

FULL PAPER

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Notes on species of *Helminthosporium* and its allied genera in Japan

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Abstract This is a preliminary account of species of *Helminthosporium* and its allied genera in Japan. Six taxa reported here, which were collected mainly in northern Japan, comprise three *Helminthosporium* species, which include one new species, as well as two *Corynespora* and one *Ellisembia* species, which were new or rare records in this country. Descriptions of morphology with full illustrations and cultural characters of these fungi are reported.

Key words *Corynespora* · *Ellisembia* · Fungal flora · *Helminthosporium*

Introduction

The genus *Helminthosporium* Link formerly comprised many graminicolous and lignicolous species. Of these, more than 100 species were pathogens that cause diseases of Poaceae (Alcorn 1983). Hughes (1953, 1958) indicated the importance of the method of conidiophore and conidium formation for the classification of mitosporic fungi. Afterward, most graminicolous species of *Helminthosporium* were transferred to the genera *Bipolaris* Shoemaker, *Drechslera* S. Ito, *Exserohilum* K.J. Leonard & Suggs, and *Curvularia* Boedijn (Tsuda et al. 1977). Nowadays, the genus *Helminthosporium*, with *H. velutinum* Link: Fr. as the type species, includes about 20 species (Kirk et al. 2001), most of which are saprophytes on dead twigs or branches of woody plants. Ten lignicolous species of *Helminthosporium* were described by Ellis (1961) and 11 species by Matsushima (1971, 1975, 1987, 1993).

In Japan, over 70 species have been reported as species of *Helminthosporium*; however, most of them were transferred to other genera or synonymized with other species,

while the remaining members were in need of taxonomic reassessment. Some lignicolous species of *Helminthosporium* were reported by Matsushima (1975) mostly from central or western Japan, but flora of these species in northern Japan were almost unknown. It is considered that many saprophytic, lignicolous species of *Helminthosporium* and allied genera still remain undescribed in Japan. Thus, we studied collections of these groups of fungi from various places of Japan for identification and examined their cultural characteristics on artificial media.

Materials and methods

Collecting and observation

Fungal materials on dead branches or vines of woody plants were collected from various parts of Japan. The material was brought to the laboratory in separate paper bags. Microscopic slides were prepared by scraping fungal colonies from natural substrata and mounting them in water. The slides were examined under a microscope for measurements, photographs, and line drawing of fungal structures. Line drawings were prepared according to the Modified Oberwinkler Method (Aoki 2001). Colors of conidia, conidiophores, and colonies were determined using the Methuen Handbook of Colour (Kornerup and Wanscher 1978).

Culture of fungi

Each single spore isolate was grown in 9-cm Petri dishes containing V-8 juice agar [V8A; 200ml V-8 juice (Campbell, Camden, NJ, USA), 3g CaCO₃, 20g agar, 800ml distilled water] at room temperature in the dark. After the colony developed to about 2–3cm in diameter, V8A discs with mycelium were cut from the margin of the colony by a 6-mm corkborer and transferred to the surface of water agar plate in Petri dishes, which were incubated at 20°C in a 12-h photoperiod with fluorescent light (FL15W; National) for sporulation.

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Colony growth of fungi was observed on Petri dishes containing potato dextrose agar (PDA; Difco, Detroit, MI, USA). PDA discs 6 mm in diameter with fungal mycelium were transferred on PDA plates and incubated at 20°C in the dark. After 20 days, the colonies were observed and recorded for growth characteristics.

The specimens and isolates studied were deposited in the Herbarium of the Faculty of Agriculture and Life Science, Hirosaki University, Fungi (HHUF). The collector's name, T. Shirouzu was abbreviated as T.S.

1. *Helminthosporium velutinum* Link: Fr., Mag. Ges. Naturf. Freunde, Berlin, 3:10, 1809; Fr., Syst. Mycol. 1: xlvi, 1821. Figs. 1, 7, 8

Dematium castaneae Schwein., Schrift. Naturf. Ges. Leipzig 1:128, 1822 [vide Hughes 1958].

Helmisporium macrocarpum Grev., Scottish Crypt. Flora 3:148, 1825 [vide Ellis 1961].

For other synonyms see Hughes (1958) and Ellis (1961).

Colonies on natural substratum effused, black, hairy. Mycelium immersed, composed of branched, septate, pale brown, 2.5- to 5- μ m-thick hyphae. Stromata partly superficial, partly immersed, subglobose, brown to dark brown, pseudoparenchymatous, 20–100 μ m high, 25–85 μ m thick. Conidiophores macronematous, mononematous, arising from the stromata, single or fascicles, straight or flexuous,

smooth-walled, septate, brown to dark brown, sometimes paler toward the apex, 250–1000 μ m long, 7–11 μ m thick at the apex, 10–25 μ m thick at the base. Conidiogenous cells polytretic, integrated, terminal and intercalary, cylindrical, brown, each with hyaline conidiogenous pores. Conidia solitary, obclavate or rostrate, straight or flexuous, straw-colored to pale brown, sometimes paler toward the apex, 34–115 \times 10–22.5 μ m (mean 67.4 \times 15.1 μ m), 5–16-pseudoseptate, tapering gradually to 4–7.5 μ m thick near the apex, with a dark brown to black scar at the base.

