

## Ascomycete Japonicae Exsiccati, Fascicle 1, Nos. 1–10

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(Received 20 June 2019; accepted 13 July 2019)

**Abstract** Ten sets of specimens of fungi, each composed of ten taxa were prepared to introduce fungal biodiversity to overseas herbaria including CUP, GZU, PDD. The specimens are accompanied with culture and DNA tissues when available.

**Key words** : ascomycetes, biodiversity, discomycetes, exsiccata, mycobiota.

### Introduction

This is the first fascicle of the new occasional series to introduce discomycetes and other mycobiota in Japan in exsiccatae. To modernize the exsiccatae, the specimens provided here are accompanied with isolates and extracted DNA whenever possible. The isolates were deposited to NITE BioResource Center (NBRC, <https://www.nite.go.jp/en/nbrc/cultures/index.html>). Extracted DNA were deposited to Center for Molecular Biodiversity Research, National Museum of Nature and Science (CMBR). Coordinates follow WGS84 datum.

#### 1. *Lambertella advenula* (W.Phillips) Hosoya & Y. Otani

On *Larix kaempferi* leaf, Tsumagoi-mura, Agatsuma-gun, Gunma Pref. (N36.463283, E138.437194, elev. 1332m). June 1, 2011. Collected by Tsuyoshi Hosoya. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-39510. Culture not obtained.

Note: Descriptions for Japanese material were given in Hosoya and Otani (1997). The present fungus occurs on *Larix kaempferi* needle in spring, forming a substratal stroma observed in

black lines. Because of the substratal stroma, the fungus had been disposed in *Moellerodicus*, Rutstroemiaceae, known to be a taxonomically heterogeneous genus (Dumont, 1976). Hosoya and Otani (1997) discovered that the spore turns brown and two-celled before germination, and transferred to *Lambertella* based on these characteristics. Although Zhao *et al.* (2016) later showed that the fungus does not belong to the *Lambertella* s. str., proper disposition of this fungus has been remained uncertain. The host *Larix kaempferi* is an endemic species to Japan, and it is worthwhile to compare the Japanese material with European material (which occurs on *Larix decidua*) using barcoding sequences.

#### 2. *Incrucipulum ciliare* (Schrad.) Baral

On *Quercus crispula* var. *crispula* leaf, Green tunnel, Tomakomai-shi, Hokkaido (N42.722828, E141.5666361, elev. 92m). Sept. 13, 2011. Collected by Tsuyoshi Hosoya. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-42315 (isolate deposited NBRC 113861).

Note: Descriptions for Japanese material were first given in Otani (1967). This is a common species occurring on *Quercus crispula*. It is characterized by the thick-walled granulate hairs,

cubic ectal excipular cells with surface granulation, and fusiform ascospores. In Japan, several *Incrucipulum* species, originally disposed in *Lachnum*, are documented (Hosoya *et al.*, 2010a; Tanaka and Hosoya, 2001; Tochiara and Hosoya, 2019). The ITS-5.8S sequence of this material showed almost 100% similarity with previously registered sequences (KT876985, AB267644) from overseas.

### 3. *Microstoma aggregatum* Y.Otani

On stump of *Quercus crispula* var. *crispula* or *Q. serrata*, Kawachi-mura, Fukushima Pref. Oct. 1, 2005. Collected by Toshihiko Nara. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-61614. Culture not obtained.

Note: Descriptions for Japanese material were given in Otani (1990). This is a rare species occurring on dead wood of *Quercus* and supposed to be endemic to Japan. It has been collected only from two sites in Hokkaido and Fukushima in Japan. The fungus is characterized by the mass aggregation of apothecium (Otani, 1990). The ascospores of this fungus never germinated, and isolation from the apothecial tissue was failed. The ITS sequence of this fungus showed the highest similarity (82%) with *Microstoma* sp. (MG845232) and *Cookeina tricholoma* (Mont.) Kuntze (AF394020).

### 4. *Hymenoscyphus immutabilis* (Fuckel) Dennis

On *Zelkova serrata* leaf, Iryuda, Odawara, Kanagawa Pref. (N35.241672, E139.119963), Nov. 12, 2011. Collected by Tsuyoshi Hosoya. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-44242 (isolate deposited NBRC 110067).

Note: The fungus was reported for the first time from Japan in Zhao and Hosoya (2012) where descriptions for Japanese materials are given. It is one of the few *Hymenoscyphus* species identified in Japan. The highest similarity with previously known *H. immutabilis* sequence (KY744162) was 96%.

### 5. *Dasyscyphella longistipitata* Hosoya

On *Fagus crenata* cupule, Towada-shi, Aomori

Pref. (N40.515611, E140.968222), May 25, 2006. Collected by Toshikazu Imoto. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-15937.

