Accepted Trichoderma names in the year 2015

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Abstract: A list of 254 names of species and two names of varieties in Trichoderma with name or names against which they are to be protected, following the ICN (Melbourne Code, Art. 14.13), is presented for consideration by the General Committee established by the Congress, which then will refer them to the Nomenclature Committee for Fungi (NCF). This list includes 252 species, one variety and one form. Two new names are proposed: T. neocrassum Samuel (syn. Hypocreopsis crassa P. Chaverri & Samuels), T.apatellotropicum Samuels (syn. Hypocreopsis patell. l. tropica Yoshim. Doi). The following new combinations in Trichoderma are proposed: T. brevipes (Mont.) Samuel, T. cerebriforme (Berk.) Samuel, T. latizonatum (Peck) Samuel, and T. poronioideum (A. Möller) Samuel. The following species are lectotypified: T. americanum (Canham) Jaklitsch & Voglmayr, Gliocladium flavovulscum J.H. Miller, Giddens & A.A. Foster, T. inhamatum Veerkamp & W. Gams, T. konilangbra Samuels, O. Petri & C.P. Kubicek, T. koningii Oudem., T. pezizoides (Berk. & Broome) Jaklitsch & Voglmayr, T. sulphureum (Schwein.) Jaklitsch & Voglmayr and T. virens (J.H. Miller, Giddens & A.A. Foster) Arx. Epitypes are proposed for the following species: T. albocorneum (Yoshim. Doi) Jaklitsch & Voglmayr, T. albolatus (Berk. & Broome) Jaklitsch & Voglmayr, T. atroplelacinus (Dingley) Jaklitsch & Voglmayr, T. conorm (Pat.) Jaklitsch & Voglmayr, T. cornu-damae (Pat.) Z.X. Zhu & W.Y. Zhuang, T. flaviconidium (P. Chaverri, Druzhinina & Samuel) Jaklitsch & Voglmayr, T. hamatum (Bion.) Bain., T. hunua (Dingley) Jaklitsch & Voglmayr, T. patella (Cooke & Peck) Jaklitsch & Voglmayr, Hypocreopsis patell. l. tropica Yoshim. Doi, T. polysporum (Link) Rifai, T. poronioideum (A. Möller) Samuels T. semiorbis (Berk.) Jaklitsch & Voglmayr, T. sulphureum (Schwein.) Jaklitsch & Voglmayr, and T. tropicosinense (P.G. Liu) P.G. Liu, Z.X. Zhu & W.Y. Zhuang.

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INTRODUCTION

On 30 July 2011, the provision to permit different morphs of the same fungal species to bear separate names was ended at the XX International Botanical Congress (IBC) in Melbourne. This decision was retroactive, but names published before 1 January 2013, which would otherwise have been illegitimate, were ruled to nevertheless be legitimate, as detailed in the International Code of Nomenclature for algae, fungi, and plants (ICN; McNeill et al. 2012). The nearly 150 year-old practice of independently naming the asexual and sexual morphs of non-lichenized pleomorphic ascomycetes and basidiomycetes came to an end. Various procedures were put in place by the ICN to minimize the disruption of names in moving to the one name = one fungus nomenclature.

As regards whether Trichoderma or Hypocreopsis should be adopted for the genus, the ICN concluded that the choice between two names should be determined not only by priority of publication, but also by consensus among users. In this case Trichoderma Pers. 1794 was published earlier than Hypocreopsis Fr. 1825 and, pursuant to Art 14.13, a poll taken by the ICTF (International Commission on the Taxonomy of Fungi) International Subcommission on the Taxonomy of Trichoderma and Hypocreopsis (www.isth.info) indicated a strong preference to maintain Trichoderma over Hypocreopsis (Rossman et al. 2013). Having decided to give priority to Trichoderma (with an asexually typified type species) over Hypocreopsis (with a sexually typified type species), Art. 14.13 further allows for the presentation of a list of names in Trichoderma with name or names against which they are to be protected. Further, Art. 56.3 allows for the preparation of a list of names to be suppressed. The lists are to be presented
to the General Committee established by the Congress, which then will refer them to the Nomenclature Committee for Fungi (NCF). Following approval by the appropriate committees, rejected names are to be treated as rejected under Art. 56.1 and may become available for use only by conservation under Art. 14. We have not presented a list of names to be suppressed (Art. 56.3) because any names of Trichoderma or Hypocrea that are not in current use (i.e. have not been cultured and/or their DNA sequenced) can be epitypified and added to the list of names in use.

Subsequent to the Melbourne Congress, it emerged that in order to promote stability of names it was essential that listed names should be protected against unlisted names and not just listed names against which they were protected (Hawksworth 2014). This view was overwhelmingly supported by the 10th International Mycological Congress (IMC10) in Bangkok in 2014, which agreed that the lists be referred to as “Lists of Protected Names” (Redhead et al. 2014). There was little support at the Congress for having any lists of names not to be used, but if lists were prepared the Congress concluded they should be referred to as “Lists of Suppressed Names” to differentiate them from the existing lists of rejected names. Following discussions by the International Commission on the Taxonomy of Fungi (ICTF), formal proposals to modify the ICN to allow these strongly supported changes have now been made (Hawksworth 2015).

We have included in the present list of accepted names all those names in Trichoderma that are ‘in use’ as of the middle of 2015; thus the list includes those names that were ‘in use’ as of 1 January 2013, the date on which the revision to Art. 59 came into effect. With only a few exceptions noted in the current list, a name is considered to be ‘in use’ if it is represented by a culture and/or diagnostic DNA sequences that are deposited in GenBank (http://www.ncbi.nlm.nih.gov) in the belief that reliable identification of a species of Trichoderma can, with rare exceptions, only be achieved through comparison of a diagnostic sequence such as rpb2. Jaklitsch & Voglmayr (2015) have published the most complete phylogeny of the genus Trichoderma, based on rpb2.

A list of species of Trichoderma that are not currently in use as defined by our criteria is appended at the end. The identity of most of these species is unknown; many are illegitimate later homonyms, synonyms of other Trichoderma species, or are not species of Trichoderma. Many of the names found in this list can be placed in use by epitypification.

In the following, the nomenclature of the Trichoderma/Hypocrea pairs is examined and the correct or preferential name for each species is presented. At least 400 species have been described as Hypocrea and only a small number of them have been accounted for in modern terms. Many are not actually species of Trichoderma. A number of Hypocrea names that did not have named Trichoderma asexual morphs were transferred into Trichoderma recently (Jaklitsch & Voglmayr 2014) and a few more names are added here because of their usage in recent literature.

Recent research has shown that a few reported links between a Trichoderma and a Hypocrea are incorrect. Most notable is the link between T. harzianum and H. lixii (Chaverri & Samuels 2002). Revision of the T. harzianum species complex has revealed that T. harzianum and H. lixii are distinct species and the new combination T. lixii was proposed (Chaverri et al. 2015).

In most cases the asexual and sexual morph names of Trichoderma species with named teleomorphs are based on different type specimens. Consequently, from a nomenclatural point of view they represent distinct and priorable species names. In a nomenclatural sense, the species having named teleomorphs fall into four groups which can be defined as follows:

(I) The Trichoderma name is older than the Hypocrea name and thus automatically has priority.

(II) Asexual and sexual morph names were proposed simultaneously and using the same epithet. In this case the Trichoderma name has priority in the genus Trichoderma.

(III) Asexual and sexual morphs share the same epithet but the Hypocrea name is older than the Trichoderma name. In these cases the older epithet cannot be adopted because it is already occupied in Trichoderma. Under Art. 11.4 of the ICN the next available name is to be adopted (Art. 11.4), and in these cases the next available name is always the Trichoderma name, which is adopted here.

(IV) The asexual and sexual morphs have different epitypets and the sexual name is the older and should be adopted, but because of common usage it is preferable to maintain the younger Trichoderma name. Accordingly, several names have been proposed for conservation (Samuels 2014) but additional names remain to be conserved as proposed herein.

**PROPOSAL FOR A PROTECTED GENERIC NAME IN HYPOCREALES**

Rossman et al. (2013) proposed the protection or suppression of several generic names in Hypocreales. Since then, it has been found necessary to suppress two additional sexually-typified names against Trichoderma.

**Trichoderma Pers. 1794 vs. Sarawakus Lloyd 1924 and Aphysiostroma A.T. Martinez & G. Moreno 1986**

Trichoderma Pers. 1794, typified by T. viride Pers. 1794, is an asexual morph-typified name and has priority over Sarawakus Lloyd 1924, typified by S. lycogaloides (Berk. & Broome) Lloyd 1924, and Aphysiostroma A.T. Martinez & G. Moreno 1986, typified by A. stercorarium A.T. Martinez & G. Moreno 1986. Since 2008 (Jaklitsch et al. 2008, Jaklitsch 2011) it has been known that the type species of Aphysiostroma clusters within Trichoderma and thus Aphysiostroma should be considered a synonym of Trichoderma. Similarly, Jaklitsch & Voglmayr (2014b) have shown that the type species of Sarawakus clusters in Trichoderma and it too should be considered as a synonym of Trichoderma. Jaklitsch & Voglmayr (2014b) transferred S. lycogaloides and several additional species (see below) into Trichoderma and Jaklitsch & Voglmayr (2015) recombined A. stercorarium in Trichoderma. However, Art 57.2 of ICN stipulates that “an asexual morph-typified name that has priority is not to displace the teleomorph name(s) unless and until a proposal to reject the former under Art. 56.1 or 56.3 or to deal with the latter under Art. 14.1 or
14.13 has been submitted and rejected." Until now, no such proposal has been made for the protection of *Trichoderma* over *Aphysiostroma* or *Sarawakus*, but as that provision in the ICN is proposed for deletion (Hawksworth 2015) this may not become necessary.

**ACCEPTED TRICHODERMA NAMES IN 2015**

Current ICN only permits names to be protected against listed names which otherwise would take precedence. While it is anticipated that the provisions will be changed to permit listed names to be protected against unlisted names (see above), the current mandate of the General Committee and the Nomenclature Committee for Fungi is consider for protection only names where there are competing names. In order to facilitate the work of the Committees, the few names which require protection against competing names are prefixed by an asterisk (*), although most are already proposed for conservation. However, we wish all names published prior to 1 January 2013 and accepted here to be included in the eventual list of protected names as soon as that is permitted by the ICN.

The entries are presented here largely in the form that is likely to be adopted for publication in the eventual list of protected names, though for completeness we have not abbreviated the authors of names where there are more than two to "& al.", omitted "in" before journal titles, and retained "(in" citations).

**Trichoderma aeroaquaticum** K. Yamaguchi, Tsurumi, Chuaseeharonnachi & Nakagiri, *in* Yamaguchi & al., Mycologia 104: 1113. 2012.

Typus: [specimen] (BBH 27841).
Ex-type culture: BCC 36135 = NBRC 108034.
Representative sequences: *tef1*: AB646530; *rpb2*: AB646526.

**Trichoderma aerugineum** Jaklitsch, Stud. Mycol. 63: 24. 2009.

Typus: [dry culture] (WU 293031a).
(=) *Hypocrea aeruginea* Jaklitsch, Stud. Mycol. 63: 24. 2009.
Typus: [specimen] (WU 293031).
Ex-type culture: CBS 120541.
Representative sequences: *tef1*: FJ860608; *rpb2*: 860516.

**Trichoderma aethiopicum** Mullaw, C.P. Kubicek & Samuels, *in* Samuels & al., Fungal Divers. 55: 81. 2012.

Typus: [dry culture] (BPI 882291).
Ex-type culture: CBS 130628.
Representative sequences: *tef1*: EU401616; *rpb2*: HM182986.

**Trichoderma afarasin** P. Chaverri & Branco-Rocha, *in* Chaverri & al., Mycologia 107: 567. 2015.

Typus: [dry culture] (BPI 88109).
Ex-type culture: G.J.S. 99-227 = CBS 130755 = IMI 393967.
Representative sequences: *tef1*: AF348093, FJ463327; *rpb2*: FJ442778, FJ442799.

**Trichoderma afroharzianum** P. Chaverri, F.B. Rocha, Degenkolb & I. Druzhinina, *in* Chaverri & al., Mycologia 107: 568. 2015.

Typus: [dry culture] (BPI 881096).
Ex-type culture: G.J.S. 04-186 = CBS 124620.
Representative sequences: *tef1*: FJ463301, FJ463401, AF469194; *rpb2*: FJ442691, FJ442726.

**Trichoderma aggressivum** Samuels & W. Gams, *in* Samuels & al., Mycologia 94: 167. 2002.

Typus: [dry culture] (BPI 748201).
Ex-type culture: DAOM 222156 = IMI 393971.
Representative sequences: *tef1*: AF348098, AY605809; *rpb2*: AF348098.

**Trichoderma aggressivum** *f. europaeum* Samuels & W. Gams, *in* Samuels & al., Mycologia 94: 167. 2002.

Typus: [dry culture] (BPI 748204).
Ex-type culture: CBS 100526.
Representative sequences: *tef1*: FJ467645, AF348089, KP008993; *rpb2*: AF345541, FJ442706.

**Trichoderma alboleucens** (Yoshim. Doi) Jaklitsch & Voglmayr, Mycotaxon 126: 145. 2013.

(≡) *Hypocreae albocornea* Yoshim. Doi, Bull. Natl. Sci. Mus. 15: 712. 1972.
Typus: [specimen] (TNS.D-759 = TNS-F-190171. Isotypus NY 01293242).