Specimens examined: Kudoji Mountain, Hirosaki-City, Aomori-Pref. (140°25' E, 40°31' N), on dead vines of *Vitis coignetiae* Pulliat, Aug. 14, 2002, T.S. (HHUF 27955); on dead branches of *Prunus grayana* Maxim., Aug. 21, 2002, T.S. (HHUF 27957); on dead branches of *Schizophragma hydrangeoides* Siebold & Zucc., Aug. 25, 2002, T.S. (HHUF 27958); on dead branches of *Pterocarya rhoifolia* Siebold & Zucc., Sept. 11, 2002, T.S. (HHUF 27961); on dead branches of *Lindera umbellata* Thunb., Sept. 11, 2002, T.S. (HHUF 27962); Tsuta spa., Hakkouda Mountains (140°57' E, 40°35' N), on dead branches of *Weigela hortensis* (Siebold & Zucc.) K. Koch, Aug. 15, 2002, T.S. (HHUF 27956); on dead branches of *Magnolia obovata* Thunb., Sept. 1, 2002, T.S. (HHUF 27959); on dead branches of *P. rhoifolia*, Sept. 2, 2002, T.S. (HHUF 27960); Shibayachi moss, Oodate-City, Akita-Pref. (140°34' E, 40°19' N), on dead branches of *Robinia pseudoacacia* L., Oct. 5, 2002, T.S. (HHUF 27963); Gyoen, Shinjuku, Tokyo (139°42' E, 35°40' N), on dead branches of *Sambucus sieboldiana* (Miq.) Blume ex Graebn., Nov. 23, 2002, Y. Harada (HHUF 27966).

Cultural characteristics: Conidia germinated from apical cell in water at 20°C after 12 h. Colonies on PDA were panniform, Olive Grey (1E2), White (1A1) at margin of colony, 26–39 mm diameter, diffusing brown pigment in PDA. Numerous conidiophores were formed on margin of V8A disc after 10 days. Conidia were abundantly formed on conidiophores in the normal manner, but sometimes directly on tip of vegetative hyphae.

Culture examined: No. 4626 obtained by single spore culture from HHUF 27966.

Notes: So far, four lignicolous species of *Helminthosporium*, i.e., *H. catenatum* Matsush., *H. dalbergiae* M.B. Ellis, *H. palmigenum* Matsush., and *H. velutinum* (Matsushima 1975), and one plant pathogen *H. solani* Durieu & Montagne (Watanabe 2002) have been described in Japan.

This species is one of the commonest species and type species of the genus *Helminthosporium*. According to Ellis (1961), *H. velutinum* has been recorded on dead stems of herbaceous plants and twigs and branches of many different kinds of trees from Europe, Ceylon, India, North America, Pakistan, and Venezuela. In Japan, Matsushima (1975) has described this species from dead branches of broad-leaved trees from Kyoto, from dead branches of *Quercus* sp. from Chiba, and from dead branches of *Machilus thunbergii* Siebold & Zucc. from Iriomote Island, Okinawa. In this study, *H. velutinum* was found on dead branches of nine species of trees among eight families, from Aomori, Akita, and Tokyo in Japan.

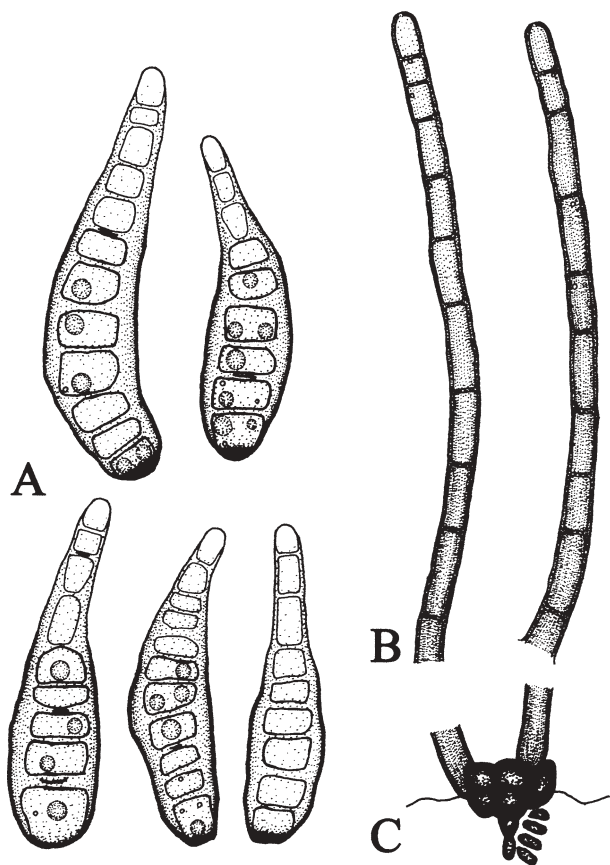


Fig. 1. *Helminthosporium velutinum* (HHUF 27966). A Conidia. B Conidiophores. C Stromata. Bar A 40 μ m; B, C 100 μ m

