

Nobuo HIRAMATSU\*: **Terrestrial Cyanophyceae  
from Nomo Peninsula, Nagasaki Prefecture**

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As regards the blue green algae in the Kyushu district, we have only aged studies by Emoto and Yoneda. Collections of their materials, however, were made only in thermal springs, including Beppu, Aso, Ibusuki and others. In 1967 I wrote a paper entitled "Cyanophyceae from Nagasaki Prefecture", recording species chiefly on the basis of the materials collected in Hirado Island. The present paper treats the blue green algae growing in Nomo Peninsula, and therefore it may be called as the second report on the Cyanophyceae from Nagasaki Prefecture. The collecting area is shown in the following map (Map 1). The area lies between lat. 32°30'N and lat. 32°40'N, and covers the whole of the Peninsula that is situated on the south of Nagasaki City. The peninsula is occupied by mountainous areas for its most parts, so that there are scarcely any wide plains, swamps and rivers.

1) *Chroococcus minutus* (Kütz) Näg. (Fig. 1). Syn.: *Coccochloris stagnina* Sprengel sensu Drouet et Daily. Cells without sheath 10–15×12.5–18 $\mu$ .

2) *Gloeo capsa decorticans* (A. Br.) Richter. (Fig. 2). Syn.: *Anacystis thermalis* (Menegh.) sensu Drouet et Daily. Cells with 8–10 $\mu$  without sheath 4–5 $\mu$  a colony in two celled stage 17–18 $\mu$  in diam. Among *Scytonema tolypothricoides* on mosses.

3) *Gloeothece fusco-lutea* Näg. (Fig. 3). Syn.: *Coccochloris stagnina* Sprengel sensu Drouet et Daily. On dripping rocks.

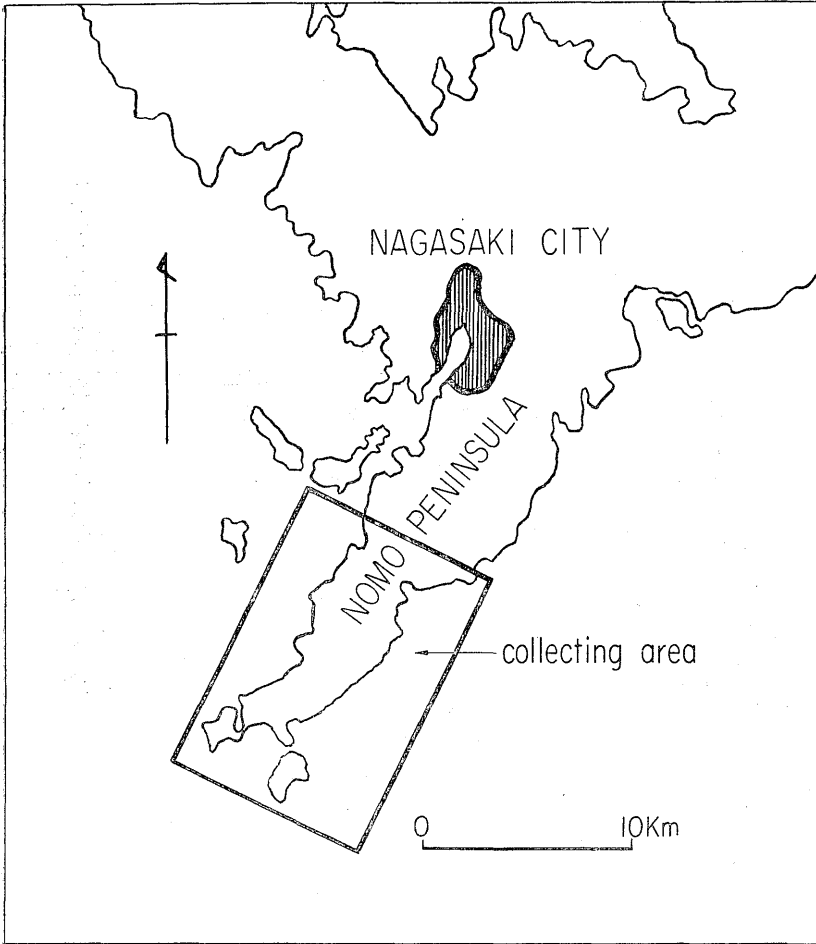
4) *Gloeothece samoensis* Wille var. *major* Wille (Fig. 4). Syn.: *Anacystis montana* f. *montana* Drouet et Daily (Fig. 4). With *Stigonema hormoides* and *Schizothrix purpurascens*.