**Epitypus** (*hic designatus*, MBT 201068): [specimen] JAPAN (TNS-F-193172 Y. Doi D.4431).
Ex-epitype culture: IFO 30608 = G.J.S. 97-28.
Representative sequences: *tef1*: AY937440.

Note: The culture derived from the original collection of this species has been lost. Another Japanese (Kagoshima) collection, not a paratype, was cultured by Doi and deposited as IFO 30608.

**Trichoderma albofulvum** (Berk. & Broome) Jaklitsch & Voglmayr, Mycotaxon 126: 145. 2013.

(≡) *Hypocrea albofulva* Berk. & Broome, J. Linn. Soc. Bot. 14: 113. 9 Oct 1873.
Typus: [specimen] (CEYLON, Nuwara Eliya], No. 5 (K, ex herb. Berkeley).

**Epitypus** (*hic designatus*, MBT 201069): [specimen] THAILAND (BPI 841392).
Ex-epitype culture: G.J.S. 01-265 = CBS 114787.
Representative sequences: *tef1*: DQ835494, *rpb2*: KR094870.

Note: The specimen we have selected as epitype is a recent collection from Thailand that agrees with the type collection, from Sri Lanka in its morphology and geography. Its culture was derived from ascospores germinating in asci. Additional sequences deposited in GenBank for culture G.J.S. 01-234 (= CBS 114788; *tef1*: DQ846668, *ITS*: DQ846668) are divergent, representing a species in the Viride clade but distinct from *T. albofulvum* as accepted here. The spores isolated from this collection were not germinating in asci.

**Trichoderma albofulvum** (Berk. & Broome) Jaklitsch & Voglmayr, Mycotaxon 126: 145. 2013.

(≡) *Hypocrea albofulva* Berk. & Broome, J. Linn. Soc. Bot. 14: 113. 9 Oct 1873.
Typus: [specimen] (CEYLON, Nuwara Eliya], No. 5 (K, ex herb. Berkeley).

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**Trichoderma albolutescens** Jaklitsch, Fungal Divers. 48: 202. 2011.
**Trichoderma calicifuscens** (Overton) Jaklitsch & Voglmayr, Mycotaxon 126: 145. 2013.

(≡) *Hypocreopsis calicifuscens* Overton, in Overton & al., Stud. Mycol. 2: 325. 1823.

Typus: [dry culture] (BPI 880413).

Representative sequences: tef1: EU338326, rpb1: GU248412, rpb2: EU398349.

**Trichoderma alni** Jaklitsch, *in* Jaklitsch & al., Mycologia 100: 799. 2008.

Typus: [dry culture] (BPI 1109854).

Typus: [specimen] VENEZUELA: Edo. Miranda, Parque Nacional Sierra Nevada, above Tabay, Qda. La Mucuy, Nov 1990, G.J. Samuels 6753 (BPI 1109854).

Ex-type culture: CBS345.97 = ATCC 208857.

Representative sequences: tef1: AY956321, rpb2: JN175531.

**Trichoderma alutaceum** Jaklitsch, *in* Jaklitsch & al., Persoonia 33: 135. 2013.

Typus: [specimen] [BPI 746727].

Ex-type culture: G.J.S. 97-243 = CBS 133558.

Representative sequences: tef1: DQ 307502, DQ307503; rpb2: DQ307503.

**Trichoderma alternatipes** Zafiri, Gräfenhan & Samuels, *in* Degenkolb & al., Mycol. Prog. 7: 208. 2008.

Typus: [dry culture] (BPI 878405).

Ex-type culture: CBS 119575 = ATCC 90237.

Representative sequences: tef1: EU338921, rpb2: EU338326.

**Trichoderma asperelloides** Samuels, *in* Samuels & al., Mycologia 102: 961. 2010.

Typus: [dry culture] (BPI 879770).

Ex-type culture: CBS 125938.

Representative sequences: tef1: GU248412, rpb2: GU248411.

**Trichoderma asperellum** Samuels, Lieckfeldt & Nirenberg, *in* Sydowia 51: 81. 1999.

Typus: [dry culture] (BPI 746504).

Ex-type culture: CBS 433.97.

Representative sequences: tef1: AF456907, AY376058; rpb2: EU248617.
Trichoderma atlanticum Jaklitsch, Fungal Divers. 48: 83. 2011.
Typus: [dry culture] (WU 29208a).
Ex-type culture: CBS 120632.
(=) Hypocrea atlantica Jaklitsch, Fungal Divers. 48: 83. 2011.
Typus: [specimen] (WU 29280).
Representative sequences: tef1: FJ860649, rpb2: FJ860546.

Trichoderma atrobrunneum F.B. Rocha, P. Chaverri & W. Jaklitsch, in Chaverri & al., Mycologia 107: 571. 2015.
Typus: [specimen] (BPI 802854).
Ex-type culture: G.J.S. 92-110 = CBS 548.92.
Typus: [specimen] (WU 29280).
Representative sequences: tef1: AF443942, AF443943, FJ463297; rpb2: FJ442745, FJ442735, FJ442777.

Trichoderma atrobrunneum (Dingley) Jaklitsch & Voglmayr, Mycotaxon 126: 146. 2013.
(=) Hypocrea atrobrunneana Dingley, Trans. Roy. Soc. New Zealand 83: 645. 1956.
Typus: [specimen] (PDD 10471).
Epitypus (hic designatus, MBT 202235): [metabolically inactive culture] NEW ZEALAND (CBS 237.63).
Ex-epitype culture: CBS 120536.
Representative sequences: tef1: FJ665431, FJ665432, FJ860615; rpb2: FJ179602, JQ 685882.

Trichoderma aurantefusum Jaklitsch, Fungal Divers. 48: 162. 2011.
Typus: [dry culture] (WU 29183a).
Ex-type culture: CBS 119284.
(=) Hypocrea aurantefusa Jaklitsch, Fungal Divers. 48: 162. 2011.
Typus: [specimen] (WU 29183).
Representative sequences: tef1: FJ860613, rpb2: FJ860520.

Trichoderma aureoviride Rifai, Mycol. Pap. 116: 34. 1969.
Typus: [dry culture] (SHD-M 2663).
Lectotypus (vide Rifai & Webster, Trans. Br. Mycol. Soc. 49: 289. 1966) [specimen] ENGLAND: North Wootton. On Quercus wood, Aug. 1875 (K(M) 161792).
Epitypus (vide Jaklitsch, Stud. Mycol. 63: 34. 2009) (K(M) 162235).
(=) Hypocrea aureoviridis Plowr. & Cooke, Grevillea 8: 104. 1880.
Lectotypus (vide Jaklitsch in Stud. Mycol. 63: 34. 2009): ENGLAND, Norfolk, North Wootton, on wood, Aug. 1875, C.B. Plowright (ex herb. M.C. Cooke) (K(M) 161972).
Epitypus (vide Jaklitsch, ibid.): ENGLAND, Norfolk, Thetford, Thetford National Forest Park, close to Lynford, MTB 3530/1, 52°28'54" N, 00°41'01" E, elev. 30 m, on decoriticised, well-rotted hardwood, 3–4 cm thick, soc. Eutypa sp., 13 Sep. 2004, W. Jaklitsch & H. Voglmayr (W.J. 2708) (K(M) 162235).
Ex-epitype culture: CBS 120536.
Representative sequences: tef1: FJ665431, FJ665432, FJ860615; rpb2: FJ179602, JQ 685882.

Trichoderma austriacum Jaklitsch, Fungal Divers. 48: 125. 2011.
Typus: [dry culture] (WU 29193a).
(=) Hypocrea austriaca Jaklitsch & Voglmayr in Jaklitsch, Fungal Divers. 48: 125. 2011.
Typus: [specimen] (WU 29193).
Ex-type culture: CBS 122494.
Representative sequences: tef1: FJ860619, rpb2: FJ860525.

Trichoderma austrokoningii Samuels & Druzhinina, in Samuels & al., Stud. Mycol. 56: 92. 2006.
Typus: [dry culture] (BP) 870962B.
Ex-type culture: CBS 119092.
Representative sequences: tef1: DQ307561, rpb2: FJ442772.

Trichoderma avellaneum (Rogerson & S.T. Carey) Jaklitsch & Voglmayr, Mycotaxon 126: 146. 2013.
(=) Hypocrea avellanea Rogerson & S.T. Carey in Carey & Rogerson, Brittonia 28: 381. 1976.
Typus: [specimen] USA: Massachusetts: Franklin County, Leverett, Mt, Toby State Forest, on Marasmius subnudus, 27 Aug 1958, H.E. & M.E. Bigelow (M.E.B. 2471) (NY, 00965531).
Ex-type culture: CBS 121667.
Representative sequences: tef1: AF456887, AF456891, AY376051, FJ80611; rpb2: EU341801, FJ806518.

Trichoderma balearicum Jaklitsch & Voglmayr, Stud. Mycol. 80: 42. 2015.
Trichoderma barbatum Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 233. 2011.
Typos: [dry culture] (BPI 881029).
Ex-type culture: CBS 125733.
Representative sequences: tef1: HQ342223, rpb2: HQ342286.

Trichoderma bissetti Sandoval-Denis & Guarro, in Sandoval-Denis & al., J. Clin. Microbiol. 52: 2117. 2014.
Typos: [dried culture] (CBS H21626).
Ex-type culture: CBS 120538.
Representative sequences: tef1: FJ860620, rpb2: FJ860526.

Trichoderma bavaricum Jaklitsch, Fungal Divers. 48: 125. 2011.
Typos: [dry culture] (WU 29196a).
(=) Hypocre a bavarica Jaklitsch, Fungal Divers. 48: 125. 2011.
Typos: [specimen] (WU 29196).
Ex-type culture: CBS 130011 = S195).
Typus: [dried culture] (WU 31600) (ex-type culture CBS 130011).
Representative sequences: tef1: HQ342216, rpb2: HQ342279.

Trichoderma bisetttii Sandoval-Denis & Guarro, in Sandoval-Denis & al., J. Clin. Microbiol. 52: 2117. 2014.
Typos: [dried culture] (CBS H21626).
Ex-type culture: CBS 120538.
Representative sequences: tef1: FJ860620, rpb2: FJ860526.

Trichoderma brevicaespunctatum G.F. Kraus, C.P. Kubicek & W. Gams, in Kraus & al., Mycologia 95: 1063. 2004.
Typos: [dry culture] United States: New York: Geneva, New York State Agricultural Experiment Station, isolated from soil in a sunflower field, 20 June 2000, S. Petzolt & G.E. Harman (DAOM).
Ex-type culture: CBS 109720.
Representative sequences: tef1: EU338299, rpb2: EU338317.

Trichoderma brevipes (Mont.) Samuels, comb. nov. MycoBank MB812025
(≡ Cordyceps brevipes Mont., Syll. Gen. crypt. 201. 1856.
(≡) Podostroma brevipes (Mont.) Seaver, Mycologia 2: 61. 1910.
Typus: French Guiana: [on decorticated wood], Leprieur 1073 (PC; isotypus BPI-Lloyd 715550).
Representative culture: G.J.S. 92-76 = NBRC 101780 = CBS 139044.
Note: Samuels & Lodge (1996) described the sexual and unnamed asexual morph of this species. The culture cited here is from a New Guinean collection (BPI 737810). This culture has not been sequenced. Because this species was originally described from tropical America and the only culture for which we have a culture was collected in New Guinea, we do not epitypify the species.

Trichoderma britannicum (Rifai & J. Webster) Jaklitsch & Voglmayr, in Jaklitsch & al., Mycologia 106: 141. 2014.
(≡) Thuenemella britannica Rifai & J. Webster, Trans. Brit. Mycol. Soc. 48: 409. 1965.
(≡) Sarawakus britannicus (Rifai & J. Webster) Samuels & Rossman, Mycologia 84: 34. 1992.
Typus: [specimen] (K 177252; ex herb. Sheffield 2543, ex IMI 90311).
Ex-type culture: CBS 253.62.
Representative sequences: tef1: FK134796, rpb2: FK134787.

Trichoderma britdaniae (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 146. 2014 ["2013"].
(≡) Hypocre a britdaniae Jaklitsch & Voglmayr, Mycologia 104: 1216. 2012.
Typus: [specimen] (K(M) 89878).
Ex-type culture: None known.
Representative sequences: tef1: JQ685865, rpb2: JQ685881.
Note: Ascospores did not germinate; DNA for sequencing was isolated from a stroma.

Trichoderma brunneoviride Jaklitsch, in Jaklitsch & al., Mycologia 100: 805. 2008.
Typus: [dry culture] (WU 28233a).
Ex-type culture: CBS 121130.
(≡) Hypocre a brunneoviridis Jaklitsch, in Jaklitsch & al., Mycologia 100: 805. 2008.
Typus: [specimen] (WU 28233).
Representative sequences: tef1: EU498316, rpb2: EU498358.

Trichoderma caerulescens (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 146. 2013 [2014].
(≡) Hypocre a caerulescens Jaklitsch & Voglmayr, in Jaklitsch, Stadler & Voglmayr, Mycologia 104: 928. 2012.
Typus: [dried culture] (WU 31600) (ex-type culture CBS 130011 = S195).
Ex-type culture: CBS 130011.
Representative sequences: tef1: JN715621, rpb2: JN715604.

Trichoderma caesareum Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 234. 2011.
Typus: [dry culture] (BPI 863896).
Ex-type culture: CBS 124369.
Representative sequences: tef1: HQ342216, rpb2: HQ342279.

Trichoderma calamagrostidis Jaklitsch, Fungal Divers. 48: 186. 2011.
Typus: [dry culture] (WU 29196a).
(≡) Hypocre a calamagrostidis Jaklitsch, Fungal Divers. 48: 186. 2011.
Typus: [specimen] (WU 29198).
Ex-type culture: CBS 121133.
Representative sequences: tef1: FJ860622, rpb2: FJ860528.