2. *Helminthosporium dalbergiae* M.B. Ellis, Mycol. Pap. 82:6, 1961. Figs. 2, 9, 10

Colonies on natural substratum effused, black, hairy. Mycelium superficial or partly immersed, composed of branched, septate, subhyaline to pale brown, 2- to 3- μ m-thick hyphae. Stromata immersed, subglobose, dark brown, pseudoparenchymatous, 25–75 μ m high, 50–105 μ m thick. Conidiophores macronematous, mononematous, arising from the stromata, usually fascicles, straight or flexuous, smooth-walled, septate, brown to dark brown, sometimes paler toward the apex, 190–710 μ m long, 8–12.5 μ m thick at the apex, 8–16 μ m thick at the base. Conidiogenous cells polytretic, cylindrical, terminal and intercalary, pale brown to brown, each with hyaline conidiogenous pores. Conidia solitary, obclavate or slightly rostrate, straight or flexuous, pale olive-brown, sometimes paler toward the apex, 57.5–125 \times 9.5–16 μ m (mean 87.3 \times 11.6 μ m), 7–13-pseudo-septate, tapering gradually to 2.5–5 μ m near the apex, with a dark brown to black protruding scar at the base.

Specimens examined: Ueno Park, Tokyo (139°46' E, 35°42' N), on dead fallen branches of unknown woody plants, Jan. 12, 2003, T.S. (HHUF 27967, 27969, 27970, 27971).

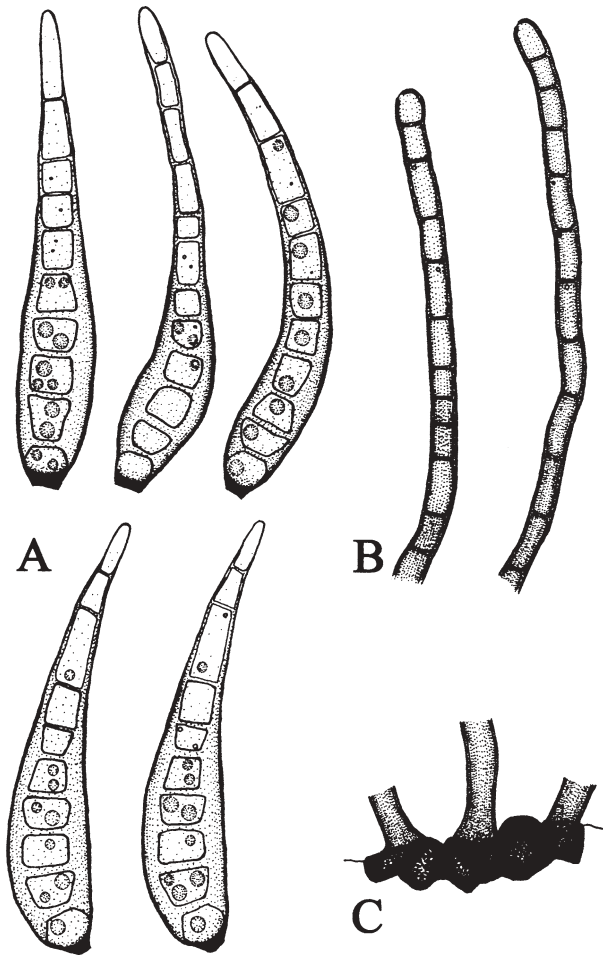


Fig. 2. *Helminthosporium dalbergiae* (HHUF 27967). A Conidia. B Conidiophores. C Stroma. Bar A 40 μ m; B, C 100 μ m

Cultural characteristics: Conidia germinated from both apical and basal cells in water at 20°C after 24h. The basal germ tube emerged from a point adjacent to the scar. Colonies on PDA were panniform, Dark Grey (1F1), White (1A1) at margin of colony, 36–40mm diameter. Conidiophores were formed on margin of V8A disc after 10 days. Conidia were abundantly formed on conidiophores in the normal manner, but sometimes directly on tip of vegetative hyphae.

Culture examined: No. 4628 obtained by single spore culture from HHUF 27971.

Notes: Conidia of our *H. dalbergiae* were larger (57.5–125 \times 9.5–16 μ m) than Matsushima's description (1975; 60–100 \times 11–14 μ m), but other morphological characteristics were almost equal. The numbers of septa in Japanese specimens, 9–13 septa by Matsushima and 7–13 septa in this study, were somewhat less than in the description by Ellis (1961; 5–17 septa).

