

GENUS *MIYOSHIELLA* TO BE INCLUDED  
IN GENUS *CHAETOSPHAERIA*

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I. Introduction

The genus *Miyoshiella* formerly known as *Miyoshia* was first reported by KAWAMURA in 1907. He studied a fungus parasitic on a spotted bamboo, "Torahudake", found in Okayama Prefecture. The presence of subicula and non-septate hyaline spores established it as a new genus which he named *Miyoshia*.

Afterwards a very similar fungus was reported by ASAHINA, who found it on a culm of *Bambusa Shimadai* HAYATA collected at Heitô, Formosa. From the morphological resemblance of this fungus to the Torahudake fungus of KAWAMURA and from similarity of disease symptoms, it seemed that the causal fungi were closely related. However, as the fungus on *Bambusa Shimadai* has a marked characteristic, namely 7-septate brown spores, the fungus was classified by ASAHINA as a species belonging to another genus *Ceratospaeria* in *Ceratostomataceae*.

KAWAMURA then disagreed with ASAHINA, and <sup>expressed</sup> the opinion that the fungus on *Bambusa Shimadai* must be included in *Sphaeriaceae* and not in *Ceratostomataceae* as the fungus has perithecia with thick brittle walls and hairy appendages. He named the fungus *Miyoshia macrospora* KAWAMURA, which required the modification of the description of the genus *Miyoshia*. He afterwards changed the generic name *Miyoshia* into *Miyoshiella* in order to avoid confusion with a temporary genus *Miyoshia* which was established by MAKINO in classifying a plant now known as *Petroseria Miyosia-Sakurarii* MAKINO.

In opposition to KAWAMURA, HARA observed in 1930 that the genus *Miyoshiella* newly amended by KAWAMURA conflicted with the existing genus *Chaetosphaeria*, but he was unable to prove the fact as he had never examined the type species of *Miyoshiella*. The question thus remained unsolved.

Having a good opportunity to examine the type species of *Miyoshiella*, the writer has been studying the fungus since 1929 and has made discoveries which make the matter clearer. The present paper deals with the taxonomical features of the fungus *Miyoshiella*, and the general description of the fungus is reserved

for another occasion.

## II. Genus *Miyoshiella* and genus *Chaetosphaeria*

As has been stated in the introduction, the fungus *Miyoshiella* was established by KAWAMURA in 1907 under the older name *Miyoshia*. His description was as follows :

*Miyoshia* KAWAMURA n. g. Rasen locker, schwarz. Einzelne Hyphen bräunlich, durch Querwände geteilt. Fruchtkörper kohlschwarz, mit Haaren dicht bekleidet, birnförmig, 250—350 × 500—600  $\mu$ , nach aussen mit einer terminalen papillenförmigen Mündung versehen. Schläuche 8-sporig, länglich, hyalin. Paraphysen fädig, einfach, quergeteilt. Sporen spindelförmig, einzellig, hyalin, glattwandig, 6—8 × 28—33  $\mu$ . Conidien käulenförmig, 5—15 × 50—120  $\mu$ , gerade oder gebogen, einfach oder mehrzellig, die dunkelbraun Fruchtkörper liegen auf den Oberfläche des Bambusrohrs, nicht frei sondern sind in einen lockeren Hyphenfilz eingesenkt.

Hab. Prov. Mimasaka, Kuse und Kôchimura

Parasitisch auf Stengel von *Arundinaria Narihira* MAKINO und bildet die sogenannten "Tigerflecken".

In Sylloge Fungorum edited by SACCARDO, the description was cited in Latin as follows :

Perithecii subiculo nigro inserta, atra, subcarbonacea, brunneo-pillosa, globosoconidea, papillato-ostiolata. Asci elongati, paraphysati, octospori. Sporidia fusioidea, continua, hyalina, levia. Adsunt conidia clavato-cylindracea, pluriseptata, Clasterosporii ad instar.

The type species of the genus is *Miyoshiella fusispora* KAWAMURA (*Miyoshia fusispora* KAWAMURA). The principal ground for the establishment of the genus *Miyoshiella* was the presence of the carbonaceous flask-shaped perithecia with hairy appendages and non-septate hyaline spores. KAWAMURA, however, in 1930 amended the generic diagnosis of *Miyoshiella*, and included in it a species with 7-septate brown spores. When this is done the generic diagnosis of *Miyoshiella* exactly coincides with that of *Chaetosphaeria*.

The genus *Chaetosphaeria* was established by TULASNE, and its Latin diagnosis was cited in SACCARDO's Sylloge Fungorum as follows :

Perithecia gregaria villosa v. glabrescentia sed subiculo setoso conidiophoro insidentia, superficialia, submembranacea, saepius mox collaborescentia. Asci octospori, elongati. Sporidia oblonga v. fusioidea, 2—5-septata, tota v. partim fuliginea. Status conidicus Cladotrichum sitit.