Trichoderma camerunense P. Chaverri & Samuels, in Chaverri & al., Mycologia 107: 571. 2015.
Typus: [metabolically inactive culture] (CBS 137272).
Ex-type culture: G.J.S. 99-230 = CBS 137272.
Representative sequences: tef1: AF348107, AF348108.
Trichoderma capillare Samuels & Kubicek, in Samuels & al., Fungal Divers. 55: 83. 2012.
Typus: [dried culture] (BPI 882292).
Ex-type culture: CBS 130629
Representative sequences: tef1: JN182283, JN175585; rpb2: JN182312, JN175530.

Trichoderma caribbaeum Samuels & Schroers, in Samuels & al., Stud. Mycol. 56: 105. 2006.
Typus: [dry culture] (BPI 746700B).
Ex-type culture: G.J.S. 97-3 = CBS 119093
(=) Hypocrea caribbaea Samuels & Schroers, in Samuels & al., Stud. Mycol. 56: 105. 2006.
Typus: [specimen] (BPI 746700).
Representative sequences: tef1: DQ284977, rpb2: FJ442723.

Trichoderma caribbaeum Samuels & Schroers var. aequatoriale Samuels & H.C. Evans, in Samuels & al., Stud. Mycol. 56: 105. 2006.
Typus: [dry culture] (BPI 870965).
Ex-type culture: DIS 320c = CBS 119055 = IMI 399368
Representative sequences: tef1: DQ289010, rpb2: KT028596.

*Trichoderma catoptron* P. Chaverri & Samuels, Stud. Mycol. 48: 43. 2004 [“2003”], nom. cons. prop.
Typus: [dry culture] (BPI 8543653).
(=) Hypocrea catoptron Berk. & Broome, Grevillea 12: 100. 1873.
Lectotypus (vide Chaverri & Samuels, Stud. Mycol. 48: 44. 2004): [Sri Lanka] Central Province: Dolosbagy, Feb. 1868, No. 557 (K).
Epitypus (vide Chaverri & Samuels, Stud. Mycol. 48: 45. 2004): [specimen] (BPI 854365).
Ex-epitype culture: G.J.S. 02-76 = CBS 114232 = DAOM 232830. [Ex-type culture: G.J.S. 02-76 = CBS 114232 = DAOM 232830 = ATCC MYA-3222.
Representative sequences: tef1: DQ289010, rpb2: FJ442723.

Trichoderma cerebriforme (Berk.) Samuels & H.C. Evans, in North Amer. Pyrenomyc. p. 85. 1892.
Typus: USA: Connecticut: Ellis & Everh., North Amer. Pyrenomyc. p. 85. 1892.
(=) Hypocrea ceraceum var. cerebriforme Berk., Grevillea 12: 100. 1883.
Typus: SOUTH AFRICA: Natal, Inanda, on decaying Eucalyptus bark, 1880, J.M. Wood No. 178 (K).
(=) Hypocrea flavovirens Berk., Grevillea 12: 100. 1883.
Typus: INDIA: Neigherries, Wellington, on decaying bark (K, ex herb. M.J. Berkeley).
Representative sequences: tef1: AY737726, rpb2: AY391900.
Note: The protologue cites three specimens, viz. no. 5 in part, and no. 557, both from Sri Lanka (Central Province, Feb 1865), and Dolosbagy. Four specimens in K are noted as being ‘type,’ including these three collections and no. 557 bis. The Dolosbagy specimen was described later as *H. subrufa* Berk. & Cooke (Cooke 1884). The other three specimens are apparently the same species. Chaverri & Samuels (2003) designated the specimen ‘557’ as lectotype and redescribed and illustrated the species. They also described its asexual morph as *Trichoderma catoptron* and epitypified the species with the recent Sri Lankan specimen from which the type of *H. catoptron* was derived. Samuels (2014) proposed conservation of *T. catoptron* over *H. catoptron*, *H. sulfurella*, and *H. flavovirens*. *Trichoderma catoptron* is known only from South Africa, India and Sri Lanka. It occurs on bark of decaying trees, less frequently on decorticated wood and resupinate basidiomycetes. Chaverri & Samuels (2003) redescribed the species. It is most closely related to *T. cerebriforme* Chaverri & Samuels, *T. cinnamomeum* Chaverri & Samuels and *T. stramineum* (Chaverri & Samuels 2003).

Trichoderma ceciliae Jaklitsch & Voglmayr, Stud. Mycol. 80: 44. 2015.
Typus: [specimen] (WU 33325).
Ex-type culture: CBS 130010
Representative sequences: tef1: KJ665444, rpb2: KJ665444.

Trichoderma cereformae P. Chaverri & Samuels, Stud. Mycol. 48: 45. 2004 [“2003”].
Typus: [dry culture] (BPI 843654).
(=) Hypocrea cerepaea P. Chaverri & Samuels, Stud. Mycol. 48: 45. 2004 [“2003”].
Typus: [specimen] (BPI 737722).
Ex-type culture: CBS 114245 = DAOM 232831 = ATCC MYA-3222.
Representative sequences: tef1: AY937437, rpb2: AF545508.

Trichoderma ceramicum P. Chaverri & Samuels, Stud. Mycol. 48: 47. 2004 [“2003”].
Typus: [dry culture] (BPI 843655).
Ex-type culture: G.J.S. 88-70 = CBS 114576. 
(=) Hypocrea ceramica Ellis & Everh., North Amer. Pyrenomyc. p. 85. 1892.
Typus: USA: Connecticut: Ellis & Everh., North Amer. Pyrenomyc. p. 85. 1892.
Representative sequences: tef1: AY737738, rpb2: AF545510.

Trichoderma cerebriforme (Berk.) Samuels, comb. nov.
MycoBank MB812055
(2) Hypocrea cerebriformis Berk., J. Linn. Soc. Bot. 13: 177. 1872, non Beeli, Bull. Soc. Roy. Bot. Belg.: 58: 204. 1926.
Typus: “Hypocrea cerebriformis,” *AUSTRALIA*, M & B” (K, ex herb. M.C. Cooke 1885).
Representative culture: G.J.S. 85-245 = CBS 130945.
Representative sequences: tef1: KP109824.
Note: *Trichoderma cerebriforme* is distinctive because of the stout stipe and convoluted cap of the teleomorph. Similar species having stipitate/capitate stromata include *H. brevipes* Mont., *H. poronioidea* Möller, and *H. capitata* Samuels & Lodge (Samuels & Lodge 1996). *H. petersii* Berk. & M.A. Curtis and *H. peltata* (Jungh.) Berk. have large, centrally attached stromata, the stipe being greatly reduced. Doi (1976) reported but did not illustrate a *T. cf. longibrachiatum*-like asexual morph for *T. cerebriforme* based on collections made in Peru. Rogerson et al. (1990) reported the species from central Brazil (Roraima). The culture cited above was reported by Doi (in Samuels et al., 1990) from an Indonesian specimen (BPI 881335 ex NY). The sequence cited above was derived from this Indonesian collection; it indicates that *T. cerebriformis* may be a member of the Viride clade. Whether any of these collections made outside of Australia are actually *T. cerebriformis* remains to be proven, but the name is being used and for this reason we place it in *Trichoderma.*
**Trichoderma cerinum** Bissett, C.P. Kubicek & Szakáč, in Bissett & al., Can. J. Bot. 81: 581. 2003.
Typus: [dry culture] (DAOM 230012).
Ex-type culture: CBS 230012.
Representative sequences: **t**ef1: AY605802, AY937443; **rpb2**: KF134788.

**Trichoderma chlorosporum** P. Chaverri & Samuels, Stud. Mycol. 48: 49. 2004 ["2003"].
Typus: [dry culture] (BPRI 843658).
Ex-type culture: G.J.S. 88-33 = CBS 114231 = DAOM 232832 = ATCC MYA-3223.

(≡) **Hypocrea chlorospora** Berk. & M.A. Curtis, Grevillea 4: 14. 1875.
Typus: [UNITED STATES: North Carolina] 'New York,' mountains on decorticated wood, *Curtilis 4466* (K 114744).
Epitypus (vide Chaverri & Samuels, Stud. Mycol. 48: 51.2004) [specimen] UNITED STATES, Connecticut, Tolland County, Salmon River State Park, on wood, 17 Sep 1988, *L. Lowen 616* (NY No. 01197411).
Representative sequences: **t**ef1: AY737737, AY391966, AY391968; **rpb2**: AY391903, AY391906.

**Trichoderma christiani** Jaklitsch & Voglmayr, Stud. Mycol. 80: 46. 2015.
Typus: [specimen] (WU 33379).
Ex-type culture: CBS 133497.
Representative sequences: **r**pb: AY391973, AY391974, AY737728; **rpb2**: AY391912, AY391913.

**Trichoderma chromospermum** P. Chaverri & Samuels, Stud. Mycol. 48: 51. 2004 ["2003"].
Typus: [dry culture] (BPRI 843683).
Ex-type culture: G.J.S. 94-68 = CBS 114577.
Typus: [metabolically inactive culture] (CBS 132572).
Ex-type culture: CBS 100541.
Representative sequences: **t**ef1: KJ665438, KJ665439; **rpb2**: KJ665243, KJ665244.

**Trichoderma citrinum** P. Chaverri & Samuels, Stud. Mycol. 48: 51. 2004 ["2003"].
Typus: [dried culture] (DAOM 167644).
Ex-type culture: G.J.S. 96-48 = CBS 114577.

(≡) **Hypocrea citrina** M.A. Curtis & Peck, Ann. Rep. NY State Mus. Nat. Hist. 29: 56. 1878.
Lectotypus (vide Samuels & Jaklitsch in Stud. Mycol. 41: 48. 1998): New York, near Eupen, on leaf litter including pine needles, Oct 1985, *W. Gams 4031* (herb. CBS 894.85).
Ex-neotype culture: CBS 853.70.

(≡) **Trichoderma lacteum** Bissett, Can. J. Bot. 69: 2367. 1992.
Typus: [dry culture] (DAOM 167644).

(≡) **Hypocrea lactea** Fr., Obs. mycol. 2: 383. 1849.
Typus: [dried culture] (DAOM 167644).
Ex-type culture: CBS 121218.
Representative sequences: **t**ef1: FJ860631, DQ835411; **rpb2**: FJ179630, AF545561.

**Trichoderma compactum** Z.F. Yu & K.Q. Zhang, in Yu & al., Antonie van Leeuwenhoek 92: 104. 2007.
Typus: [dried culture] CHINA: Yunnan Prov. Yuxi, near Yuxi, isolated from tobacco rhizosphere, Jun 2002, Z.F Yu (YMF 1.01693 [Key Laboratory of Yunnan Microbiology Fermentation]).
Ex-type culture: CBS 121218.
Representative sequences: **t**ef1: KF134798, **rpb2**: KP115276, KF134789.

**Trichoderma composticola** Samuels & Jaklitsch., in Jaklitsch & al., Persoonia 33: 1391. 2013.
Typus: [metabolically inactive culture] (CBS 133497).
Ex-type culture: CBS 133497.
Representative sequences: **t**ef1: KC285631, **rpb2**: KC285754.

**Trichoderma corneum** (Pat.) Jaklitsch & Voglmayr, Mycotaxon 126: 147. 2014.

(≡) **Hypocrea cornea** Pat., J. Bot. 4: 64. 1890.
Typus: TONKIN: Forests of Mt. Bavi, on decorticated wood, May 1886, Balansa (K).
Ex-type culture: None.

Epitypus (*hic designatus*, MBT 202238): [specimen] THAILAND (BPRI 745564). Ex-epitype culture: CBS 100541 = G.J.S. 97-75.
Trichoderma cornu-damae (Pat.) Z.X. Zhu & W.Y. Zhuang, Mycosystema 33: 1207. 2014.
(5) Hypocrea cornu-damae Pat., Bull. Soc. Mycol. Fr. 11: 198. 1895.
(6) Podostroma cornu-damae (Pat.) Boedijn, Bull. Jard. bot. Buitenz. 3 Ser. 13: 274. 1934.
Typus: CHINA: Tibet: Su-tschen (FH).
Epitypus (hic designatus, MBT 201071): [Japan] “TNS.D-44, Hirakura, Mie, 7-IX-1965, Y. Doi,” (TNS-F-190012).
Ex-epitype culture: NBRC 9005 = IFO 9005 = G.J.S. 06-03.

Trichoderma costaricense (P. Chaverri & Samuels) P. Chaverri, Jaklitsch & Voglmayr, Mycotaxon 126: 147. 2013.
(6) Hypocrea costaricensis P. Chaverri & Samuels, Stud. Mycol. 48: 58. 2004 [“2004”].
Typus: [specimen] (INB 0003527695).
Ex-type culture: P.C. 21 (Lost).
Representative DNA sequences: tef1: AFY737741, AY391980; rpb2: AY391921.
Note: There are apparently no live cultures of T. costaricense.

Trichoderma crassum Bissett, Can. J. Bot. 69: 2376. 1992 [“1991”].
Typus: [dry culture] (DAOM 164916).
Ex-type culture: JN175544
Representative sequences: tef1: EU280048 + AF534615; rpb2: AF545542.
Note: The link of T. crassum to H. crassa P. Chaverri & Samuels (Chaverri & Samuels 2003) is incorrect; see T. neocrassum.