3. *Helminthosporium gigasporum* Shirouzu & Y. Harada, sp. nov. Figs. 3, 11, 12

Coloniae in substrato naturali effusae, furvae, pilosae. Mycelium immersum, ex hyphis septatis, ramosis pallide brunneis 2–6 μ m crassis compositum. Stromata superficialia vel partim immersa, subglobosa vel depressa, atrobrunnea vel furva, pseudoparenchymatica, 15–50 μ m alta, 35–90 μ m lata. Conidiophora ex stromate oriunda, singularia vel fasciculata, cylindrica, recta vel flexuosa, levia, septata, brunnea vel atrobrunnea, interdum sursum pallescentia, 150–270 μ m longa, apice 9.5–13 μ m crassa, basi 8.5–13.5 μ m crassa. Cellulae conidiogenae ex cellulibus supernis conidiophori nascentes, polytreticae, integrae, terminales intercalaresque, cylindricae, pallide brunneae vel brunneae, ad apicem 2–4 poris preaditae. Conidia per poros efformata, obclavata vel rostrata, recta vel flexuosa, olivaceo-brunnea vel dilute brunnea, versus apicem pallescentia, 100–203 \times 12.5–22.5 μ m, cum 7–18 pseudo-septa, sursum attenuate et ad apicem 2.5–5 μ m crassa, basi cicatrice atrobrunnea vel furva praedita.

Holotype: Ueno Park, Tokyo (139°46' E, 35°42' N), on dead fallen branches of an unknown woody plant, Jan. 12, 2003, T.S. (HHUF 27968), deposited in the Herbarium of the Faculty of Agriculture and Life Science, Hirosaki University.

Etymology: *gigasporum*, derived from conidial size of this fungus.

Colonies on natural substratum effused, black, hairy. Mycelium immersed, composed of branched, septate, pale brown, 2- to 6- μ m-thick hyphae. Stromata superficial or partly immersed, subglobose or depressed, dark brown to black, pseudoparenchymatous, 15–50 μ m high, 35–90 μ m thick. Conidiophores macronematous, mononematous, arising from the upper cells of the stromata, sometimes single but usually in fascicles, straight or flexuous, smooth-walled, septate, brown to dark brown, sometimes paler toward the apex, 150–270 μ m long, 9.5–13 μ m thick at the apex, 8.5–13.5 μ m thick at the base, with conidiogenous cells at upper cells. Conidiogenous cells polytretic, integrated, cylindrical, terminal and intercalary, pale brown to brown,

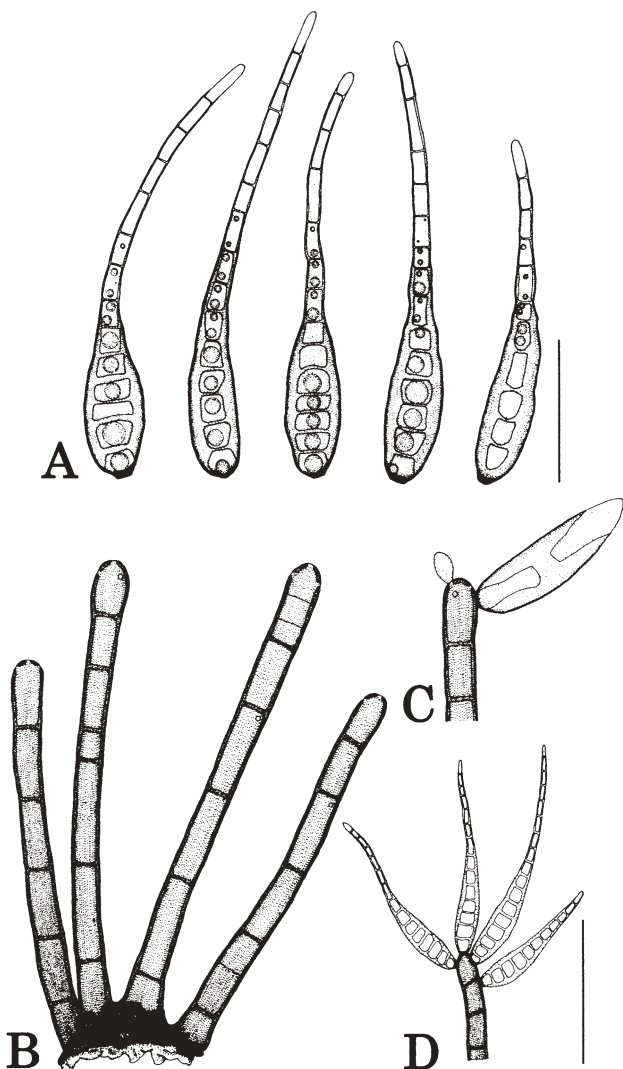


Fig. 3. *Helminthosporium gigasporum* (HHUF 27968). **A** Conidia. **B** Conidiophores. **C** Conidiophore with developing conidia. **D** Conidiophores with mature conidia. Bars **A–C** 50 μm ; **D** 100 μm

with hyaline conidiogenous 2–4 pores in apex and subapex of the apex cell. Conidia solitary, obclavate or rostrate, straight or flexuous, pale olive-brown to pale brown, paler toward the apex, 100–203 \times 12.5–22.5 μm (mean 164 \times 18.5 μm), 7–18-pseudoseptate, tapering gradually to 2.5–5 μm thick near the apex, with a blackish-brown to black, 4- to 7- μm -thick, protruding scar at the base.