According to the description above quoted, the *Miyoshiella* fungus found on a spotted bamboo culm in Formosa should probably be included in the genus *Chaetosphaeria*, though some minor differences are found between them. *Miyoshiella fusispora*, type species of the genus, is however far from corresponding with the description of *Chaetosphaeria* according to KAWAMURA.

### III. Amendment of the diagnosis of the type species of genus *Miyoshiella*

In view of the facts stated above, *Miyoshiella fusispora* and *Miyoshiella macrospora* cannot be regarded as belonging to the same genus unless the description of the genus is so modified as to fit them both. But if such modification should be made, confusion is inevitable between *Miyoshiella* and *Chaetosphaeria*. If the distinction between *Miyoshiella* and *Chaetosphaeria* is to be observed, the fungi which have been named *Miyoshiella fusispora* and *Miyoshiella macrospora* must be regarded as belonging to different genera.

The appearance of these two fungi is so similar that it is not strange that they have been too hastily assumed to belong to the same genus. When however they are studied with sufficient care, it is easily proved that their differences are so marked that they should not be so regarded. The writer, examining the type species of *Miyoshiella* (*Miyoshiella fusispora*) collected on a spotted bamboo culm in Takaharu, Miyazaki Prefecture, found this to be the case.

Ascospores of the fungus are usually hyaline and have no septation. Matured spores are however often found to be septated. The cells were rarely very slightly colored. Spores of the fungus collected in Mimasaka, Okayama Prefecture, by KAWAMURA are reported to be all single-celled. The septation of the spores is probably due to the influence of climatic conditions. Typical spores fully developed under more favorable conditions should be septated. In Mimasaka no spores are septate, while in Miyazaki some spores are septate. If the same species be found in more southern places, it will probably be found to have septated spores in the main. This fact is also easily deduced from the fact that *Miyoshiella macrospora* in Formosa always has septate brown spores when matured.

Beaked perithecia are of course the characteristic of the fungi belonging to *Ceratostomataceae*, but smaller beaks are often found in the fungi belonging to *Sphaeriaceae*. It must be question of degree. The beaked perithecia found in *Miyoshiella* fungi are not so marked as to necessitate the transfer of the fungi into the genus in *Ceratostomataceae*. *Chaetosphaeria silva-nigra* PENZIG

ET SACCARDO, for example, has also a somewhat remarkable perithecia with long mouth and yet has been included in *Sphaeriaceae*. That the perithecia of the *Miyoshiella* fungi are beaked is not the sole remarkable characteristic of the genus. KAWAMURA's suggestion of recognizing a new family to include the genus *Miyoshiella* must also be rejected.

A spherical space found at the top of the ascus of *Miyoshiella macrospora* was first mentioned by KAWAMURA, and recognized by him as a marked characteristic of this species. The writer also found a similar space in the ascus in *Miyoshiella fusispora* collected in Miyazaki. *Miyoshiella macrospora* and *Miyoshiella fusispora* may be classified as belonging to the same genus either by amending slightly the generic diagnosis of *Miyoshiella* or by including *Miyoshiella* in another genus.

As the amendment of the generic diagnosis of *Miyoshiella* causes confusion with that of *Chaetosphaeria*, it is better to transfer the genus *Miyoshiella* into *Chaetosphaeria* by amending the diagnosis of the latter genus slightly.