5) *Aphanocapsa Grevillei* (Hass.) Rabenh. (Fig. 5, 6). Cells 2–3 $\mu$  broad. On trunks of *Ginkgo biloba* L.

6) *Aphanocapsa biformis* A. Br. (Fig. 7).

7) *Aphanothece naegelii* Wartm. (Fig. 8). Syn.: *Coccochloris stagnina*

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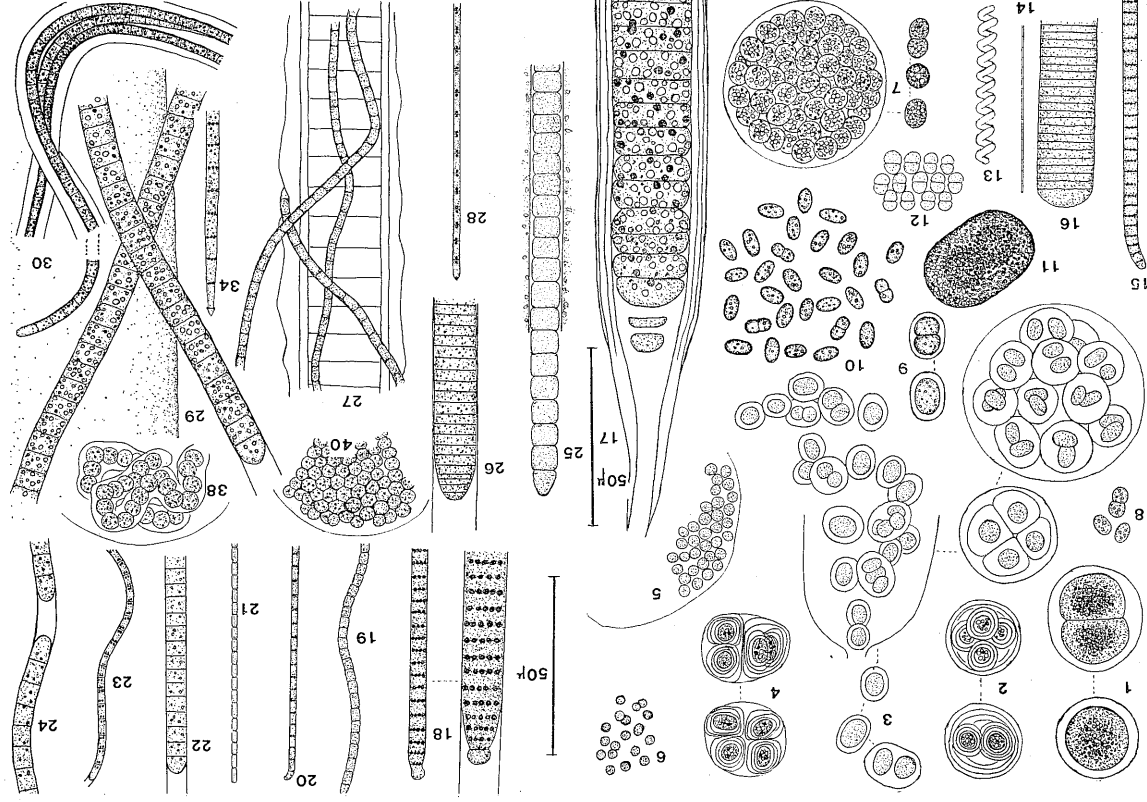


Map 1. Situation of Nomo Peninsula.

Sprengel sensu Drouet et Daily. On *Microcoleus sociatus*.