Cultural characteristics: Conidia germinated from apical cell and/or basal cell in water at 20°C after 24 h. The basal germ tube emerged from a point adjacent to the scar. Colonies on PDA were lanate, White (1A1), 43–70 mm diameter. Conidiophores were formed on margin of V8A disc after 10 days. Conidia were abundantly formed on conidiophores in the normal manner.

Culture examined: No. 4627 obtained by single spore culture from HHUF 27968.

Notes: The best placement of this fungus is the genus *Helminthosporium* as it appears. Many species of *Helminthosporium* occur as a saprobe on dead tissues of various plant species. The proposed species also occurs on

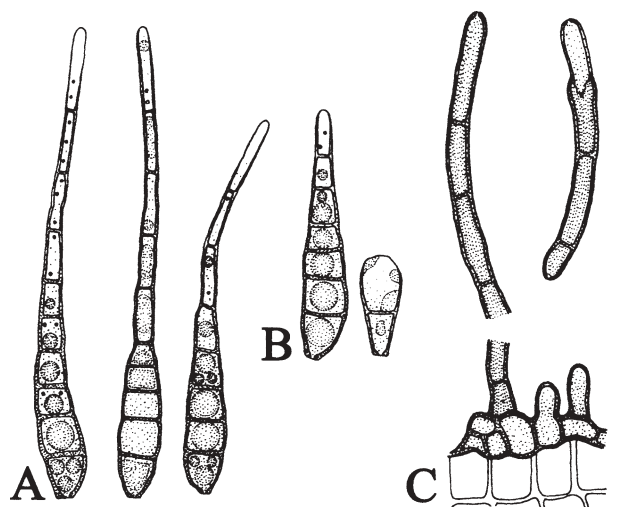


Fig. 4. *Corynespora foveolata* (HHUF 27965). **A** Conidia. **B** Developing conidia. **C** Conidiophores. Bar 40 μm

dead fallen branches; therefore, this fungus can be construed as a saprobe.

Table 1 provides a list of *Helminthosporium* species having conidia more than 100 μm long. The comparatively short conidiophores (150–270 μm) and long conidia (100–203 μm), which are formed lushly at the upper part of the conidiophore, are characteristic of this species. *Helminthosporium longisnuatum* Matsush. (1993) also has long conidia (65–220 μm), but the narrow width (8–10.5 μm) and number of septa of the conidia are different from *H. gigasporum*. *Helminthosporium microsorum* D. Sacc. (Ellis 1961) is similar to the proposed fungus in conidial width (12–22 μm) and number of septa (9–17), but differs from *H. gigasporum* in its length (60–160 μm) and apical width (4–10 μm) of conidia, as well as in length of conidiophores. Conidia of *H. bauhiniae* (Ellis 1961), although relatively similar in shape, apical width, and septation of conidia, are apparently smaller (55–145 \times 16–18 μm). In its length and width of conidiophores, the proposed fungus resembles *H. chlorophorae* M.B. Ellis (1961) and *H. novae-zelandiae* S. Hughes (1980), but its conidia are longer and have more septa.

4. *Corynespora foveolata* (Pat.) S. Hughes, Can. J. Bot. 36:757, 1958. Figs. 4, 13, 14

Helminthosporium foveolatum Pat., Journ. de Bot. 5:321, 1891 [as *Helmisporium*].

Helminthosporium cantonense Sacc., Philipp. J. Sci. 18:604, 1921 [as *Helmisporium*] [vide Hughes 1958].

Colonies on natural substratum effused, black. Mycelium immersed. Conidiophores macronematous, mononematous, single, straight or flexuous, smooth-walled, septate, greenish-gray to light brown, with some cylindrical proliferations, 28–215 \times 4.5–5 μm . Conidiogenous cells monotretic, integrated, apical, cylindrical, with a single apical conidiogenous pore. Conidia solitary, straight, obclavate or rostrate, grayish-brown, sometimes paler toward the apex, smooth, 5–11-euseptate, 45–98 \times 6.5–10.5 μm (mean 63 \times 8.2 μm), 2.5–3.5 μm thick at the apex, 2.5–3.5 μm thick at the base.

