時田 郎：褐藻クロガシラの「福助病」及び緑藻モツレグサの「根脹れ病」

樺太産褐藻クロガシラ属の一種 *Sphacelaria subfusca* Setch. et Gardn. に、主軸、枝及び胚枝の頂細胞の頂部が、膨れて球形を呈するものが見られたが、これは藻菌類の一種 *Olpidium Sphacelarium* (Kny) Fischer の寄生による病的變形で、今これを「福助病」と命名したい。かかる頂細胞の内部には菌の胞子嚢が1個乃至3個見られることがあり、2個が上下に重つて出来て、成熟すると寄生細胞の内部を殆ど九分通り占領してうのが常態と思われる。胞子嚢は夫々一本の逸出管を生じ、内容が全く空虚となつてゐるものも見られた。高松正彦氏(1943)が本州北部から報告した新種 *Sphacelaria apiculis* の著しい特徴として記載されている頂生の單子嚢なるものは、實は本病の一例に外ならないのではないかとの疑が強い。

同じく樺太採集の緑藻モツレグサ *Spongomorpha duriuscula* (Rupr.) Collins の根様絲の先端細胞に倒卵形に膨大したものが見られたが、これも或種藻菌類の寄生による病的變形であることは疑いなく、これを「根脹れ病」と名付けようと思う。かかる細胞の内部に菌の胞子嚢が1個乃至數個見られ、又1—2本の逸出管を有する空虚な胞子嚢を10個以上容れたものも見られた。その外に、極めて小さい胞子嚢を數個容れた寄生細胞、及び、更に小さい球狀粒で充された細胞も觀察したが、夫々別種の藻菌(*Olpidium* spp.?)の寄生と考えられる。種名は今これを詳かにしない

Kingo MIYABE and Jun TOKIDA : Black-dots disease of *Gloiopeltis furcata* Post. et Rupr. caused by a new Ascomycetous fungus.*

In early July of 1948, the junior author had a chance to collect marine algae on the sea-shores at Oshoro Bay near Otaru Harbor, at Muroran City, and at Usur Bay, Prov. Iburi, in Hokkaido. In the former two localities, the upper littoral region of rocky reefs attracted his special attention by the unusual light color of the belt-like association of *Gloiopeltis furcata* Post. et Rupr. which was revealed by a close examination to depend on the light color of most of the living algal fronds as well as on colorless and decaying dead fronds mixed among the former in a remarkable proportion. While he was searching for cystocarpic fronds, the presence of scattered, minute, black-dots, on the frond surface of many of both living and dead individuals was disclosed by the naked eyes. These black-dots were proved under the microscope to be nothing but perithecia of an undescribed species of the genus *Guignardia*, which belongs to the family Mycosphaerellaceae in the order Sphaeriales of the Ascomycetes. At Usur Bay, the *Gloiopeltis*-association was found to be quite healthy in appearance being of dark color and free from black-dots.

Here the authors wish to propose the name "Black-dots disease" (Kuro-hoshi-byo in Japanese) for the malady of the above mentioned red alga of great economic importance, and the name *Guignardia Gloiopeltidis* Miyabe et Tokida (Iso-kurohoshi-kabi in Japanese) for the parasitic fungus, which is the cause of the malady.

The symptom of the disease is that minute black-dots are sparsely scattered all over the frond surface of the host, just beneath the superficial tissue. The number of black-dots found in a single host plant is not very large, for instance, it counts as many as 28 in an individual 2 cm. high, and 61 in that 6 cm. high. Neither protrusion of the frond surface nor malformation of

---

* Contribution from the Department of Fisheries, Faculty of Agriculture, Hokkaido University, No. 85. A preliminary report of this study was published by the junior author, in Japanese, in the Jour. of the Hokkaido Fish. Sci. Inst., 5 (8), 1948.

the frond is induced by the infection of the fungus.

Up to the present, three species of *Guignardia* have been reported to be parasitic on marine algae. They are

(1) *Guignardia Prasiolae* (Winter) Reed (1902, p. 150) on *Prasiola tessellata* (Hook. fil. et Harv.) Kütz. from Antarctic (Reed),

(2) *Guignardia Ulvae* Reed (1902, p. 160) on *Ulva californica* (non Wille) Reed (synonym of *Ulva verta* Setch. et Gardn., 1920, p. 282) and *Enteromorpha minima* Naeg. from San Francisco (Reed), and

(3) *Guignardia alaskana* Reed (1902, p. 161) on *Prasiola borealis* Reed from Alaska (Reed) and North Kuriles (Nagai, 1940, p. 24).

So far as the authors are aware of, no *Guignardia* has ever been reported to be parasitic on brown or red algae.

The present new species is characterized by the possession of very minute perithecia, which measure 90—150 μ in diameter and are much smaller than those of the above mentioned three known species. On the contrary, dimensions of mature asci and ascospores are somewhat larger than those in the three species, being 52-80 μ x 12-16 μ and 14-20 μ x 4-5 μ respectively. It should be mentioned here that the dimensions of asci in *Guignardia Ulvae* appeared in the English diagnosis given by Reed (1902, p. 160) and in the Latin diagnosis translated by Saccardo (1913, p. 76) are obviously derived from a mistake committed by Reed himself, who gives correct one in other part of the same work (p. 147).