Trichoderma cremeoides Jaklitsch & Voglmayr, Stud. Mycol. 80: 49. 2015.
Typus: [specimen] (WU 33300).
Ex-type culture: CBS 131486.
Representative sequences: tef1: KJ665456, KJ665460; rpb2: KF134790, KJ665254.

Trichoderma cremeum P. Chaverri & Samuels, Stud. Mycol. 48: 63. 2004 [“2003”].
Typus: [dry culture] (BPI 843659).
(=) Hypocrea cremea P. Chaverri & Samuels, Mycologia 95: 1115. 2004 [“2003”].
Typus: [specimen] (BPI 1112894).
Ex-type culture: G.J.S. CBS 111146 = DAOM 231312 = ATCC MYA-2862.
Representative sequences: tef1: AY737736, rpb2: AF545511.

Trichoderma crystallinum Jaklitsch, in Jaklitsch & al., Mycologia 98: 502. 2006.
Typus: [dry culture] (WU 204041a).
(=) Hypocrea crystalligena Jaklitsch, in Jaklitsch & al., Mycologia 98: 502. 2006.
Typus: [specimen] (WU 204041).
Ex-type culture: CBS 118980.
Representative sequences: tef1: DQ345342, rpb2: DQ345347.

Trichoderma dacrymycellum Jaklitsch, Stud. Mycol. 63: 37. 2009.
Typus: [specimen] (WU 209042a).
Ex-type culture: None.
Representative culture: None.
Representative sequences: tef1: FJ860633, rpb2: FJ860533.
(=) Hypocrea dacrymycella Cooke & Plowr., Grevillea 12: 100. 1884.
Typus: UK: Norfolk: Brandon, on Scotch pine (= Pinus sylvestris), 7 Nov. 1881, C.B. Plowright (K (m) 114743).
Epitypus (vide) Jaklitsch, Stud. Mycol. 67: 40. 2009: [specimen] (WU 209042).
(=) Hypocrea viscidula W. Phillips & Plowr., Grevillea 13: 79. 1885.
Lectotypus (vide) Jaklitsch, Stud. Mycol. 67: 40. 2009: [specimen] (K 133498).
(=) Creopus velenovskyi Z. Moravec, Česká Mykol. 10: 88. 1956.
Typus: CZECH REPUBLIC: Central Bohemia, Mnichovice near Prague; on Picea abies in cavities of a stump, Nov. 1934; J. Velenovsky 29/1947 (PRM No. 153288).
Note: Trichoderma dacrymycellum has not been grown in pure culture. The asexual morph of T. dacrymycellum described by Jaklitsch (2009) is based on frequent association of the asexual morph with stromata agreeing with type material of H. dacrymycella. Gene sequences for this species reported by Jaklitsch (2009) were derived from stromata.

Trichoderma danicum (Jaklitsch) Jaklitsch & Voglmayr, Mycotaxon 126: 148. 2013.
(5) Hypocrea danica Jaklitsch, Stud. Mycol. 63: 41. 2009.
Typus: [specimen] (WU 29046).
Ex-type culture: CBS 121273.
Representative sequences: tef1: FJ860634, rpb2: FJ860534.

**Trichoderma decipiens** (Jaklitsch, K Pöldmaa & Samuels) Jaklitsch & Voglmayr, Mycotaxon 126: 148. 2013.

(≡) Hypocrea decipiens Jaklitsch & al., Mycologia 100: 981. 2008.  
Typos: [specimen] (BPI 747356).  
Ex-type culture: CBS 121307.  
Representative sequences: tef1: FJ860635, EF550995; rpb2: DQ835520.

**Trichoderma delicatulum** Jaklitsch, Fungal Divers. 48: 135. 2011.  
Typos: [dry culture] (WU 29225a).  
Ex-type culture: CBS 120631.  
(≡) Protocrea delicatula Tul. & C. Tul., Sel. Fung. Carp. 3: 33. 1865.  
Lectotypus (vide Rossmann & al., Stud. Mycol. 42: 94. 1999): France: Clarat, 4 Jan. 1860, M.-L.-R. Tulasne, PC 93188 (PC).  
Epitypus vide Jaklitsch, Fungal Divers. 48: 139. 2011.  
[specimen] (WU 29225).  
Ex-epitype culture: CBS 120631.  
Representative sequences: tef1: FJ860636, rpb2: FJ860535.

*Trichoderma deliquescentes* (Sopp) Jaklitsch, Fungal Divers. 48: 176. 2011.  
(≡) Gliocladium deliquescentes Sopp, Monogr. Penicillium: 89. 1912.  
Neotypus (vide Jaklitsch, Fungal Divers. 48: 179. 2011): [dry culture] (WU 29232a).  
(≡) Sphaeria gelatinosa var. lutea Tode, Fungi Meccklenb. 2: 48. 1791, as ‘a’.  
(≡) Hypocrea lutea (Tode: Fr.) Petch, J. Bot. 75: 231. 1937.  
Lectotypus (vide Samuels in Taxon 63: 937. 2014): [icon in] Tode, Fungi Meccklenb. Sel. 2: t. XVI, fig. 123a–f. 1791.  
Epitypus (vide Jaklitsch, Fungal Divers. 48:179. 2011): [specimen] UK: (WU 29232).  
Ex-epitype culture: CBS 121131.  
(≡) Gliocladium viride Matr., Bull. Soc. Mycol. Fr. 9: 251. 1893.  
Typos: [specimen] “...trouvé par moi sur un Cittocybe en décomposition, ramassé dans un bois près de Bonnieres (Seine-et-Oise) en avril dernier.” L. Matruchot.  
Representative sequences: tef1: FJ860644, rpb2: FJ179609.  
Note: Gliocladium viride Matr. is recognized to be an older facultative synonym of G. deliquescentes Sopp (e.g., Jaklitsch 2011) but the existence of the name Gliocladium viride Pers. 1791 precludes transfer of the epithet to Trichoderma.  
At the rank of species, the name Gliocladium delicuoscentes has priority from 1912, while the sanctioned (Fries, Syst. Mycol. 2: 336. 1823) and older epithet ‘lutea’ dates from 1791, but only at an undefined infraspecific rank; at species rank it dates from 1937. However, because G. delicuoscentes (≡ T. delicuoscentes) is typified by an asexual morph, while H. lutea is typified by a teleomorph, and both are in current use, Art. 57.2 requires that a proposal to conserve H. lutea be submitted and rejected before adopting the older asexual morph-typified name (Samuels 2014).  

**Trichoderma dingleyae** Samuels & Dodd, *in* Samuels & al., Stud. Mycol. 56: 108. 2006.  
Typos: [dry culture] “ Typus anamorphosis T. dingleyae cultura sicca ex ascospora oriens PDD 83838” (PDD 83838).  
(≡) Hypocrea dingleyae Samuels & Dodd, *in* Samuels & al., Stud. Mycol. 56: 108. 2006.  
Typos: [specimen] (PDD 83838).  
Ex-type culture: CBS 119056.  
Representative sequences: tef1: AF348117, DQ289008, J665467; rpb2: EU341803, KJ665257.

**Trichoderma doriotheae** Samuels & Dodd, *in* Samuels & al., Stud. Mycol. 56: 112. 2006.  
Typos: [dry culture] NEW ZEALAND “... holotypus asexual morphosis T. doriotheae cultura sicca ex ascospora oriens PDD 83839” (PDD 83839).  
(≡) Hypocrea doriotheae Samuels & Dodd in Samuels & al., Stud. Mycol. 56: 112. 2006.  
Typos: [specimen] (PDD 83839).  
Ex-type culture: G.J.S. 99-220 = CBS 119089 = ICMP 16288.  
Representative sequences: tef1: DQ307536, rpb2: EU248602.

**Trichoderma eijii** C. S. Kim & N. Maekawa, *in* Kim & al., Mycol. Prog. 12: 744. 2012.  
Typos: [specimen] (TUMH 40475).  
Ex-type culture: TUF 100002 = CBS 133190.  
Representative sequences: tef1: JX68419, KJ665473; rpb2: KJ665260.

**Trichoderma effusum** Bissett, C.P. Kubicek & Szakács, *in* Bissett & al., Can. J. Bot. 81: 575. 2003.  
Typos: [dry culture] (DAOM 23000).  
Ex-type culture: DAOM 230007.  
Representative sequences: tef1: AY937419, KJ665473; rpb2: KJ665260.

**Trichoderma epimyces** Jaklitsch, Fungal Divers. 48: 179. 2011.  
Typos: [metabolically inactive culture] (CBS 130729).  
Ex-type culture: DIS 217a = CBS 130729 = IMI 395208.  
Representative sequences: tef1: JX684011.  

**Trichoderma eijii** C. S. Kim & N. Maekawa, *in* Kim & al., Mycol. Prog. 12: 744. 2012.  
Typos: [specimen] (TUMH 40475).  
Ex-type culture: TUF 100002 = CBS 133190.  
Representative sequences: tef1: JX68419, KJ665473; rpb2: KJ665260.

**Trichoderma endophyticum** F.B. Rocha, Samuels & P. Chaverri, *in* Chaverri & al., Mycologia 107: 573. 2015.  
Typos: [metabolically inactive culture] (CBS 130729).  
Ex-type culture: DIS 217a = CBS 130729 = IMI 395208.  
Representative sequences: tef1: FJ463319, HQ022776, FJ967822; rpb2: FJ442775, FJ442721.

**Trichoderma epimyces** Jaklitsch, *in* Jaklitsch & al., Mycologia 100: 808. 2008.  
Typos: [dry culture] (WU 28237a).  
Ex-type culture: CBS 120524.  
(≡) Hypocrea epimyces Sacc. & Pat., *in* Patouillard, Tabulae Analyticae Fungorum 4: 175. 1891.  
Typos: FRANCE: Jura, Poligny, *in* Polyergus nigricans, Jul 1881, N. Patouillard (PAD): epitypus (vide Jaklitsch, Stud. Mycol. 63: 46. 2009): [specimen] WU 28237.  
(≡) Hypocrea vinosa Pat., *Rev. Mycol. Toulouse* 3(12): 11. 1881 nom. illeg. non Cooke 1879.  
Typos: [specimen] “Isolé en groupe sur les deux faces du Polyporus nigricans, Poliguy (Jura) Juillet 1881.” N.T. Patouillard (PAD, FH).  
Representative sequences: tef1: X238484, rpb2: EU498360.
Trichoderma erinaceus  Bissett, C.P. Kubicek & Szakács, in Bissett & al., Can. J. Bot. 81: 583. 2003. [as ‘erinaceum’, to be corrected as masculine for a noun in apposition; the hedgehog ‘erinaceus’ cannot be used as an adjective].

Typus: [dry culture] (DAOM 230019).
Ex-type culture: DAOM 230019.
Representative sequences: tef1: AY7508880, DQ109547; rpb2: EU248603, EU248604.

Note: Unidentified Hypocre a rufa-like stromata collected once in Sri Lanka (BPI 871397, culture G.J.S. 02-103 = CBS 126393; tef: KR873098, rpb2: KR870399).

Trichoderma estonicum  P. Chaverri & Samuels, Stud. Mycol. 48: 66. 2004 [*2003*].

Typus: [dry culture] (BPI 843661).
Ex-type culture: None. Representative culture (G.J.S. 99-61) and the culture was sequenced, but the culture was lost.

Representative sequences: tef1: AY605801, AF534617; rpb2: AF545545, AF545546.

Trichoderma eucorticioides  (Overton) Jaklitsch & Voglmayr, Mycotaxon 126: 148. 2013.

(≡) Hypocre a corticoides Spec., An. Mus. Nac. Hist. Nat. Buenos Aires 23: 75. 2 Abr 1912, non Berk. & Broome (J. Linn. Soc. Bot. 14: 111. 9 Oct 1873) nec Ellis & Everh. (J. Mycol. 1: 140. 1885).

(≡) H. eucorticioides Overton, I Overton & al., Stud. Mycol. 56: 55. 2006.

Typus: ARGENTINA: Entre Ríos, Ibicuy, 28 Jun 1911, C. Spegazzini 911 (LPS 1719).
Ex-type culture: None. Representative culture (G.J.S. 99-61) lost.

Representative sequences: tef1: DQ835502, DQ835574; rpb2: DQ835520.

Note: Overton et al. (2006) noted that the type specimen of H. corticioides is overmature and in poor shape. They cited two additional collections, respectively from Costa Rica and Venezuela. The Costa Rican specimen was cultured (G.J.S. 99-61) and the culture was sequenced, but the culture was subsequently lost. Gene sequences for this specimen were deposited in GenBank (Jaklitsch & Voglmayr 2014a) and this is the basis of our understanding of the species. Overton et al. (ibid.) also recognized the earlier published H. corticioides Berk. & Broome and introduced the replacement name, H. eucorticioides for Spec.’s species. The type specimen of H. corticioides Berk. & Broome (K) is Stilbocrea macrostoma (Berk. & M.A. Curtis) Höhnel. Hypocre a corticioides Ellis & Everh. was renamed as H. corticicola Ellis & Everh. (N. Am. Pyren.: 83. 1892). The type packet of H. corticicola (NY 00965604) was annotated by Y. Doi (1974) as “…A young form of a species of Protocrea? or a species of Aphyllorhalas?” and G. J. Samuels in 2001 annotated the specimen: “… NOT Hypocreopsis, possibly Protocrea. Apparently the same as H. subcarna Ellis & Everh. 1887.”
Trichoderma flavipes (Peck) Seifert, Jaklitsch & Voglmayr, in Jaklitsch & Voglmayr, Mycotaxon 126: 148. 2014. (≡ Stilbum flavipes Peck, Ann. Rep. New York State Mus. Nat. Hist. 31: 45. 1878. (≡ Stilbella flavipes (Peck) Seifert, Stud. Mycol. 27: 68. 1985. Typus: [specimen] “Decaying wood. Center. Oct.” (NYS 1215). Ex-type culture: None.