Table 1. *Helminthosporium* species having conidia more than 100 µm long

Species	Conidia				Conidiophores (µm)				Reference
	Production and shape	Size (µm)	Apical width (µm)	Septation	Length	Apical width	Basal width		
<i>H. ahmadii</i>	Solitary, obclavate, ±rostrate	95–150 × 25–30	5–9	5–15	220–650	12–15	12–15	Ellis (1961)	
<i>H. bauchinae</i>	Solitary, obclavate, rostrate	55–145 × 16–18	3–4	7–18	350–1100	10–15	15–20	Ellis (1961)	
<i>H. chlorophorae</i>	Solitary, obclavate	52–102 × 8–11	3–5	6–9	120–270	7–12	7–10	Ellis (1961)	
<i>H. cylindrosporium</i>	Solitary, cylindrical	(20–)50–100 × 6–8.5	3.5–5	(3–)6–14	20–65	3–4.5	3–5.5	Matsushima (1993)	
<i>H. dalbergiae</i>	Solitary, obclavate	58–125 × 12–14	3–5	5–17	300–1300	10–12	10–15	Ellis (1961)	
<i>H. dictyoseptatum</i>	Solitary, obclavate, ±rostrate	92–145 × 29–38	About 5.5	14–18	–2000	15–21	18–23	Hughes (1980)	
<i>H. longisinuatum</i>	Solitary, narrowly obclavate	65–220(–1000) × 8–10.5	3.5–5	About 9–22 ^a	20–75	3.5–5	4.5–6.5	Matsushima (1993)	
<i>H. microsorum</i>	Solitary, obclavate	60–160 × 12–22	4–10	9–17	100–550	8–14	8–14	Ellis (1961)	
<i>H. novae-zelandiae</i>	Solitary, obclavate to fusiform	56–103 × 16–23.5	5–7	(5–)6–7(–8)	165–330	12.5–14.5(–21.5)	10–11(–13.5)	Hughes (1980)	
<i>H. velutinum</i>	Solitary, obclavate	48–118 × 11–20	5–7	6–16	250–950	8.5–12	14–26	Ellis (1961)	
The present fungus	Solitary, obclavate, rostrate	100–203 × 12.5–22.5	2.5–5	7–18	150–270	9.5–13	8.5–13.5	Present study	

^aMeasured from figs. 691 and 692 in Matsushima (1993)

Specimens examined: Ueno Park, Tokyo (139°46' E, 35°42' N), on dead stems of *Pseudosasa japonica* (Siebold & Zucc.) Makino, Oct. 29, 2002, Y. Harada (HHUF 27965); near Aseishigawa Dam, Kuroishi-City, Aomori-Pref. (140°41' E, 40°34' N), on dead fallen branches of an unknown woody plant, Apr. 22, 2003, T.S. (HHUF 28033); on dead stems of bamboo, May 15, 2003, T.S. (HHUF 28034).

Cultural characteristics: Conidia usually germinated from apical and/or basal cell in water at 20°C after 24h. Colonies on PDA were panniform, Dark Grey (30F5), 34–36mm diameter. Conidiophores were formed on margin of V8A disc in large quantities after 10 days. Conidia were usually formed on conidiophores in the normal manner, but sometimes directly on tips of vegetative hyphae.

Culture examined: No. 4625 obtained by single spore culture from HHUF 27965.

Notes: About ten species of the genus *Corynespora* Güssow have been reported from Japan, and most of these are plant pathogens. *Corynespora foveolata* was transferred from the genus *Helminthosporium* by Hughes (1958). Ellis (1971) described this species as commonly found on dead culms of various bamboos and occasionally on palms from Brazil, the Channel Islands, Great Britain, Hong Kong, India, Malaya, New Caledonia, Sierra Leone, Tonkin, and Trinidad. Morgan-Jones and Sinclair (1978) also reported it from *Bambusa* sp. from the United States, and Matsushima from Taiwan (Matsushima 1980) and Peru (Matsushima 1993). This is the first report of the fungus from Japan.

5. *Corynespora mulanjeensis* B. Sutton, Mycol. Pap. 167:23, 1993.

Figs. 5, 15, 16

Colonies on natural substratum effused, black. Mycelium partly superficial, partly immersed, composed of branched, septate, subhyaline to straw-colored, 2- to 3-µm-thick hyphae. Conidiophores macronematous, monone-matous, single, straight or slightly flexuous, smooth-walled, mostly 1–7-septate, brown to dark brown, sometimes paler toward the apex, smooth, with cylindrical 1–3 proliferations, 30–130µm long, 4.5–5µm thick at the apex, 5–7.5µm thick at the base. Conidiogenous cells monotretic, integrated, apical, cylindrical, with a single apical conidiogenous pore. Conidia solitary, straight or slightly flexuous, obclavate or rostrate, grayish-green to olive-brown, paler toward the apex, smooth, 6–8-euseptate, 45–72.5 × 10–12.5µm (mean 54.8 × 11µm), 2.5–5µm thick at the apex, with a marginal frill of 3–4µm thick at the base.

Specimen examined: near Akagawa Dam, Utsunomiya-City, Tochigi-Pref. (139°47' E, 36°37' N), on conidiophores of *Helminthosporium velutinum* on dead branches of an unknown woody plant and also directly on the dead branches, Mar. 4, 2003, N. Asama (HHUF 27973).

