl. 7 fig. 14, 15.

Trichomes 6—8 μ diam.; cells $^1/_3$—$^1/_2$ length × diam., tips curved, obtuse (fig. 1).

Cosmopolitan; in fresh water as well as in salt-water, and on moist soil (Geitler, 1942, 216).

Oscillatoria cortiana Menegh. ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 231, Pl. 7 fig. 17.

Trichomes 6—7 μ diam., blue-green, cells nearly square (fig. 2, 3). Compared with specimen from Meneghini in herb. Kützing.

In thermal springs as well as in cold water in Europe, North America, Africa, Antarctis (Geitler, 1942, 217).

Oscillatoria laetevirens Crouan ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 226, Pl. 7 fig. 11.

Trichomes 3—4 μ diam., yellow-green, slightly torulose; cells nearly as long as or slightly longer than broad (fig. 4, 5).

Sea-shores of Europe, North America and Polynesia (Geitler, 1930—1932, 949).

Oscillatoria margaritifera Kütz. ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 216, Pl. 6 fig. 19.

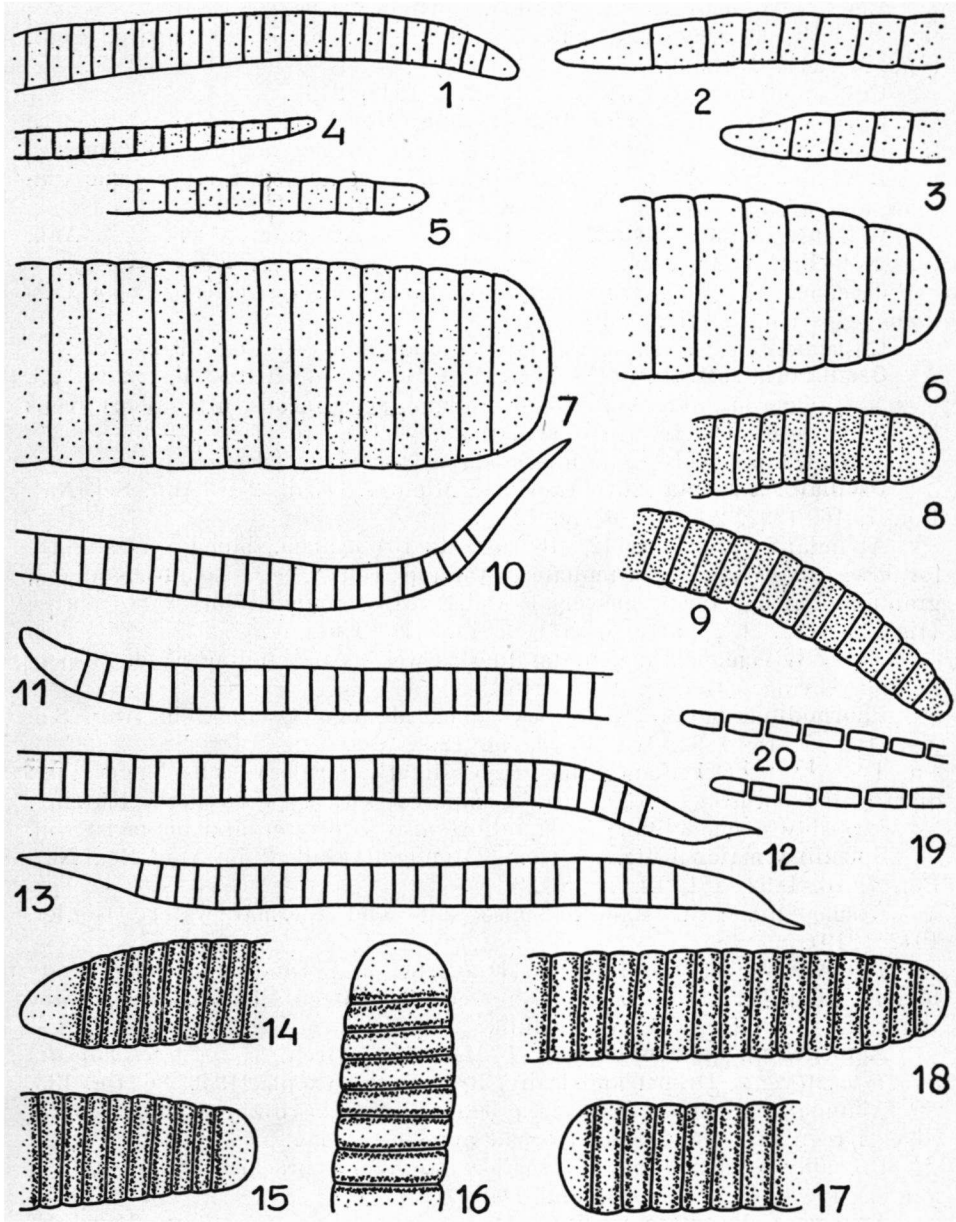

Fig. 1. *Oscillatoria brevis* Kütz. ex Gom. — 2, 3. *O. cortiana* Menegh. ex Gom. — 4, 5. *O. laetevirens* Crouan ex Gom. — 6, 7. *O. margaritifera* Kütz. ex Gom. — 8, 9. *O. nigro-viridis* Thwaites ex Gom. — 10–13. *O. rostrata* Borge — 14–18. *O. sancta* Kütz. ex Gom. — 19, 20. *Phormidium molle* (Kütz.) ex Gom. — 1000 ×
Drawn from the material from the fishponds concerned.