Fig. 1, *Gloiopeltis furcata*. A tetrasporophyte with scattered black-dots. x 1. Fig. 2—5, *Guignardia Gloiopeltidis* Miyabe et Tokida, sp. nov., showing four asci, each containing eight ascospores. The spore with asterisk in Fig. 5 is upside down. x 366. Fig. 6, Three elongate ascospores. x 366.

The perithecia are globose, dark brown to black in color, and in maturity provided with a circular ostiole. The asci are oblongo-clavate, rounded or sometimes subtruncate rounded at apices, attenuated towards the base into a pedicel, and contain eight spores (Figs. 2-5). Paraphysis absent. The ascospores are contained in the ascus in about two rows, with a thin, hyaline membrane, oblongo-obovate or sub-clavate in shape, rounded at apices and slightly attenuated but never acuminate below. Once we have met in the upper part of an ascus with an ascospore which was upside down (Fig. 5,*). The ascospores differ from those of the three marine species not only in their dimension as mentioned above,

but also in their shape as well as in their constant possession of a single transverse septum which divides the spore into two unequal cells at about $1/3$ of the whole length near the attenuating lower end. That the spore becomes two-celled first in full maturity by such a septum as just mentioned is one of the characteristics of the genus *Guignardia*. While the septum appears to have never been observed by any one in ascospores of the three known marine species, it is very conspicuous in every ascospore ever observed by us in our new species. The shape and size of ascospores seem to be somewhat influenced by their position in the ascus; the ascospore contained in the lower narrowed portion of the ascus takes an elongate shape markedly attenuating below (Figs. 5 & 6).

The diagnosis of the present new species is given as follows:

Guignardia Gloiopeltidis Miyabe et Tokida, sp. nov. Peritheciis minutissimis, brunneis v. nigris, irregulariter sparse distributis, globosis, in thallo matricis immersis, ostiolatis, $90-150 \mu$ cr.; ascis oblongo-clavatis, apicibus rotundatis vel saepe subtruncato-rotundatis, basi in pedicellum attenuatis, $52-80 \mu \times 12-16 \mu$, octosporis; paraphysibus nullis; sporidiis subdistichis, oblongo-obovatis v. subclavatis, apice rotundatis, deorsum parum attenuatis, sed numquam acuminatis, membrana tenui, hyalina, inaequaliter bicellularibus, ad septum non constrictis $14-20 \mu$ long., $4-7 \mu$ lat.

Nom. Jap. Iso-kurohoshi-kabi (n.n.).

Hab. in thallo vivo vel decolore *Gloiopeltidis furcatae*, in litore insulae Hokkaido: ad oras Japoniae prope portum Otaru (J. Tokida coll. Jul. 2, 1948); ad oras Pacificae prope portum Muroran (J. Tokida coll. Jul. 6, 1948).

(15 Aug. 1948. Fac. Agr. Hokkaido Univ.)

Literature cited: Nagai, M. (1940). Marine Algae of the Kurile Island. I. Jour. Fac. of Agr., Hokkaido Univ. 46 (1). Reed, M. (1902). Two new Ascomycetous fungi parasitic on marine Algae. Univ. Calif. Publ. Bot. 1: 141-164. Saccardo, Fr. (1913). Sylloge fungorum, 22: 76. Setchell, W. A. and N. L. Gardner, (1920). Phycological contributions, I. Univ. Calif. Publ. Bot. 7 (9): 279-324.

宮部金吾・時田 旬: フクロフノリの黒星病とその病原子囊菌の一新種

昭和23年7月初旬、北大忍路臨海実験所及び、室蘭海藻研究所附近の岩礁上の、フクロフノリ群叢は一帯に色が淡く、全然無色の個体も澤山まじつているのを見たが、枯死した体のみならず、生きている個体にも、肉眼で辛うじて認め得る小黑点が表面に散在していた。検鏡の結果、小黑点は一種子囊菌の子囊殻に外ならぬことを知り、精査の末、ゲイナルヂヤ属の新種なりとの結論に達した。同属の既知海藻寄生種は3種あり、みな緑藻に寄生し、褐・紅藻に寄生する種は従来未発見である。本新種は、子囊殻が著しく小さいこと、子囊と胞子は比較的大きいこと、胞子は常に下方に偏つて1隔膜を有し、2個細胞であること、胞子の形は紡形で両端が丸いこと等が、既知海産3種との異点として挙げられ。本菌を和名イソクロホシカビと名付け、本菌の寄生によるフクロフノリの病害を、黒星病と名付ける。産地は北海道忍路、室蘭。

P. S. To the list of known species of *Guignardia* parasitic on marine Algae shown in the text must be added one more species, *Guignardia irritans* Setchell et Estee (in Estee, L. M. (1913), in Univ. Calif. Publ. Bot. 4 (17): 305-316, pl. 35), which has been known to be parasitic on two species of brown Algae, i. e., *Cystoscira osmundacea* (Menzies) Ag. and *Halidrys dioica* Gardner. This species is easily distinguishable from other three marine species as well as from the present new species in its larger dimensions and in the peculiar character of the unicellular ascospores.