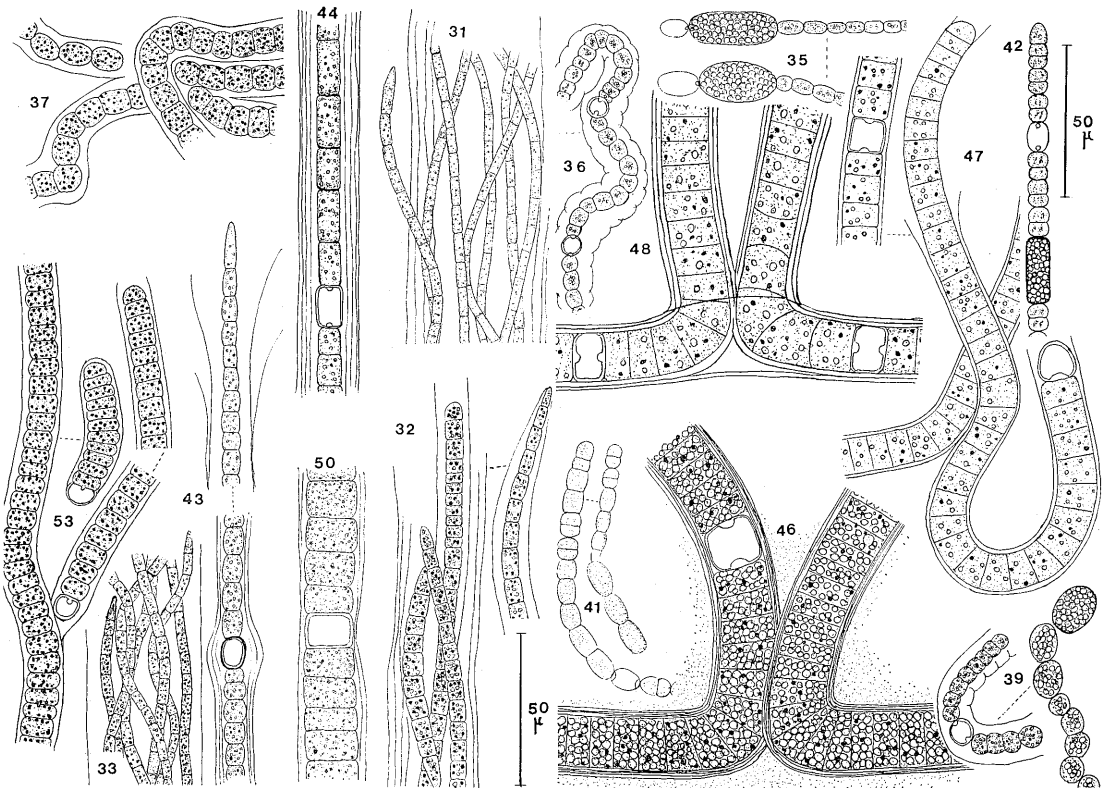
8) *Aphanothece pallida* (Kütz.) Rabenh. (Fig. 9). Syn.: *Coccochloris stagnina* Sprengel sensu Drouet et Daily. With *Tolypothrix tenuis* and *Scytonema pascheri*.

9) *Aphanothece saxicola* Näg. (Fig. 10). Syn.: *Coccochloris Peniocystis* Drouet et Daily. With *Aphanothece pallida*.

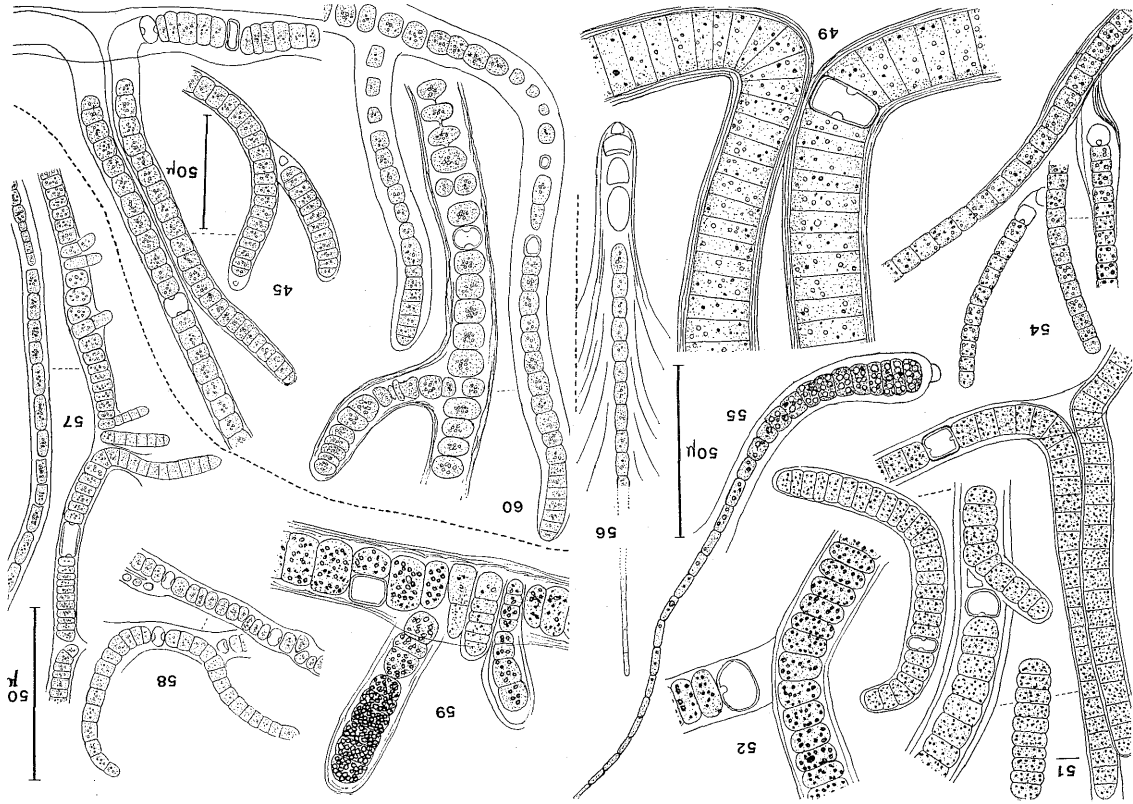


Figs. 1-30, 34, 38, 40.