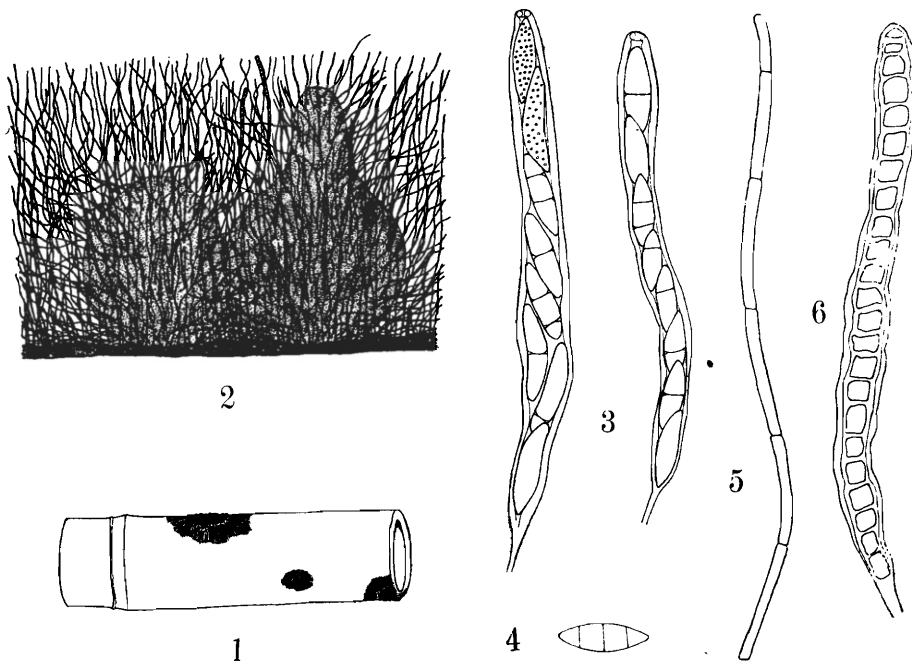


Fig. 1. *Chaetosphaeria fusispora* (KAWAMURA) HINO

1. Sympton on a culm of *Semiarundinaria Narihira* MAKINO 2. Perithecia in subiculum 3. Ascospores in asci (stained with fuchsim) 4. Ascospore (3-septated) 5. Paraphysis 6. Chlamydospore (secondary conidium)

The *Miyoshiella* fungi already known must be reclassified as belonging to *Chaetosphaeria*. *Miyoshiella macrospora* has already been transferred into *Chaetosphaeria* by HARA. The remaining species should also be transferred into *Chaetosphaeria*.

*Chaetosphaeria fusispora* (KAWAMURA) HINO n. comb.

Syn. *Miyoshia fusispora* KAWAMURA

*Miyoshiella fusispora* KAWAMURA

Subiculo effuso septatis, velutino, fuligineo-nigro ; hyphis intricatis, ramosis, fuliginis, 3.2  $\mu$  ; perithecia carbonacea, villosa, piriformibus, 369—567  $\times$  400—816  $\mu$ , in ostiolum attenuatis ; ascis cylindraceutis, apice obtusis, 123—200  $\times$  8—11  $\mu$ , octosporis ; sporidiis fusoideis, saepius subhyalinis, apice obtusis, guttatis, 26—43  $\times$  6—10  $\mu$ , saepius 1—3-septatis (sporidiis iunioris hyalinis, non septatis) ; paraphysis filiformis, septatis, 126—198  $\times$  3.2—4.3  $\mu$  ; chlamydosporidiis (conidiis) brunneis, rectis v. vix curvulis, 1—38-septatis, 6—191  $\times$  4—15  $\mu$ .

Hab. ad vivis culmis *Semiarundinariae Narihirae* (*Arundinariae Narihirae*)

#### IV. Conclusions and summary

The generic diagnosis of *Miyoshiella* must be amended owing to the discovery of another species of *Miyoshiella* and reexamination of the type species, *Miyoshiella fusispora*. The amendment of the diagnosis of *Miyoshiella* is however impossible as it causes confusion with *Chaetosphaeria*. Therefore it is better to include *Miyoshiella* in *Chaetosphaeria*.

The writer holds that *Miyoshiella* is to be transferred into *Chaetosphaeria*.

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## MIYOSHIELLA WA CHAETOSPHAERIA NI IRETAI

HINO-IWAO

(Résumé in Japanese)

*Miyoshia* wa 1907 nen ni KAWAMURA Hakusi ga "Torahudake-Kin" wo sirabete môketa Zoku de aru ga, sononoti Udi wa kore wo *Miyoshiella* to aratameta. 1-Zoku de 1-Syu no medurasii Kinrui to sarete ita.

Tokoro ga, sakigoro ASAHINA Hakusi ga Taiwan de totta "Torahudake" wo sirabete, tigatta Syurui no Kinrui de aru koto wo mitometa. Kono Kin wa KAWAMURA Hakusi no Kin to hizyôni yoku nite iru ga, tada Hôsi dake ga tigau. Sokode, KAWAMURA Hakusi wa *Miyoshiella* no Diagnosis wo kaete kono hutatu wo issyono Zoku no Kinrui to sita. Konotameni, hoka no Zoku to Kakariai ga okotte kita. HARA Udi wa *Chaetosphaeria* to Kwankei no aru koto wo tonaete, Taiwan no Kin wo *Chaetosphaeria macrospora*(KAWAMURA) HARA to site simatta.

Sorede, Naiti no Kin to Taiwan no Kin wa onazi Zoku de aru koto ga tasikarasii no ni, betubetuno Zoku ni irerarete simatta. Hanahada Rikutu ni awanai koto de aru.

Watakusi wa Naiti no "Torahudake" ni tuku Kin wo sirabetemita ga, omotta tôri Hôsi no Sirabekata ga warui koto wo sitta. Nikugan dewa mienikui ga, Fuchsin de somete miru to yoku wakaruru. Mata tositotta Hôsi de naito Kakumaku ga mienai. Wakai Hôsi wa Kakumaku ga nai to iu koto ga wakatta. Sokode, HARA Udi no Kangae no tôri *Miyoshiella* wa *Chaetosphaeria* to suru no ga yoi to iu koto ni natta. Watakusi wa *Miyoshiella fusispora* KAWAMURA wo aratamete *Chaetosphaeria fusispora* (KAWAMURA) HINO to suru.