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Short communication

Type study of Japanese Dacrymycetes described by Yosio Kobayasi: Redescriptions of five species and a new name proposal

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ABSTRACT

The Japanese mycologist, Yosio Kobayasi, described 16 species of Japanese Dacrymycetes. Almost all of the type specimens were thought to have been destroyed during World War II. In this study, Kobayasi's specimens were surveyed, and holotypes of six species, *Dacrymyces adpressus* Kobayasi, *D. applanatus*, *D. pezizoides*, *D. puniceus*, *D. subalpinus*, and *Dacryopinax imazekiana*, were found and recognized as distinct species. *Dacrymyces adpressus* Kobayasi, a later homonym of *D. adpressus* Grognot, was redescribed with a new name, *D. kobayasii*. The mycoflora of Japanese Dacrymycetes has been updated to 44 species in nine genera.

Dacrymycetes (Agaricomycotina, Basidiomycota), the sister group of Agaricomycetes, is a noteworthy lineage for studying the diversity and evolution of wood-decaying basidiomycetes (Shirouzu et al. 2013, 2014, 2016). In this class, approximately 120 species in 11 genera are recognized, and 43 species (and one form) in nine genera have been reported from Japan (Kobayasi 1939a,b, 1955, 1984; Maekawa 1987; Shirouzu et al. 2009).

Among the Japanese Dacrymycetes, 16 species described by Yosio Kobayasi have either rarely or never been documented since his original descriptions (Kobayasi 1939a,b, 1955, 1984; Shirouzu et al. 2009). McNabb (1965a, 1973) noted that some of Kobayasi's Dacrymycetes may be synonyms of other species (Table 1). McNabb's opinion was based on references within Kobayasi's original descriptions, and he was never able to examine the respective type specimens. In a personal communication with the late Dr. Kobayasi, he said that many of the dacrymycetous-type specimens were destroyed during World War II (Table 1; McNabb 1965a,b,c, 1973).

The National Museum of Nature and Science (TNS, Tsukuba, Ibaraki, Japan) is currently in the process of rearranging and digitizing the specimen information in the mycological herbarium, which conceivably includes Kobayasi's dacrymycetous collections, and information for numerous specimens has been databased and published through the Global Biodiversity Information Facility (GBIF, http://www.gbif.org/) and the Science Museum Net (http://science-net.kahaku.go.jp/specimen_en/collection/). The databasing process has allowed us to find type specimens that were believed lost, although the survey and

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Table 1 – Japanese Dacrymycetes described by Yosio Kobayasi.

Name	Reference	McNabb's comment	Type specimen[a]	Present study[a]
Calocera alba Kobayasi	Kobayasi (1939b)	Possibly a color variant of *Calocera cornea* (Batsch) Fr. (McNabb 1965a)	Destroyed during World War II (McNabb 1965a)	Not found
Calocera coralloides Kobayasi	Kobayasi (1939b)	Maybe a branched form of *C. cornea* (McNabb 1965a)	Destroyed during World War II (McNabb 1965a)	Not found
Calocera cornea f. *gracilis* Kobayasi	Kobayasi (1939b)	Simple basidiocarps of *C. cornea* (McNabb 1965a)	Destroyed during World War II (McNabb 1965a)	Not found
Calocera corniformis Kobayasi	Kobayasi (1939b)	Closely related to *Calocera furcata* (Fr.) Fr. (McNabb 1965a)	Destroyed during World War II (McNabb 1965a)	Not found
Dacrymyces adpressus Kobayasi	Kobayasi (1939a)	Later homonym of *D. adpressus* Grognot, but a distinct species (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Redescribed as *D. kobayasii* (TNS-F-208732)
Dacrymyces applanatus Kobayasi	Kobayasi (1939a)	Distinct species? (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Distinct species (TNS-F-208731)
Dacrymyces kohyasanus Kobayasi	Kobayasi (1984)	–	In TNS (Kobayasi 1984)	Not found
Dacrymyces neoalbidus Kobayasi	Kobayasi (1939a, 1955)	Maybe a distinct species (as *D. albidus* Kobayasi; McNabb 1973)	Not available (McNabb 1973)	Not found
Dacrymyces nikkomontanus Kobayasi	Kobayasi (1939a)	Similar to *D. minutus* (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Not found
Dacrymyces pezizoides Kobayasi	Kobayasi (1939a)	Similar to *D. minutus* (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Distinct species (TNS-F-208739)
Dacrymyces pulcher Kobayasi	Kobayasi (1939a)	Distinct species (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Not found
Dacrymyces puniceus Kobayasi	Kobayasi (1939a)	Synonym of *D. chrysospermus* (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Distinct species (TNS-F-208741)
Dacrymyces san-augustinii Kobayasi	Kobayasi (1939a)	Distinct species (McNabb 1973; Shirouzu et al. 2009)	Destroyed during World War II (McNabb 1973)	Not found
Dacrymyces subalpinus Kobayasi	Kobayasi (1939a)	Distinct species (McNabb 1973; Shirouzu et al. 2009)	Destroyed during World War II (McNabb 1973)	Distinct species (TNS-F-208740)
Dacrymyces tremellosus Kobayasi	Kobayasi (1939a)	Synonym of *Dacrymyces capitatus* Schwein.? (McNabb 1973)	Destroyed during World War II (McNabb 1973)	Not found
Dacryopinax imazekiana (Kobayasi) Lowy	Kobayasi (1939b), Lowy (1959)	Similar to *Dacryopinax dennisii* (McNabb 1965b)	Destroyed during World War II (McNabb 1965b)	Distinct species (TNS-F-200077)
Ditiola orientalis (Kobayasi) Govorova	Kobayasi (1939b), Govorova (1994)	Similar to *Femsjonia pezizoidea* (Henn.) McNabb (as *F. orientalis*; McNabb 1965c)	Destroyed during World War II (McNabb 1965c)	Not found

[a] TNS, Herbarium of the National Museum of Nature and Science, Japan.

rearrangement is not yet complete. In this study, Kobayasi's type specimens were surveyed in TNS and examined taxonomically.

Specimen identification

Both formalin preserved and dried specimens were selected and morphologically examined for species identification. Basidiocarps were sliced with a razor blade, and the sections were mounted on a slide glass with a drop of distilled water and observed under a light microscope (150–1500×; BX51, Olympus Corporation, Tokyo, Japan). For the dried specimens, a basidiocarp was reconstituted by soaking in distilled water and observed as described above. To examine the species designation, morphological data were compared with the original descriptions by Kobayasi (1939a,b).

Type specimens

Type specimens of six species, *Dacrymyces adpressus* Kobayasi (TNS-F-208732), *D. applanatus* Kobayasi (TNS-F-208731), *D.*