Few. Trichomes 18—27 μ diam., torulose; cells $^1/_6$ length × diam.; tips usually slightly attenuate, rounded (fig. 6, 7). Compared with type in herb. Kützing.

Cosmopolitan; in salt-water (Geitler, 1942, 216).

The same species was found growing, also in a small number, in a sample of a similar pond in the same place with a depth of 40 cm and water with a salinity of 35 °/₀₀. The sample contained further some diatoms and a great number of shells of foraminifers.

Oscillatoria nigro-viridis Thwaites ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 217, Pl. 6 fig. 20.

Trichomes 9—10 μ diam., dark olivaceous, torulose; cells $^1/_3$ length × diam., tips obtuse (fig. 8, 9).

Cosmopolitan; sea-shores, on stones and mud (Geitler, 1942, 216).

Oscillatoria rostrata Borge in Arkiv f. Bot. 25 A, 17, 1933, 6, T. 2 fig. 23.

Not numerous. Trichomes 6—7 μ diam., aerugineous, often short; cells $^1/_3$—$^1/_2$ length × diam.; tips acuminate, very acute (fig. 10—13).

N.W. China, pools containing soda in the water (Borge).

Oscillatoria sancta Kütz. ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 209, Pl. 6 fig. 12.

Abundant. Trichomes 12—18 (usually 15) μ diam., blue-green, slightly torulose, usually slightly attenuate to the top; cells $^1/_6$—$^1/_3$ length × diam., granulate along the transversal walls; tips rounded or very obtuse (fig. 14—18). Compared with type in herb. Kützing.

Probably comopolitan; in standing as well as in running water, also in thermal springs (Geitler, 1942, 216).

Phormidium molle (Kütz.) ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 163, Pl. 4 fig. 12.

Trichomes 2.5 μ diam., blue-green, slightly torulose; cells longer than diam.; tips obtuse (fig. 19, 20). Compared with type in herb. Kützing.

Probably cosmopolitan; in standing, also salt-water and on moist soil.

Spirulina maior Kütz. ex Gom., Monogr. Oscill. 2 in Ann. Sci. Nat. Bot. 7, 16, 1892, 251, Pl. 7 fig. 29.

Cosmopolitan; in standing, also salt- and thermal water (Geitler, 1942, 219).

II. Antjol, between Batavia (Djakarta) and Tandjong Priok; sandy bottom, depth of these coastal fish-ponds 30—70 cm; temperature of the water 24—38.5° C, sea-water (salinity 28—35 °/₀₀).

Agmenellum quadruplicatum (Menegh.) Bréb. (= *Merismopedia punctata* Meyen); Drouet and Daily, Rev. cocc. Myxoph., 1956, 86, fig. 133.

Abundant. Strata large, circa 500 μ diam., having the same length, edges irregular; cells 2.5—3 μ broad and 3.5 μ long.

Probably cosmopolitan; in shallow fresh and brackish water and on mud and wet sand (Drouet and Daily).

Anacystis dimidiata (Kütz.) Drouet et Daily, Rev. cocc. Myxoph., 1956, 70, fig. 100—107 (= *Chroococcus turgidus* (Kütz.) Naeg. var. *maximus* Nygaard).

Few. Cells 45 μ diam., olivaceous; sheath 5 μ thick.

Probably cosmopolitan; in shallow fresh, brackish, and sea-water (Drouet et Daily).

Gomphosphaeria aponina Kütz. (= *Gomphosphaeria aponina* Kütz. var. *multiplex* Nygaard); Drouet et Daily, Rev. cocc. Myxophyc., 1956, 98, fig. 178—180.

Stratum 66 μ in diam., without sheath; cells having sheaths, 9 μ long and 4 μ diam. without sheath.

Probably cosmopolitan; in shallow fresh, brackish, and sea-water (Drouet et Daily).

Microcoleus chthonoplastes (Fl. Dan.) Thuret ex Gom., Monogr. Oscill. 1 in Ann. Sci. Nat. Bot. 7, 16, 1892, 352, Pl. 14 fig. 5—8.

Cosmopolitan; on salt moist soils, sea-shores and inland (Geitler, 1942, 197).

Numerous diatoms.

Lyngbya aestuarii (Mert.) Liebm. ex Gom., the most recorded *Cyanophycea* from such fish-ponds as are treated above, was not seen in the samples sent to the author. *Lyngbya aestuarii* was recorded as food for the fry of *Chanos chanos* in fish-ponds around the curve of Manila Bay, Philippines (Tilden, 484), and from brackish water fish-ponds near Batavia (van Oye, 1922, 187) and near Pasuruan, East-Java (van Oye, 1923, 280). The last mentioned author noticed five more species of *Cyanophyceae* from the fish-ponds in West-Java and again five more from those in East-Java. All these species were different from those identified from the here treated samples.

References

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