Trichoderma gamsii Trichoderma gamsii (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2014 ["2013"]. (≡ Hypoecra gamsii Jaklitsch & Voglmayr, Mycotaxon 104: 1218. 2012. Typus: [specimen] (WU 32187). Ex-type culture: G.J. S. 92-102 = DAOM 22238 = CBS 123070. Representative sequences: tef1: DQ834454, rpb2: DQ834461.

Trichoderma floccosum Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 234. 2011. Typus: [dry culture] (BPI 871616). Ex-type culture: G.J. S. 01-238 = CBS 124372. Representative sequences: tef1: HQ342218, rpb2: HQ342281.

Trichoderma folicola (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 50. 2009. Typus: [dry culture] (WU 29050a). (≡) Hypoecra folicola Jaklitsch, Stud. Mycol. 63: 50. 2009. Typus: [specimen] (WU29050). Ex-type culture: CBS 121136. Representative sequences: tef1: FJ860639, rpb2: FJ860538.

Trichoderma fomiticola Jaklitsch, Stud. Mycol. 63: 50. 2009. Typus: [dry culture] (WU 29050a). (≡) Hypoecra fomiticola Jaklitsch, Stud. Mycol. 63: 50. 2009. Typus: [specimen] (WU29050). Ex-type culture: CBS 121136. Representative sequences: tef1: FJ860639, rpb2: FJ860538.

Trichoderma gamsii Samuels & Druzhinina, in Samuels & al., Stud. Mycol. 56: 168. 2006. Typus: [dry culture] (BPI 872183). Ex-type culture: G.J. S. 06-09 = CBS 120075. Representative sequences: tef1: DQ307541, DQ841722; rpb2: JN133561.

*Trichoderma gelatinosum* P. Chaverri & Samuels, Stud. Mycol. 48: 68. 2003 ["2004"]. Typus: [dry culture] (BPI 747556). Ex-type culture: CBS 114246 = DAOM 232835. (≡) Sphaeria gelatinosa Tode, Fungi Mecklenb. 2: 48. 1791 : Fr., Syst. Mycol. 2: 336. 1823. (≡) Hypoecra gelatinosa (Tode : Fr.) Fr., Summa Veg. Scand. p. 383. 1849. Typus: [icon] Tab. 123 a-d, 124 a-f in Tode, Fungi Mecklenb. 2. 1791.
Representative sequences: tef1: JN215484, JX089585; rpb2: Q901400, QJ901401.

**Trichoderma hamatum** (Bonord.) Bain., Bull. Soc. Mycol. Fr. 22: 131. 1906.

(L) *Verticillium hamatum* Bonord., Handb. Allg. Mykol. 97. 1851.

Lectotypus (vide Bissett, 1991): [icon] Bonord, Handb. Allg. Mykol. 97, fig. 117. 1851.

**Epitypus** *(hic designatus, MBT 201072): CANADA [dry culture] (DAOM 167057).*

Ex-epitype culture: DAOM 167057. Representative sequences: tef1: AF456911, AY750893; rpb2: AF545548.

Note: Bonorden did not cite a specific specimen in the protologue to *V. hamatum*, but his illustration (Fig. 117) can easily be interpreted as representing our modern concept of *T. hamatum*. Bissett (1991) noted the lack of type material and commented on Fig. 117, but he designated a neotype for this species. Under Art. 9.2 of ICN the illustration published with the protologue of *Verticillium hamatum* has to be adopted as lectotype of this species as it is a part of the “original material” in the sense of the ICN. The culture designated by Bissett (1991) as neotype for *T. hamatum* (DAOM 167057) should therefore be regarded as epitype of *V. hamatum*. Jaklitsch & Voglmayr (2014) described a telemorph with yellow-brown to dull orange stromata and colorless ascospores.

**Trichoderma harzianum** Rifai, Mycol. Pap. 116: 38. 1969.

Neotypus *(vide* Gams & Meyer in Mycologia 90: 908. 1998): [dry culture] (CBS 226.95).

Ex-neotype culture: CBS 226.95. Representative sequences: tef1: AF348101, AF348100, AF348092; rpb2: AF545549.

Note: *Trichoderma harzianum* has been known to be a species complex for several years (Chaverri et al., 2003b; Druzhinina et al., 2010). Chaverri et al. (2015) recognized several taxonomic names in the complex.

**Trichoderma hausknechtii** Jaklitsch & Voglmayr, Stud. Mycol. 60: 59. 2015.

Typus: [specimen] (WU 32168).

Ex-type culture: CBS 133493. Representative sequences: tef1: KJ665515, rpb2: KJ665276.

**Trichoderma helicolixii** Jaklitsch & Voglmayr, Stud. Mycol. 80: 61. 2015.

Typus: [specimen] (WU 33410).

Ex-type culture: CBS 133499. Representative sequences: tef1: KJ665517, rpb2: KJ665276.

**Trichoderma helicum** Bissett, C.P. Kubicek & Szakács, in Bissett & al., Can. J. Bot. 81: 575. 2003.

Typus: [dry culture] (DAOM 230022).

Ex-type culture: DAOM 230022. Representative sequences: tef1: EU280055, rpb2: DQ087239.

**Trichoderma hispanicum** (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2014 [*2013*].

(L) *Hypocrea hispanica* Jaklitsch & Voglmayr, in Jaklitsch & al., Mycologia 104: 935. 2012.

Typus: [specimen] (WU 31606) (ex-type culture CBS 130540 = S453).

Ex-type culture: CBS 130540. Representative sequences: tef1: JN715659, rpb2: JN715600.

**Trichoderma hunua** (Dingley) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2013.

(L) *Hypocrea hunua* Dingley, Trans. Roy. Soc. New Zealand 79: 327. 1952.

**Epitypus** *(hic designatus, MBT 201073): NEW ZEALAND [dry culture] (CBS H 13531).*

Ex-epitype culture CBS 238.63. Representative sequence: tef1: AF401011.

Note: The original gathering of *H. hunua* was not cultured. Joan Dingley sent a subsequently collected specimen and/or culture (Dingley No. 5) of this species to John Webster, who deposited the culture in CBS (CBS 238.63). A dry culture was made and deposited in CBS (H 13531). We designate the dry culture as epitype. This culture has been sequenced and included in phylogenetic analysis. Thus the name ‘*Hypocrea hunua*’ is in current use and representative sequences have been deposited in GenBank. However, the specimen from which the culture CBS 238.63 was derived cannot be located (PDD) and is presumed lost. Thus its identity as *H. hunua* is uncertain. However, the phylogenetic results with Webster/Dingley’s culture of this species (Kullnig-Gradinger et al. 2002) that is deposited in CBS is consistent with the morphology of part of the type that is now deposited in K (as IMI 50433). Sequences under this name are deposited in GenBank and Jaklitsch & Voglmayr (2014) have commented on its phylogenetic position in their list of *Trichoderma/ H. hispanicum* species based on this culture. Thus there is an established taxonomy and literature for *H. hunua*. Stability of this name is served by adopting an epitype as we do here, despite the uncertainty about the provenance of CBS 238.63.

**Trichoderma inhamatum** Veerkamp & W. Gams, Caldasia 13: 710. 1983.

**Lectotypus** *(hic designatus, MBT 202387): [dry culture] COLOMBIA: *Dep. Meta*: Municipio de Villavicencio, 25 km from Villavicencio to Acacías (CBS H 18863).

Ex-type culture: CBS 238.73. Representative sequences: tef1: AF348099, rpb2: FJ442725.

**Trichoderma intricatum** Jaklitsch & Voglmayr, Mycotaxon 56: 112. 2006.

Ex-neotype culture: CBS 238.63. Representative sequence: tef1: AF401011.

Note: The original collection of *T. intricatum* was not cultured. Joan Dingley sent a subsequently collected specimen and/or culture (Dingley No. 5) of this species to John Webster, who deposited the culture in CBS (CBS 238.63). A dry culture was made and deposited in CBS (H 13531). We designate the dry culture as epitype. This culture has been sequenced and included in phylogenetic analysis. Thus the name ‘*Hypocrea intricata*’ is in current use and representative sequences have been deposited in GenBank. However, the specimen from which the culture CBS 238.63 was derived cannot be located (PDD) and is presumed lost. Thus its identity as *H. intricata* is uncertain. However, the phylogenetic results with Webster/Dingley’s culture of this species (Kullnig-Gradinger et al. 2002) that is deposited in CBS is consistent with the morphology of part of the type that is now deposited in K (as IMI 50433). Sequences under this name are deposited in GenBank and Jaklitsch & Voglmayr (2014) have commented on its phylogenetic position in their list of *Trichoderma/ Hypocrea* species based on this culture. Thus there is an established taxonomy and literature for *H. intricata*. Stability of this name is served by adopting an epitype as we do here, despite the uncertainty about the provenance of CBS 238.63.

**Trichoderma intricatum** Samuels & Dodd, in Samuels & al., Stud. Mycol. 56: 112. 2006.

Typus: [dry culture] (BPI 745751B).

Note: The type material of *T. intricatum* does not grow on TESIT media. Three dry cultures (CBS H-18863, CBS H-18864, CBS H-18865) were made from the same ex-type culture of *T. inhamatum* and deposited in the herbarium of CBS. We presume them all to be isotypes; accordingly, designate one of them as lectotype.
Trichoderma istriatum Jaklitsch & Voglmayr, Stud. Mycol. 80: 63. 2015.
Typus: [specimen] (WU 33354).
Ex-type culture: CBS 130639.
Representative sequences: tef1: KJ665522., rpb2: KJ665280.

Trichoderma italicum Jaklitsch & Voglmayr, Stud. Mycol. 80: 65. 2015.
Typus: [specimen examined] (WU 33310).
Ex-type culture: CBS 132567.
Representative sequences: tef1: KJ665525, rpb2: KJ665282.

Trichoderma ivoriense Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 237. 2011.
Typus: [dry culture] (BPI 881030).
Ex-type culture: CBS 125734.
Representative sequences: tef1: HQ342217, rpb2: HQ342280.

Trichoderma junci Jaklitsch, Fungal Divers. 48: 13. 2011.
Typus: [dry culture] WU 29229a.
(=) Hypocrea junci Jaklitsch, Fungal Divers. 48: 13. 2011.
Typus: [specimen] (WU 292299).
Ex-type culture: CBS 120926.
Representative sequences: tef1: FJ860641, rpb2: FJ860540.

Trichoderma koniangbra Samuels, O. Petrini & C.P. Kubicek, in Samuels & al., Stud. Mycol. 41: 21. 1998.
Lectotypus (hic designatus, MBT 201074): [metabolically inactive culture] UGANDA, entrance to Ruwenzori National Park, elev. 1750 m, soil, 1993 (CBS 100808 = G.J.S. 96-145).
Ex-neotype culture: G.J.S. 96-145 = CBS 100808 = ATCC 208860 = IMI 378807.
Representative sequences: tef1: JN258681, rpb2: KJ665284.
Note: The protologue of T. koniangbra indicates that the type is a dry culture deposited in BPI (s.n.) however this material has evidently been lost. Accordingly we designate the metabolically inactive ex-type culture deposited as CBS 100808 as lectotype.

Trichoderma koningii Oudemans, in Oudemans & Koning, Arch. Néerl. Sci. Exactes nat. sér. 2: 29I. 1902.
Lectotypus (hic designatus, MBT 292406): [Icon] Oudemans & Koning, Arch. Néerl. Sci. Exactes, nat. sér. 2: tab. XXXI. 1902.
Epitypus (vide Lieckfeldt & al., Can. J. Bot. 76: 1520. 1998): THE NETHERLANDS (CBS 457.96).
Ex-epitype culture: CBS 457.96.
(=) Hypocrea koningii Lieckfeldt, Samuels & W. Gams, in Lieckfeldt & al., Can. J. Bot. 76: 1519. 1998.
Typus: [specimen] (BPI 745885).
Representative sequences: tef1: AY376054, DQ288991, KC285594, rpb2: FJ442761.
Note: Because Lieckfeldt et al. (1998) did not locate a type specimen from Rifai for T. koningii, they designated a neotype (a dry culture, BPI 744887). However the illustration provided with the original description should have been designated as lectotype; thus BPI 744887 and its corresponding culture (CBS 457.96) are to be regarded as epitype and ex-epitype culture, respectively.

Trichoderma koningiopsis Samuels, C. Suarez & H.C. Evans, in Samuels & al., Stud. Mycol. 56: 117. 2006.
Typus: [dry culture] (BPI 802571B).
Ex-type culture: CBS 119075.
Representative sequences: tef1: AF4456910, DQ284966; rpb2: DQ381954
(=) Hypocrea koningiopsis Samuels in Samuels & al., Stud. Mycol. 56: 117. 2006.
Typus: [specimen] (BPI 802571).

Trichoderma kunigamense Yabuki & Okuda, in Yabuki et al., Mycoscience 55: 201. 2014.
Typus: [specimen] JAPAN (TNS-F-38436).
Ex-type culture: TAMA 0193 = NBRC 109640.
Representative sequences: tef1: AB807645, rpb2: AB807657.

Trichoderma lacu庑omatensis (B.S. Lu, Druzhinina & Samuels) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2014 ["2013"].
(≡) Hypocrea laculicosiformis B.S. Lu, Druzhinina & Samuels, Mycologia 96: 338. 2004.
Typus: [specimen] (PDD 77489) (isotypus BPI 746621) (ex-type culture CBS 122668 = G.J.S. 99-198).
Ex-type culture: CBS 122668.
Representative sequences: tef1: AY240863, AY937452; rpb2: KJ665286, KJ842157.