- 10) *Synechococcus major* Schroeter (Fig. 11). Syn.: *Coccochloris aeruginosa* Drouet et Daily.
- 11) *Merismopedia elegans* A. Br. (Fig. 12). Syn.: *Agmenellum thermale* (Kütz.) Dr. et Daily.
- 12) *Spirulina major* Kütz. ex Gomont (Fig. 13).
- 13) *Oscillatoria angustissima* West et West (Fig. 14).
- 14) *Oscillatoria formosa* Bory (Fig. 15).
- 15) *Oscillatoria limosa* Ag. (Fig. 16).
- 16) *Porphyrosiphon notarisii* Kütz. ex Gomont (Fig. 17).
- 17) *Phormidium autumnale* Gomont (Fig. 18).
- 18) *Phormidium foveolarum* Gomont (Fig. 19).
- 19) *Phormidium laminosum* Gomont (Fig. 20).
- 20) *Phormidium luridum* (Kütz.) Gomont (Fig. 21). Cells  $1.5\mu$  broad.
- 21) *Phormidium pachydermaticum* Frey (Fig. 22). New to Japan.
- 22) *Phormidium purpurascens* (Kütz.) Gomont (Fig. 23). Cells pale blue green in contents.
- 23) *Phormidium retzii* (Ag.) Gomont (Fig. 24). On the barks of *Ginkgo biloba* L.
- 24) *Phormidium tinctorium* Kütz. (Fig. 25).
- 25) *Lyngbya martensiana* Meneghini (Fig. 26). With *Scytonema saleyertiense*.
- 26) *Lyngbya nordgardhii* Wille (Fig. 27). Epiphytic on *Scytonema crispum*, *Scytonema ocellatum*, *Tolypothrix campylonemoides* and sometimes with *Aphanocapsa biformis*.
- 27) *Lyngbya perelegans* Lemm. (Fig. 28). Epiphytic on colonies of *Gloeothece*, *Aphanocapsa* and others. New to Japan.
- 28) *Lyngbya putealis* Mont. ex Gomont (Fig. 29). Epiphytic on *Scytonema crispum*, *Pithphata Mooreana* and others.
- 29) *Schizothrix arenaria* (Berk.) Gomont (Fig. 30). In black thallus on rocks with *Scytonema*, *Nostoc* and others. New to Japan.
- 30) *Schizothrix Lamyi* Gomont (Fig. 31). In gellatinous grey-brown mass with *Stigonema hormoides*, *Gloeothece samoensis* and others.
- 31) *Schizothrix purpurascens* (Kütz.) Gomont (Fig. 32). On cliffy soils with *Lyngbya perelegans* and others. New to Japan.
- 32) *Microcoleus sociatus* West et West (Fig. 33).



Figs. 31-33, 35-37, 39, 41-44, 46-48, 50, 53.



Figs. 45, 49, 51, 52, 54-60.