Cultural characteristics: Conidia usually germinated from apical and/or basal cell in water at 20°C after 24h. The basal germ tube emerged from the scar. Colonies on PDA were lanate, White (1A1), 20–25mm diameter. Conidiophores were formed on margin of V8A disc after 10 days. Conidia were formed on conidiophores in the normal manner.

Culture examined: No. 4629 obtained by single spore culture from HHUF 27973.

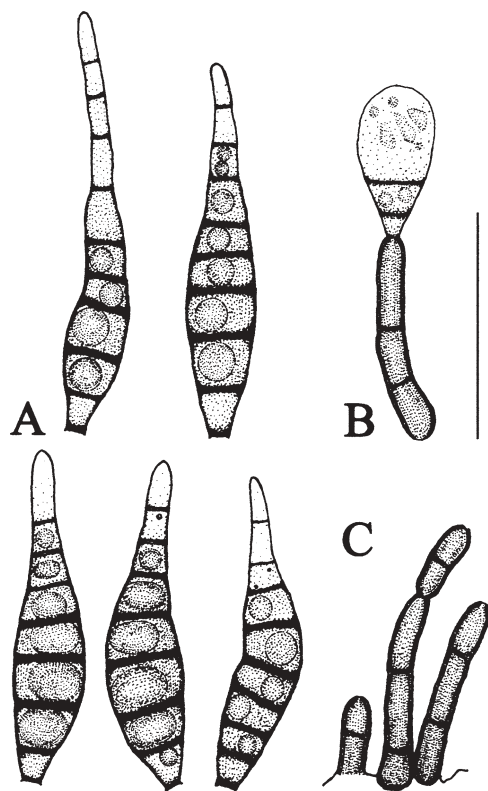


Fig. 5. *Corynespora mulanjeensis* (HHUF 27973). **A** Conidia. **B** Conidiophore with developing conidium. **C** Conidiophores. Bar 40 μm

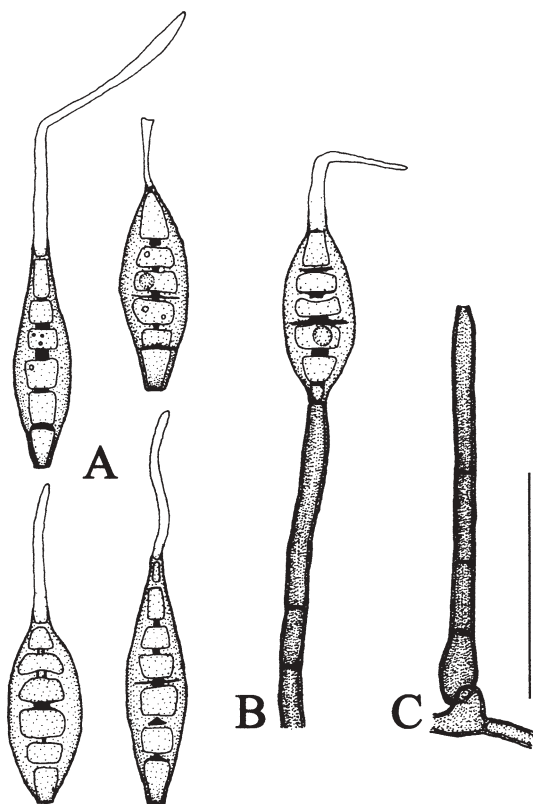


Fig. 6. *Ellisembia brachypus* (HHUF 27954). **A** Conidia. **B** Conidiophore with conidium. **C** Conidiophore. Bar 40 μm

Notes: Many species of *Corynespora* have distoseptate conidia, while a small number of species including *C. mulanjeensis* have euseptate conidia. Since the introduction of *C. mulanjeensis* by Sutton (1993) from Malawi, the fungus has not been reported again as far as we know. This is therefore a new record from Japan.

6. *Ellisembia brachypus* (Ellis & Everh.) Subram., Proc. Indian natn. Sci. Acad. B58:183, 1992. Figs. 6, 17, 18
Helminthosporium brachypus Ellis & Everh. in Millsp. & Nuttall, Publ. Field Col. Mus. Mot. 1:92, 1896.

Sporidesmium brachypus (Ellis & Everh.) S. Hughes, Can. J. Bot. 36:807, 1958.

Colonies on natural substratum effused, black. Mycelium immersed. Conidiophores macronematous, mononematous, single, straight or slightly flexuous, smooth, septate, brown to dark brown, sometimes paler toward the apex, 75–150 \times 4–6 μm , conicotruncate at the apex. Conidiogenous cells monoblastic, integrated, terminal, cylindrical, tapering toward the apex. Conidia solitary, acrogenous, straw-colored to brown, straight, fusiform, with a filiform beak, conicotruncate at the base, 4–8-pseudoseptate, 37.5–100 \times 7.5–13 μm (mean 66.9 \times 10.5 μm) including the beak, 1–2.5 μm thick at the apex.

Specimen examined: Kudoji Mountain, Hirosaki-City, Aomori-Pref. (140°25' E, 40°31' N), on dead vines of *Vitis coignetiae*, Aug. 14, 2002, T.S. (HHUF 27954).