Trichoderma lanuginosum Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 240. 2011.
Typus: [specimen] BPI 863853.
Ex-type culture: CBS 125718.
Representative sequences: tef1: HQ342221, rpb2: HQ342284.

Trichoderma latizonatum (Peck) Samuels, comb. nov.
MycoBank MB812057
(≡) Hypocrea latizonata Peck in Ellis & Everhart, N. Amer. Pyrenom. p. 79. 1892.
Typus: [specimen] "A very curious species sent from Ohio under the above name [H. lati-zonata], by Prof. A.P. Morgan. Parasitic on Cyathus striatus, Hoff." (NYS Specimen f 1661).
Note: Sundberg & Kost (1989) redescribed this remarkable, distinctive, host-specific Trichoderma from North America. This unmistakable species has not been cultured or sequenced.

Trichoderma leguminosarum Jaklitsch & Voglmayr, Stud. Mycol. 80: 68. 2015.
Typus: [specimen examined] (WU 33397).
Ex-type culture: CBS 30014.
Representative sequences: tef1: KJ665551, rpb2: KJ665288.
Trichoderma lentiforme (Rehm) P. Chaverri, Samuels & F.B. Rocha, in Chaverri & al., Mycologia 107: 577. 2015.

(≡) HypocreaportiiRehm, Hedwigia 37: 193 (1898).
Typus: [specimen] (BRAZIL: Santa Catarina State: on decaying leaves of Euterpe, Aug. 1888, Ule) (isotypus HBG #812).
Epitypus (vide Chaverri & al., 2015): [specimen] (BPI 744709).
Ex-epitype culture: G.J.S. 97-96 = CBS 100542.
Representative sequences: tef1: AF469195, AF443931; rpb2: FJ442687, FJ442749.

Trichoderma leucopus Jaklitsch, Fungal Divers. 48: 73. 2011.
Typus: [dry culture] WU 29231a.
Ex-type culture: CBS 122499.
(≡) Podostroma leucopus P. Karst., Hedwigia 31: 294. 1892.
Typus: FINLAND: Etelä-Häme. Tammela, Syrjä, 30 Sep. 1892, P.A. Karsten 3247 (H).
Representative sequences: tef1: FJ179571, FJ179570; rpb2: FJ179605, FJ179606.

Trichoderma lieckfeldiae Samuels, in Samuels & Ismaiel, Mycologia 101: 149. 2009.
Typus: [dry culture] BPI 878745.
Ex-type culture: CBS 123049.
Representative sequences: tef1: EU856326, rpb2: EU883526.

Trichoderma lixii (Pat.) P. Chaverri, in Chaverri & al., Mycologia 107: 578. 2015
(≡) Hypocreaportii Pat., Rev. Mycol. Toulouse 13: 138. 1891.
Typus: PAPUA NEW GUINEA: on hymenium of Ganodermapourii, Jul. 1891, Lix (FH).
Epitypus (vide Chaverri & Samuels, in Mycol. Proc. 1: 285. 2002): THAILAND: Saraburi Province: Khao Yai National Park, Wang Jumpee Trail, on hymenium of Ganoderma sp., 31 Jul. 1997, K. Pöldmaa, P. Chaverri, G.J. Samuels 8233 (BPI 745654).
Ex-epitype culture: G.J.S. 97-96 = CBS 110080 = ATCC MYA-2478.
Representative sequences: tef1: AF443938, FJ716622; rpb2: KJ652990.
Note: Chaverri & Samuels (2002) considered H. lixii to be the sexual morph of T. harzianum. A revision of the T. harzianum species complex (Chaverri et al., 2015), however, shows that T. lixii and T. harzianum are closely related but distinct species.

Trichoderma longibrahiatum Rifai, Mycol. Pap. 116: 42. 1969.
Typus: [dry culture] USA: Ohio: Hamilton County, Duck Creek, on wood, 12 Sep. 1961, W.B. Cooke 4576 (SHD-M).
Ex-type culture: CBS 816.68 = ATCC 18648.
Representative sequences: tef1: EU401591, rpb2: DQ087242.

Trichoderma longipile Bissett, Can. J. Bot. 69: 2395. 1992 [*1991*]; as ‘longipilis’.
Typus: [dry culture] (DAOM 177227-1a).
Trichoderma mediterraneum Jaklitsch & Voglmayr, Stud. Mycol. 80: 70. 2015.
Typus: [specimen examined] (WU 33334).
Representative sequences: tef1: HQ342214, rpb2: HQ342277.

Trichoderma medusae Samuels, in Samuels & Ismail, Mycol. Prog. 11: 245. 2011.
Typus: [dry culture] (BPI 863841).
Ex-type culture: CBS 125719.
Representative sequences: tef1: HQ342214, rpb2: HQ342277.

Trichoderma megalocitrinum (Yoshim. Doi) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2013.
(≡) Hypocrea megalocitrina Yoshim. Doi, Bull. Natl. Sci. Mus. Tokyo 15: 669. 1972.
Typus: [specimen] (TNS.D-50 = TNS-F-223220. Isotype NY No. 00965630).
Ex-type culture: (Lost) B.E.O. 00-09.
Representative sequences: tef1: AY225855, rpb2: AF545563.
Note: The ex-type culture of H. megalocitrina has evidently been lost; sequences derived from it are deposited in GenBank.

Trichoderma melanomagnum P. Chaverri & Samuels, Stud. Mycol. 48: 77. 2004 [“2003”].
Typus: [dry culture] (BPI 843663).
(≡) Hypocrea melanomagnum P. Chaverri & Samuels, Stud. Mycol. 48: 77. 2004 [“2003”].
Typus: AUSTRALIA: Victoria: between Yarram and Turaralgie, Balook, Tarras Bulga National Park Visitor Center, forest trail, 550 m alt., on decorticated wood, 22 Aug. 1999, G.J. Samuels 8575 & J. Pyke (PDD), Isotypus (BPI 843648).
Ex-type culture CBS 114236.
Representative sequences: HQ342214, HQ342277; rpb2: AY391926.

Trichoderma microcitrinum (Yoshim. Doi) Jaklitsch & Voglmayr, Mycotaxon 126: 149. 2013.
(≡) Hypocrea microcitrina Yoshim. Doi, Bull. Natl. Sci. Mus. Tokyo 15: 667. 1972.
Typus: [specimen] (TNS.D-181 = TNS-F 223325).
Representative cultures: G.J.S. 91-61, G.J.S. 97-248.
Representative sequences: tef1: DQ835449, DQ835450, DQ835478, DQ835479; rpb2: DQ835460, DQ835462.
Note: This species was originally described from Japan. The cultures cited above were cited by Overton et al. (2006) and were collected in the U.S.A. For this reason we do not designate either as an epitype.

Trichoderma mienum C. S. Kim, Nakagiri & N. Maekawa, in Kim & al., Antonie van Leeuwenhoek 102: 638. 2012.
Typus: [specimen] (TMI 10313).
Ex-type culture: TUFC 61533 = CBS 132690.
Representative sequences: tef1: JQ621978, rpb2: JQ621968.

Trichoderma minutisporum Bissett, Can. J. Bot. 69: 2396. 1992 [“1991”].
Typus: [dry culture] (DAOM 167069p).

Trichoderma moravicum Jaklitsch, Fungal Divers. 48: 208. 2011.
Typus: [dry culture] (WU29283a).
(≡) Hypocrea moravica Petrak, Ann. Mycol. 38: 260. 1940.
Typus: CZECH REPUBLIC, Mährisch Weißkirchen, Podhorn, on wood, Oct. 1920, F. Petrak (K(M) 154039).
Epitypus (vide Jaklitsch, Fungal Divers. 48: 212. 2011): [specimen] (WU 29283).
Ex-epitype culture: CBS 120539.
Representative sequences: tef1: FJ860651; rpb2: FJ860548, FJ860549.

Trichoderma neocrassum Samuels, nom. nov. MycoBank MB812058
(≡) Hypocrea crassa P. Chaverri & Samuels, Stud. Mycol. 48: 61. 2004, non T. crassum Bissett, Can. J. Bot. 69: 2376. 1992.
Typus: [specimen] (BPI 843647).
Ex-type culture: CBS 114230.
Representative sequences: tef1: JN133572, rpb2: AY481587.
Note: Chaverri & Samuels (2003) reported that T. crassum Bissett and the newly described H. crassa were an asexual morph/teleomorph pair, but this link is not supported by an unpublished molecular phylogenetic analysis. Hypocrea crassa is distinct both from T. crassum and the closely related T. virens (J.H. Miller et al.) Arx.

Trichoderma neokoningii Samuels & Soberanis, in Samuels & al., Stud. Mycol. 56: 172. 2006.
Typus: [dry culture] (BPI 872182).
Ex-type culture: CBS 120070.
Representative sequences: tef1: KJ665620, rpb2: KJ665318.

Trichoderma neorufoides Jaklitsch, Fungal Divers. 48: 25. 2011.
Typus: [dry culture] WU 29296a.
(≡) Hypocrea neorufoides Jaklitsch, Fungal Divers. 48: 25. 2011.
Trichoderma neorufum (Samuels, Dodd & Lieckfeldt)
Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2013.
(≡) Hypocreopsis neorufa Samuels, Dodd & Lieckfeldt, in Dodd & al., Mycol. Prog. 1: 421. 2002.
Typus: [specimen] (BPI 744493).
Ex-type culture: CBS 111144.
Representative sequences: tef1: FJ860653, rpb2: FJ860553.

Trichoderma neosinense Samuels & Jaklitsch, in Jaklitsch & al., Persoonia 33: 139. 2013.
Typus: [specimen] (BPI 749315).
Ex-type culture: CBS 134882.
Representative sequences: tef1: KJ665624, rpb2: KC285777.

Trichoderma neotropicale P. Chaverri & F.B. Rocha, in Chaverri & al., Karstenia 44: 21. 2004.
Typus: [metabolically inactive culture] (CBS 130633).
Ex-type culture: G.J.S. 11-185 = CBS 130633.
Representative sequences: tef1: FJ967803, FJ967825, HQ022771.

Trichoderma nothescens Samuels & Jaklitsch, in Jaklitsch & al., Persoonia 33: 143. 2013.
Typus: [specimen] (BPI 8456813).
Ex-type culture: CBS 134882.
Representative sequences: tef1: DQ307512, rpb2: EU241498.

Trichoderma novae-zelandiae (Samuels & O. Petrini)
Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2013.
(≡) Hypocrea novae-zelandiae Samuels & O. Petrini, in Samuels & al., Stud. Mycol. 41: 25. 1998.
Typus: [specimen] (PDD 46792).
Ex-type culture: CBS 496.97 = CBS 639.92 = G.J.S 81-265.
Representative sequences: tef1: AY865639, AY937448; rpb2: JN175522.

Trichoderma nybergianum (T. Ulvinnen & H. Chamberlain) Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2014.
(≡) Podostroma nybergianum T. Ulvinnen, Suur-sieniopas. 291. 1976.
(≡) Hypocrea nybergiana T. Ulvinnen & H. Chamberlain, in Chamberlain & al., Karstenia 44: 21. 2004.
Typus: [specimen] (OULU F 49597).
Ex-type culture: None.
Representative cultures: CBS 122500, 122496
Representative sequences: tef1: FJ179575, rpb2: FJ179611.

Trichoderma oblongisporum Bissett, Can. J. Bot. 69: 2398. 1992 ['1991].
Typus: [dry culture] (DAOM 176226).
Ex-type culture: DAOM 176226.
Representative sequences: tef1: AY750884, AF534623; rpb2: AF545551.

Trichoderma ochroleucum (Berk. & Ravenel) Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2014.
(≡) Hypocrea ochroleuca Berk. & Rav. 1382, on trunks of Myrica cerifera, S[outh] C[arolina], HWR near S. luteovirens” (K, ISOTYPE NY 00956640).
Ex-type culture: None. Representative culture: CBS 119502.
Typus: USA: South Carolina: “Hypocrea ochroleuca Berk. & Rav. 1382, on trunks of Myrica cerifera, S[outh] C[arolina], HWR near S. luteovirens” (K, ISOTYPE NY 00956640).
Note: A second specimen in NY (00956641) identified as H. ochroleuca from the herbarium of J.S. Billings is annotated as being ‘ex herb. Rav.’ and is probably an isotype but the specimen lacks collecting information. Jaklitsch (2011) described an asexual morph for H. ochroleuca based on a British collection. Because he did not have a culture of a collection made in North America he did not epitypify the species with the British material.

Trichoderma olivascens Jaklitsch, Samuels & Voglmayr, Persoonia 33: 121. 2013.
Typus: [specimen] (WU 31622).
Ex-type culture: CBS 132574.
Representative sequences: tef1: KC285624, rpb2: KC285752.

Trichoderma oligosporum Z.X. Zhu & W.Y. Zhuang, Mycologia 107: 335. 2015.
Typus: [specimen] CHINA: Anhui: Jinzhai, Tiantangzhai, 900–1100 m, on twig, 24 Aug 2011, S.L. Chen, W.Y. Zhuang, H.D. Zheng & Z.Q. Zeng 7890 (HMAS 252870).
Ex-type culture HMAS 245079 = CGMCC 3.17527.
Representative sequences: tef1: KJ634764, rpb2: KJ634731.