Note: This fungus was first described by Ono and Hosoya (2001). It specifically occurs on *Fagus crenata* cupules in spring, and supposed to be endemic to Japan. It is a very host specific fungus, and no specimens have been obtained from other hosts. It is currently disposed in the genus *Dasyscyphella*, but the molecular phylogenetic analysis (Hosoya *et al.*, 2010a) showed the species does not group with any other *Dasyscyphella*. The combination of external morphology, hairs and paraphyses gives a unique position to this fungus in morphology, too. However, the proper taxonomic disposition of the present fungus still requires further discussion because *Dasyscyphella* never formed a monophyletic clade (Hosoya *et al.*, 2010a; Tochiara and Hosoya, 2019). Nevertheless, this is a well-defined species, and DNA barcoding sequences shows more than 98% of congruence with previously obtained isolates (Hosoya *et al.*, 2010a). Isolates and DNA specimens are available in NBRC and CMBR, respectively

Index fungorum (<http://www.indexfungorum.org/Names/NamesRecord.asp?RecordID=483226>, as of Nov. 20, 2018) shows that the present species as nomen invalid (Art. 40.6, Melbourne) because it is based on the interpretation that the type is based on two specimens (TNS-F-7100 in National Museum of Nature and Science and TRL 1132 in Tsukuba Research Laboratories, Sankyo Co., Tsukuba), but this would make a misinterpretation, because the latter specimen number (TRL 1132) is italicized to show that this is the collector's original number, and the holotype is based on a single specimen.

### 6. *Trichopezizella otanii* J.H.Haines

On herb stem, Tsuchibuchi River, Nashinoki, Hirosaki-shi, Aomori Pref. (N40.56603, E140.44972), May 5, 2011. Collected by Yukio Harada, Identified by Yukio Harada. Duplicate of TNS-F-39506 (isolate deposited NBRC 113860).

Note: See Haines (1974). This is a common

species of *Trichopezizella* on *Polygonum* and other large herbs in Japan. The barcoding sequence obtained from the isolate shows 99% similarity with previously obtained isolates in Japan (AB481287 and AB481288). The fungus resembles *T. nidulus*, and the distinction between the two species requires further study.

**7. *Incrucipulum radiatum* (Issh.Tanaka & Hosoya) Sasagawa & Hosoya**

On *Fagus crenata* leaf, Obora, Ueda-shi, Nagano Pref. (N36.5038, E138.3345), elev. 1280m, Sept. 29, 2011. Collected by Tsuyoshi Hosoya. Identified by Yukito Tochihara. Duplicate of TNS-F-42589 (isolate deposited NBRC 113862).

Note: Tanaka and Hosoya (2001) first described this fungus. The only hitherto known host of this fungus is *Fagus crenata* leaves, and *Incrucipulum radiatum* is supposed to be endemic. It is a unique species with extremely long hairs, but the combination of cubic ectal excipular structure with granulation, slender paraphyses, and granulate hairs places this fungus to *Incrucipulum* (Hosoya *et al.*, 2010b, Tochihara and Hosoya, 2019).

**8. *Lachnum rachidicola* J.G.Han, Raitv. & H.D.Shin**

On *Juglandis mandshurica* petiole, Lake Yamanaka-ko, Yamanakako-mura, Yamanashi Pref. (N35.407867, E138.871811), elev. 1001m. June 26, 2017. Collected by Tsuyoshi Hosoya. Identified by Yukito Tochihara. Duplicate of TNS-F-80464 (isolate deposited NBRC 113864).

Note: This fungus was first described by Han *et al.* (2009) in Korea, but has been noticed in Japan long before. TNS houses specimens collected in 2006 (TNS-F-16645, 16647, 16648, 16649; Hosoya *et al.*, 2012). Both morphological feature and barcoding sequences of Japanese materials shows perfect match with the Korean specimens (KX988288 and KX988289). Both specimens occur on the same host.

**9. *Lachnellula suecica* (de Bary ex Fuckel) Nannf.**

On *Larix kampferii* twig, Tsukuba University Mountain Science Center, Sugadaira Station, Ueda-shi, Nagano Pref. (N36.521972, E138.349361), elev. 1350m. June 28, 2013. Collected by Tsuyoshi Hosoya. Identified by Tsuyoshi Hosoya. Duplicate of TNS-F-38454 (isolate deposited NBRC 113863).

Note: The present fungus is abundant on *Larix* twig, and sometimes co-occurring with other *Lachnellula* species, but easily distinguished by the globular ascospores. The barcoding sequence of the present material shows good congruence (>98%) with previously registered sequences (e.g. MH857859).

**10. *Pyrenopeziza protrusa* (Berk. & M.A.Curtis) Sacc.**

On *Magnolia hypoleuca* leaf, Ichinosawatoge, Susugaya, Kiyokawamura, Aikou-gun, Kanagawa Pref. (N35.4693056, E139.21833), Apr. 16, 2005. Collected by Tsuyoshi Hosoya. Identified by Hiyori Itagaki. Duplicate of TNS-F-17427 (isolate deposited NBRC 113606).

Note: This fungus occurs on *Magnolia hypoleuca* in spring. In North America, it has been reported also from *Magnolia glauca* (current name: *M. virginiana*). (Hütter, 1958). Although *M. hypoleuca* is an endemic species in Japan, the possibility of endemism of the present fungus may require further discussion (Itagaki *et al.*, 2019).

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