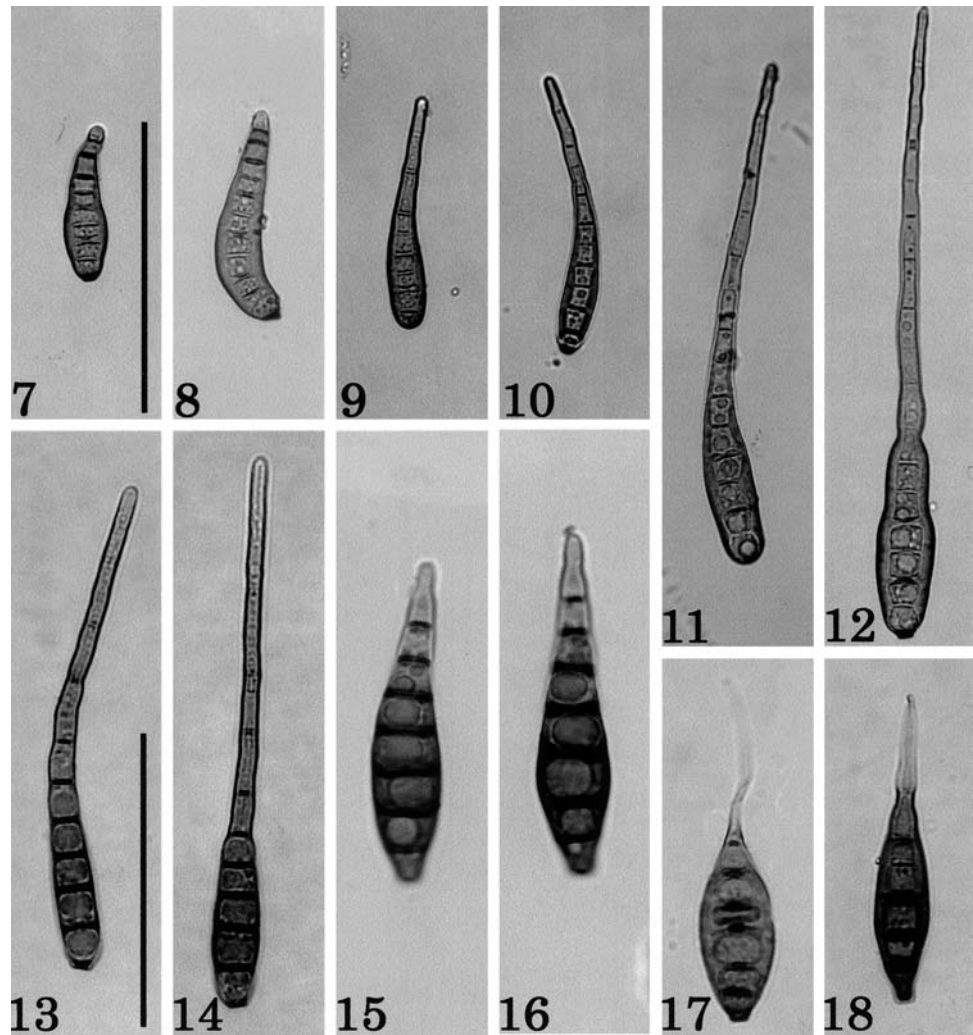
Cultural characteristics: Conidia did not germinate in water at 20°C, but germinated on water agar plate at 20°C after 3 days from basal cell. The basal germ tube emerged from the scar. Colonies on PDA were pulvinate sclerotioid, Medium Grey (1E1) to Dark Grey (1F1), 7–13 mm diameter, diffusing brown pigment in PDA. Conidiophores were formed on surface of V8A disc after 10 days. Conidia were formed on conidiophores in the normal manner.

Culture examined: No. 4624 obtained by single spore culture from HHUF 27954.

Notes: This fungus was transferred to the genus *Ellisembia* Subram. from the genus *Sporidesmium* Link by reassessment of Subramanian (1992); at that time, 12 species were redispersed to *Ellisembia*. Ellis (1971) described this species as *Sporidesmium brachypus* from twigs of various trees. Matsushima (1975, 1980, 1993) also reported it from Hachijo Island in Japan, Taiwan, Peru, and Ecuador. Our specimen agreed with Matsushima's description. He reported this species from Hachijo Island (Matsushima 1975), whereas we found it in Aomori about 800 km away; thus it can be considered that this fungus is widely distributed in this country.

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Figs. 7–18. Conidia. **7, 8** *Helminthosporium velutinum* (HHUF 27966). **9, 10** *H. dalbergiae* (HHUF 27967). **11, 12** *H. gigasporum* (HHUF 27968). **13, 14** *Corynespora foveolata* (HHUF 27965). **15, 16** *C. mulanjeensis* (HHUF 27973). **17, 18** *Ellisembia brachypus* (HHUF 27954). Bars **7–12** 100µm; **13–18** 50µm



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