Trichoderma orientale (Samuels & O. Petrini)
Samuels & Jaklitsch, in Jaklitsch & Voglmayr, Mycotaxon 126: 151. 2014.
(≡) Hypocrea orientalis Samuels & O. Petrini, in Samuels & al., Stud. Mycol. 41: 30. 1998.
Typus: [specimen] (BPI 1109853).
Ex-type culture: CBS 130428.
Representative sequences: tef1: EU401581, JN175573, JQ685868; rpb2: JN175522, JQ685884.

Trichoderma ovalisporum Samuels & Schroers, in Holmes & al., Mycol. Prog. 3: 204. 2004.
Typus: [dry culture] (BPI 843692).
Ex-type culture: CBS 132399.
Representative sequences: tef1: AY376037, rpb2: FJ442742.

Trichoderma pachypallidum Jaklitsch, Fungal Divers. 48: 107. 2011.
Typus: [dry culture] WU 29327a.
(≡) Hypocrea pachypallida Jaklitsch, Fungal Divers. 48: 107. 2011.
Typus: [specimen] (WU 29327a).
Ex-type culture: CBS 119506.
Representative sequences: tef1: FJ860662, rpb2: JQ685879.

Trichoderma pachypallidum (Samuels, Dodd & Lieckfeldt)
Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2013.
Typus: [dry culture] WU 29327a.
Ex-type culture: None. Representative culture: CBS 119506.
Typus: [specimen] (WU 29327a).
Ex-type culture: CBS 119506.
Representative sequences: tef1: FJ860653, rpb2: FJ860553.

Trichoderma neorufum (Samuels, Dodd & Lieckfeldt)
Jaklitsch & Voglmayr, Mycotaxon 126: 150. 2013.
(≡) Hypocrea neorufa Samuels, Dodd & Lieckfeldt, in Dodd & al., Mycol. Prog. 1: 421. 2002.
Typus: [specimen] (BPI 744493).
Ex-type culture: CBS 111144.
Representative sequences: tef1: FJ860653, rpb2: FJ860553.
Trichoderma parapiluliferum (B.S. Lu, Druzhinina & Samuels) Jaklitsch & Voglmayr, Mycotaxon 126: 151. 2013.
(≡) Hypocreapharapilulifera B.S. Lu, Druzhinina & Samuels, in Lu et al., Mycologia 96: 331. 2004.
Typus: [specimen] (WU 29110a).
Ex-type culture: CBS 112771.
Representative sequences: tef1: FJ179578, AY937444; rpb2: FJ179614.

Trichoderma parareesei Atanasova, Jaklitsch, Komor-Zelazowska, C.P. Kubicek & Druzhinina, Appl. Environ. Microbiol. 76: 7259. 2010.
Typus: [dry culture] WU 29110a.
Ex-type culture: CBS 130513, CBS 130853
Other cultures: CBS 125925.
Typus: [dry culture] (WU 30015).
Ex-type culture: CBS 112771.
Representative sequences: tef1: KJ665627, rpb2: KJ665320.

Trichoderma paraviridescens Jaklitsch, Stud. Mycol. 80: 73. 2015.
Typus: [metabolically inactive culture] (CBS 133496).
Ex-type culture: CBS 133496.
Representative sequences: tef1: KJ665627, rpb2: KJ665320.

Trichoderma pararogersonii Jaklitsch & Voglmayr, Stud. Mycol. 80: 73. 2015.
Typus: [metabolically inactive culture] (CBS 133496).
Ex-type culture: CBS 133496.
Representative sequences: tef1: KJ665627, rpb2: KJ665320.

Trichoderma pararogersonii Jaklitsch & Voglmayr, Persoonia 31: 128. 2013.
(≡) Hypocreapharogersonii Jaklitsch & Samuels, in Jaklitsch et al., Stud. Mycol. 56: 156. 2006, non Eidamia viridescens A.S. Horne & H.S. Williamson, Ann. Bot. 37: 396. 1923 [(≡) T. viridescens (A.S. Horne & H.S. Williamson) Jaklitsch & Samuels, in Jaklitsch et al., Stud. Mycol. 56: 156. 2006].
Typus: [specimen] (WU 24029).
Ex-type culture: CBS 119321.
Representative sequences: tef1: DQ672610, rpb2: KC285763.
Note: Jaklitsch et al. (2006) incorrectly regarded the new sexual morph H. viridescens as identical with Eidamia viridescens.

Trichoderma parestonicum Jaklitsch, Stud. Mycol. 63: 69. 2009.
Typus: [dry culture] WU 29110a.
(≡) Hypocreapharestonica Jaklitsch, Stud. Mycol. 63: 69. 2009.
Typus: [specimen] (WU 29110a).
Ex-type culture: CBS 122769.
Representative sequences: tef1: FJ860664, rpb2: FJ860562.

Trichoderma parepimyces Jaklitsch, Stud. Mycol. 66: 66. 2009.
Typus: [dry culture] WU 29107a.
(≡) Hypocreapharepimyces Jaklitsch, Stud. Mycol. 63: 66. 2009.
Typus: [specimen] (WU 29107a).
Ex-type culture: CBS 122769.
Representative sequences: tef1: FJ860664, rpb2: FJ860562.

Trichoderma paucisporum Samuels, C. Suárez & K. Solis, in Samuels et al., Mycol. Res. 110: 390. 2006.
Typus: [dry culture] (BPI 870953).
Ex-type culture: CBS 118645.
Representative sequences: tef1: DQ109540, rpb2: FJ150787.
Trichoderma peltatum (Berk.) Samuels, Jaklitsch & Voglmayr, in Jaklitsch & Voglmayr, Mycotaxon 126: 151. 2014.

(S) Sphaeria peltata Jungh Verh. Batav. Genootsch. Kunst. Wet. 17(3): 20. 1838; nom. illegit., non DC. & Lam., in Lamarck & de Candolle, Fl. franç., 3rd edn 2: 287. 1805.

(H) Hypocrea peltata Berk., Hooker’s J. Bot. Kew Gard. Misc. 3: 206. 1851.

Typus: [specimen] (L00532089, Herb. L 910.250.1421).

Ex-type culture: None.

Representative cultures: CBS 127107 = G.J.S. 09-1550, CBS 124735 = G.J.S. 10-103, CBS 124739 = G.J.S. 10-104, CBS 120951.

Representative sequences: tefl: DQ284979, DQ289004, DQ289000, rpbl: FJ442783, FJ860568.

Note: Several species have been listed as synonyms of H. peltata (Samuels & Ismaiel 2011), but their types were collected over a wide, mainly Southern Hemisphere, geographic range. The type of Sphaeria peltata was collected in Indonesia. We do not have cultures from Indonesia, but sequences of Japanese collections are highly similar to those obtained from collections made in the USA, indicating the likelihood of a single species with a wide distribution. Druzhinina et al. (2007) reported the isolation of Hypocrea sp. MKZ-2007a” (tefl: EF392731, rpbl: EF392733) from human lung tissue; that fungus was T. peltatum.

Trichoderma petersenii Samuels, Dodd & Schroers, in Samuels et al., Stud. Mycol. 56: 122. 2006.

Typus: [dry culture] (BPI 864092B).

(=) Hypocrea petersenii Samuels, Dodd & Schroers, in Samuels et al., Stud. Mycol. 56: 122. 2006.

Ex-type culture: CBS 119051.

Other cultures: DAOM 165782, CBS 119507, CBS 124735, CBS 124739.

Representative sequences: tefl: DQ284979, DQ289004, DQ289000, rpbl: FJ442783, FJ860568.

Note: Originally described from the USA (Tennessee), T. petersenii appears to be a cosmopolitan and common species.

*Trichoderma pezizoides* (Berk. & Broome) Jaklitsch & Voglmayr, Mycotaxon 126: 152. 2014.

(=) Hypocrea pezizoides Berk. & Broome, J. Linn. Soc., Bot. 14: 112. 1875; nom. cons. prop. Non Trichoderma pezizoides Wallr., Fl. Germ. 2: 246. Feb–Mar 1833; nom. rej. prop.

Lectotypus ( hic designatus, MBT 202324): [specimen] “Hypocrea pezizoides No. 308, Cent Province, Dec 1868, sent before but these specimens in better fruit” (K, Herb. Berk 1879).

Isotypi: [specimens] [SRI LANKA: ] “Hypocrea pezizoides, B. & Br., 308, Cent. Prov. (K, Hb. Berk 1879).” Hypocrea pezizoides, substrate undetermined, coll. Thwaites 308 (C.G. Lloyd mycological collection, Smithsonian Institution 6055; BPI 715639).

Ex-type culture: None.

Representative cultures: G.J.S. 01-231 (lost), CBS 101131 = C.P.K. 775 = G.J.S. 97-83.

Representative sequences: tefl: AY225859, rpbl: JN715610, AF545564.

Note: There are two collections of H. pezizoides in Berkeley’s herbarium; they appear to be parts of the same gathering. The portion in the Lloyd herbarium comprises a single stroma, which is identical to the other parts of this number in Berkeley’s herbarium. Samuels (2014) proposed conservation of H. pezizoides over the older T. pezizoides Wallr. Sequences of the representative cultures place this species in the Viride clade of *Trichoderma*. Sequences deposited in GenBank are diverse and may represent more than one species. The sequenced culture of one of the cited representative cultures cited here was derived from ascospores (specimen THAILAND, BPI 841389) germinating in ascii, giving us a high degree of confidence of its identity. However that culture has been lost.

Trichoderma phellinicola Jaklitsch, Fungal Divers. 48: 143. 2011.

Typus: [dry culture] WU 29402a

(=) Hypocrea phellinicola Jaklitsch, Fungal Divers. 48: 143. 2011.

Typus: [specimen] (WU 29402a).

Ex-type culture: CBS 119283.

Representative sequences: tefl: FJ860672BS, rpbl: FJ860569.

Trichoderma phyllostachydis P. Chaverri & Samuels, Stud. Mycol. 48: 80. 2004 (“2003”).

Typus: [dry culture] (BPI 843665).

(=) Hypocrea phyllostachydis P. Chaverri & Candoussou, in Chaverri et al., Mycol. Prog. 3: 33. Feb 2004.

Typus: [specimen] (BPI 802817).

Ex-type culture: G.J.S. 92-81 = CBS 114637 = DAOM 232100 = ATCC MYA-3067.

Other culture: G.J.S. 92-123 = CBS 114071 = DAOM 232101 = ATCC MYA-3066.

Representative sequences: tefl: AY737745, AY391986; rpbl: AF545513, AY391927.

Trichoderma piluliferum J. Webster & Rifai, in Rifai, Mycol. Pap. 116: 16. 1969.

Typus: UK: Yorkshire: “Habitat in ligno putrido Betulae, Dunis Bridge, prope Clithroe, Yorkshire, Anglia, 23 September 1962. J. Webster” (SHD-M 2638).

Ex-type culture: CBS 120927.

(=) Hypocrea pilulifera J. Webster & Rifai, Trans. Brit. Mycol. Soc. 51: 511. 1968.

Typus: UK: Derbyshire: Glossop, Chunel Moore, on dead culms of Juncus effusus, 11 Jul. 1965, J. Webster (K(M) 64379).

Ex-type culture: CBS 814.68.

Representative sequences: tefl: AY737747, FJ860674; rpbl: AF545519, FJ179615.

Trichoderma pinnatum Samuels, in Samuels et al., Fungal Divers. 55: 99. 2012.

Typus: [dry culture] (BPI 882296).

Ex-type culture: CBS 131292.
Representative sequences: tef1: JN175571, rpb2: JN175515.

**Trichoderma placentula** Jaklitsch, Fungal Divers. 48: 120. 2011.
Typus: [dry culture] (WU 29410a).

*(=) Hypocreopsis placentula* Grove, J. Bot. (Lond.) 23: 133. 1885.
Typus: UK: Warwickshire: Otton Reservoir, base of *Juncus* stems, 13 Sep. 1884, W.B. Grove (K(M)154041).

Epitypus *(vide Jaklitsch, Fungal Divers. 48: 123. 2011)*: UK: Derbyshire: Baslow, Longshaw Country Park, Peak District National Park, 53°18'26" N, 01°36'08" W, elev. 350 m, on dead culms of *Juncus effusus* 2–5 mm thick, also on a leaf of *Acer* sp., soc. imperfect microfungi, 10 Sep. 2004, H. Voglmayr & W. Jaklitsch, W.J. 2694 (WU 29410).

Ex-epitype culture: 120924.

Representative sequences: tef1: FJ179580, rpb2: FJ179616.

**Trichoderma pleuroti** S.H. Yu & M.S. Park, in Park & al., Mycobiology 34: 111. 2006; [as 'pleurotum'].

Typus: [dry culture] KOREA: Gangwon Province: "dried culture specimen on PDA, isolated from the waste cotton substrate of oyster mushroom, Chuncheon, April 1998, S.H. Yu" (CNUMH 501 Mycological Herbarium, Chungnam National University, Korea).

Ex-type culture: CBS 124387.

Representative sequences: tef1: HM142382, EU279975; rpb2: HM142372.

**Trichoderma pleuroticola** S.H. Yu & M.S. Park, in Park & al., Mycobiology 34: 112. 2006.

Typus: [dry culture] KOREA: Gyeonggi Province: "dried culture specimen on PDA, isolated from the waste cotton substrate of oyster mushroom, Paju, May 1999, S.H. Yu" (CNUMH 601 Mycological Herbarium, Chungnam National University, Korea).

Ex-type culture: CNUMH 601 = CBS 124383.

Representative sequences: tef1: HM142381, EU918160; rpb2: HM142371.