- 33) *Microcoleus vaginatus* (Vaucher) Gomont (Fig. 34).
- 34) *Cylindrospermum stagnale* (Kütz.) Born. et Flah. (Fig. 35).
- 35) *Nostoc commune* Vaucher ex Born. et Flah. (Fig. 36).
- 36) *Nostoc ellipsosporum* (Desm.) Rabenh. ex Born. et Flah. (Fig. 37).
- 37) *Nostoc microscopicum* Carm. ex Born. et Flah. (Fig. 38, 39).
- 38) *Nostoc punctiforme* (Kütz.) Hariot (Fig. 40). On wet rocks and tree-trunks with *Scytonema* and others.
- 39) *Anabaena azolae* Strasburger (Fig. 41).
- 40) *Anabaena inaequalis* Born. et Flah. (Fig. 42).
- 41) *Aulosira fertilissima* Ghose (Fig. 43). With *Nostoc*, *Scytonema* and others on cliff. New to Japan.
- 42) *Scytonema bewsii* Fritsch et Rich (Fig. 44). New to Japan.
- 43) *Scytonema burmanicum* Skuja (Fig. 45). On stone walls of a paddy field. New to Japan.
- 44) *Scytonema crispum* (Ag.) Bornet (Fig. 46).
- 45) *Scytonema javanicum* (Kütz.) Born. ex Born. et Flah. (Fig. 47). On the base of trunk of *Prema japonica* with *Nostoc* and others.
- 46) *Scytonema mirabile* (Dillw.) Born. (Fig. 48).
- 47) *Scytonema pascheri* Bharadwaja (Fig. 49). New to Japan.
- 48) *Scytonema saleyerinsae* Weber van Bosse (Fig. 50). On rocks and soils of cliff with *Tolypothrix*, *Microcoleus* and others. New to Japan.
- 49) *Scytonema tolypothrichoides* Kütz. ex Born. et Flah. (Fig. 51). Attached on mosses, rocks near seashore. New to Japan.
- 50) *Tolypothrix byssoidea* (Born.) Kirchner (Fig. 52).
- 51) *Tolypothrix campylonemoides* Ghose (Fig. 53).
- 52) *Tolypothrix tenuis* (Kütz.) Johs. Schmidt em. (Fig. 54).
- 53) *Calothrix fusca* (Kütz.) Born. et Flah. (Fig. 55).
- 54) *Rivularia beccariana* (De. Not.) Born. et Flah. (Fig. 56).
- 55) *Hapalosiphon welwitschii* W. et G.S. West (Fig. 57, 58).
- 56) *Stigonema aerugineum* Tilden (Fig. 59).
- 57) *Stigonema hormoides* (Kütz.) Born. et Flah. (Fig. 60).

#### Literature cited

- 1) Emoto, Y. & Y. Yoneda (1940): Ecol. Rev. 6: 257-274.
- 2) Emoto, Y. & H. Hirose (1942 & 1948): Bot. Mag. Tokyo 56: 120-136; Ecol. Rev. 11:

- 107-112. 3) Yoneda, Y. (1937-1942): Acta Phytotax. Geobot. 6: 179-209; ibid. 7: 88-101; ibid. 7: 139-183; ibid. 8: 32-49; ibid. 9: 39-50; ibid. 10: 38-45; ibid. 11: 65-82. 4) Hiramatsu, N. (1967): Journ. Jap. Bot. 42: 33-43.

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長崎県野母半島から、陸産藍藻類 57 種を報告した。そのうち、次の 10 種は日本新産である。 *Phormidium pachydermaticum*, *Lyngbya perelegans*, *Schizothrix arenaria*, *Schizothrix purpurascens*, *Aulosira fertilissima*, *Scytonema bewsii*, *Scytonema burmanicum*, *Scytonema pascheri*, *Scytonema saleyerinse*, *Scytonema tolypotherichoides*.

○ Notes on *Spiraea ogawae* Nakai (Tsugiwo YAMANAKA) 山中二男:  
 キイシモツケについて

*Spiraea ogawae* Nakai was described based on specimens collected in serpentine areas in Wakayama Prefecture, southern Honshu. In the original description, Nakai compared the species with *S. tosaensis* and *S. nipponica* as “... differt a prima foliis saepissime obovatis brevioribus, inflorescentiae ramis exterioribus saepe corymbosis, folliculis minoribus et glabris; et a secunda ... , inflorescentiae ramis exterioribus saepe corymbosis, folliculis glabris distinguenda.” But, the character of the inflorescences of *S. ogawae* is observed also in *S. nipponica* and *S. tosaensis*, and the follicles are neither smaller nor glabrous in *S. ogawae*. Therefore, the inflorescence and the follicle described by Nakai are not diagnostic characters of *S. ogawae*. Kitamura (Act. Phytotax. Geobot. 14: 149-159, 1952) distinguished the three species by the shape of leaves as follows: *S. nipponica*—broad elliptic or rotundate, *S. ogawae*—oblong, and *S. tosaensis*—oblanceolate. On the other hand, Ohwi (Fl. Jap. 623-626, 1953) reduced *S. ogawae* to the synonym of *S. nipponica*, because the range of variation in leaves of *S. nipponica* includes that of *S. ogawae*.

So far as my observation is concerned, however, the shape of leaves of *S. tosaensis* is markedly different from that of *S. nipponica*, and that of *S. ogawae* is just intermediate between *S. nipponica* and *S. tosaensis*. Therefore, *S. ogawae* and *S. tosaensis* are regarded as varieties of *S. nipponica*.

***Spiraea nipponica*** Maxim. in Bull. Acad. Sci. St.-Petersb. 31: 40 (1886).  
 var. ***nipponica***.