**Trichoderma polysporum** (Link) Rifai, Mycol. Pap. 11: 18. 1969.

*(=) Sporotrichum polysporum* Link, Mag. Ges. Naturf. Fr. Berlin 8: 34. 1816; Fries, Syst. Mycol. 3(2): 438. 1832.
Typus: "Sporotrichum polysporum" [scr. Link], Nees ab Esenbeck, alt e Sille [Nu?], Hb. Link" (B, fide S.J. Hughes *in litt.*, comm. K.A. Seifert, 27 June 2014).

Epitypus *(hic designatus, MBT 201079)*: [metabolically inactive culture] GERMANY: Kiel-Kitzeburg, soil from wheat epitypus (S.J. Hughes, hand-written notes deposited in DAOM): "[dots white or cream coloured now squashed on rotten bark]. [looks like *Trichoderma candidum* (Sacc.) but no curly hyphae seen] [Trichoderma (white) no spirals]." Because it was sanctioned by Fries, the name *polysporum* was subsequently given preference over *sporulosum*. Rifai (Mycol. Pap. 116: 21. 1969) considered *Gams* C306 to be typical of *T. polysporum*. Accordingly, we designate this metabolically inactive culture as epitype of *Sporotrichum polysporum* here. Bissett (1991) distinguished between *T. polysporum* and *H. pachybasioides* on the basis of morphology. However, phylogenetic analyses (Lu et al., 2004; Jaklitsch, 2011) have demonstrated that cultures isolated directly from substrate and identifiable as *T. polysporum* cluster with cultures isolated from ascospores of specimens identifiable as *H. pachybasioides*, including cultures studied by Bissett. Moreover, *T. polysporum* appears to represent a species complex that includes *T. croceum* and *T. stellatum*, which we include here as synonyms of *T. polysporum* (Lu et al., 2004; Jaklitsch & Voglmayr, 2015; Bissett unpubl.). Future study focused on this complex may resolve additional species, including some that today we consider as synonyms.

**Trichoderma poronioideae** (A. Möller) Samuels, comb. nov.

MycoBank MB812060

*(=) Hypocreopsis poronioidea* A. Möller, Phycim. Ascom.: 295. 1901.

*(=) Podocrea poronioidea* (A. Möller) Sacc. & D. Sacc., Syll. Fung. 17: 799. 1905.
Typus: BRAZIL: Sta. Catharina pr. Blumenau, in ligno putrido, [20 Jan 1992].

Representative sequence: KP109823. ITS = KP109821.

Ex-epitype culture: CBS 139046.

**Trichoderma poronioidea** (A. Möller) Samuels, comb. nov.

MycoBank MB812060

*(=) Hypocreopsis poronioidea* A. Möller, Phycim. Ascom.: 295. 1901.

*(=) Podocrea poronioidea* (A. Möller) Sacc. & D. Sacc., Syll. Fung. 17: 799. 1905.

Typus: BRAZIL: Sta. Catharina pr. Blumenau, in ligno putrido, leg. A. Möller (FH-GEN; annotated as “authentic”).

Epitypus *(hic designatus, MBT 201065)*: [specimen] Cameroon, S of Yaounde, vic. Mbelmaje, Mbalmayo Forest Reserve, in secondary forest with heavy understory, 03°25.269' N, 11°29.269' E, alt. 657 m, on decorticated wood, 30 Jun 2001, G.J. Samuels (G.J.S. 9846) (BPI 882740; culture G.J.S. 01-203 = CBS 139046). tef1 = KP109823, ITS = KP109821.

Ex-epitype culture: CBS 139046.

Representative sequence: KP109823.

Note: Samuels & Lodge (1996) described the sexual and unnamed asexual morphs of this distinctive species. DNA
sequences indicate that *T. poroniodioides* is a member of the *Viride clade, closely related to* *T. asperellum*.

**Trichoderma prisciae** Jaklitsch & Voglmayr, Stud. Mycol. 80: 77, 2014.
Typus: [specimen] (WU 33327).
Ex-type culture: CBS 131487.
Representative sequences: *tef1*: KJ665691, *rpb2*: KJ665333.

**Trichoderma protopulvinatum** (Yoshim. Doi) Jaklitsch & Voglmayr, Mycotaxon 126: 152. 2013.
(≡ *Hypocrea protopulvinate* Yoshim. Doi, Bull. Natl. Sci. Mus. Tokyo 15: 695. 1972.
Typus: [specimen] (TNS-D-365 = TNS-F-223431, isotypus NY No. 0965650).
Ex-type culture: CBS 739.83.
Representative sequences: *tef1*: FJ860676, *rpb2*: FJ860574.

**Trichoderma protrudens** Samuels & P. Chaverri, in Degenkolb & al., Mycol. Prog. 7: 212. 2008.
Typus: [dry culture] BPI (878378).
Ex-type culture: CBS 121320.
Representative sequences: *tef1*: FJ860677, *rpb2*: FJ860574.

**Trichoderma pseudocandidum** P. Chaverri, Samuels & Minnis, in Minnis & al., Mycotaxon 109: 246. 2009.
(≡ *Trichoderma candidum* P. Chaverri & Samuels, Stud. Mycol. 48: 402004 [*2003*] non *T. candidum* Alb. & Schwein., Conspr. Fung. Lusat. Sup. 137. 1805.
[†dry culture] BPI 843652.
(=) *Hypocrea candida* P. Chaverri & Samuels, Stud. Mycol. 48: 40, 2004 [*2003*].
Typus: [specimen] (INB 0003719978).
Ex-type culture: CBS 114249.
Representative sequences: *tef1*: AY737742, AY391962; *rpb2*: AY391891.

**Trichoderma pseudogelatinosum** (M. Komatsu & Yoshim. Doi) C.S. Kim, in Kim & al., Pl. Pathol. J. 28: 347. 2012.
(≡ *Hypocrea pseudogelatinosa* M. Komatsu & Yoshim. Doi, Rep. Tottori Mycol. Inst. 10: 425. 1973.
Typus: [specimen] TNS-F-192712.
Ex-type culture: CNUN309.
Representative sequences: *tef1*: HM920202, *rpb2*: HM920173.

**Trichoderma pseudokoningii** Rifai, Mycol. Pap. 116: 45, 1969.
(≡) *Hypocrea pseudokoningii* Samuels & O. Petrini, in Samuels & al., Stud. Mycol. 41: 36, 1998.
Typus: *Habitat ad ligna, AUSTRALIA australi*, Mayo 1963, *P.H.B. Talbot (P.H.B. Talbot H-1)* (SHD M 5116).
Ex-type culture: CBS 408.91 = DAOM 167678 = ATCC 298861.
Representative sequences: *tef1*: JN175588, *rpb2*: JN175535.

**Trichoderma pseudolacteum** C.S. Kim & N. Maekawa, in Kim & al., Mycol. Prog. 12: 746. 2012.
Typus: [specimen] (TM 8484) (ex-type culture TUFC 61490 = CBS 133191).
Ex-type culture: TUFC 61490 = CBS 133191.
Representative sequences: *tef1*: JX175588, *rpb2*: JX175535.

**Trichoderma pseudonigrovirens** P. Chaverri, Samuels & Minnis, in Minnis & al., Mycotaxon 109: 246. 2009.
(≡) *Trichoderma nigrovirens* P. Chaverri & Samuels, Stud. Mycol. 48: 78. 2004 [*2004*]; nom. Illegit. (Art. 53.1); non Goddard, Bot. Gaz. 56: 273, 1913; as "*nigro-virens*.
Typus: [dry culture] BPI 843664.
Ex-type culture: CBS 1143340.
(≡) *Hypocrea nigrovirens* P. Chaverri & Samuels, in Chaverri & al., Mycologia 93: 759. 2001.
Typus: [specimen] (BPI 844216).
Representative sequences: *tef1*: AY377744, AF534582; *rpb2*: AF545158.

**Trichoderma pseudostramineum** (Yoshim. Doi) C.S. Kim, in Kim & al., Pl. Path. J. 28: 350. 2012.
(≡) *Hypocrea pseudostraminea* Yoshim. Doi, Bull. Natl. Sci. Mus. Tokyo 15: 676. 1972.
Typus: [specimen] TNS-D-366 = TNS-F-223432.
Ex-type culture: TUFC 60104.
Representative cultures: CNU N109, CNU N334, TUFC 60440, TUFC 60753.
Representative sequences: *tef1*: HM920206, JQ797400, JQ797401; *rpb2*: HM920177, JQ797408, JQ797409.

**Trichoderma psychrophilum** Jaklitsch, Fungal Divers. 48: 195. 2011.
Typus: [dry culture] (WU 29420a).
Ex-type culture: CBS 119129.
(≡) *Hypocrea psychrophila* E. Müller, B. Aebi & J. Webster, Trans. Br. Mycol. Soc. 58: 1. 1972.
Typus: *SWITZERLAND: Kanton Wallis: Belalpweg*, on wood of *Rhododendron ferrugineum*, 12 Sep. 1968, E. Müller & B. Aebi (K(M) 155404).
Representative cultures: CBS 262.71, CBS 343.71.
Representative sequences: *tef1*: JN133574, FJ860780, FJ860681; *rpb2*: AF545520, JN133564, FJ860575.

**Trichoderma pubescens** Bissett, Can. J. Bot. 69: 2045. 1992 [*1991*].
Typus: [dry culture] (DAOM 166162).
Ex-type culture: DAOM 166162.
Representative sequences: *tef1*: AY750887, AF534624; *rpb2*: EU248613.

**Trichoderma pulvinatum** (Fuckel) Jaklitsch & Voglmayr, Mycotaxon 126: 152. 2013.
(≡) *Hypocrea pulvinatea* Fuckel, Jahrh. Nassau. Ver. Naturk. 23-24: 185. 1870 [*1869*].
Lectotypus (vide Overton & al. Stud. Mycol. 56: 17, 2006):
Trichoderma pyramidale W. Jaklitsch & P. Chaverri, in Chaverri & al., Mycol. Prog. 7: 213. 2008.
Typos: [metabolically inactive culture] (CBS 130751).
Ex-type culture: (BPI 882297).
Representative sequences: tef1: FJ860685, rpb2: FJ860578.

Trichoderma reesei E.G. Simmons, in Bigelow & Simmons (Eds), Abstr. Second International Mycological Congress 2: 618. 1977, nom. cons. prop. Lectotypus (vide Samuels, Taxon 63: 938. 2014): [dry culture] PAPUA NEW GUINEA: Solomon Islands, Bougainville Island, on cotton duck (fabric) shelter, QM 6a (NY No. 01048452; = NRRL 3652).
Typos: [specimen] (BPI 870964).
Ex-type culture: CHINA: Anhui: Jinhai, Tianzhuzhai, alt. 900–1000 m, on rotten bark, 22 Aug. 2011, S.L. Chen, W.Y. Zhuang, H.D. Zheng & Z.Q. Zeng 7752 (HMAS 252548).
Ex-type culture: HMAS 244906.
Representative sequences: tef1: AY937441, rpb2: HC342288.

Trichoderma rossicum Bissett, C.P. Kubicek & Szakács, in Bissett & al., Can. J. Bot. 81: 578. 2003.
Typos: [dry culture] (DAOM 230011).
Ex-type culture: DAOM 230011.
Representative sequences: tef1: AF545559, FH860577.

Trichoderma rosulatum Z.X. Zhu & W.Y. Zhuang, Persoonia 34: 117. 2015.
Typos: CHINA: Jilin: Jiaohe, Qianjin Forestry Farm, alt. 450 m, on rotten wood, 24 July 2012, W.Y. Zhuang, Z.X. Zhu, Z.Q. Zeng, H.D. Zheng & F. Ren 8155 (HMAS 252547).
Ex-type culture: HMAS 244907.
Representative sequences: tef1: KF729984, KF729989; rpb2: KF730010, KF730007.

Trichoderma rubi Jaklitsch & Voglmayr, Stud. Mycol. 80: 80. 2015.
Typos: [specimen] (WU 33316).
Ex-type culture: CBS 127380.
Representative sequences: tef1: KJ665704, rpb2: KJ665336.

Trichoderma rufobrunneum Z.X. Zhu & W.Y. Zhuang, Persoonia 34: 122. 2015.
Typos: CHINA: Jilin: Jiaohe, Qianjin Forestry Farm, alt. 450 m, on rotten wood, 24 July 2012, W.Y. Zhuang, Z.X. Zhu, Z.Q. Zeng, H.D. Zheng & F. Ren 8155 (HMAS 252547).
Ex-type culture: HMAS 244907.
Representative sequences: tef1: KF729984, KF729989; rpb2: KF730010, KF730007.

Trichoderma sambuci (Jaklitsch & Voglmayr) Jaklitsch & Voglmayr, Mycotaxon 126: 153. 2014.
(≡) Hypocrea sambuci Jaklitsch & Voglmayr, in Jaklitsch, Fungal Divers. 48: 199. 2011.
Typos: [specimen] (WU 29442).
Ex-type culture: CHINA: Anhui: Jinhai, Tianzhuzhai, alt. 900–1000 m, on rotten bark, 22 Aug. 2011, S.L. Chen, W.Y. Zhuang, H.D. Zheng & Z.Q. Zeng 7752 (HMAS 252548).
Ex-type culture: HMAS 244907.
Representative sequences: tef1: KF729984, KF729989; rpb2: KF730010, KF730007.

Trichoderma samuelsii Jaklitsch & Voglmayr, in Jaklitsch & al., Mycologia 104: 937. 2012.
Typos: [dry culture] (WU 31607).
Ex-type culture: CBS 130537.
Representative sequences: tef1: JN715655, rpb2: JN715599.

Trichoderma saturnisporosis Samuels & Jaklitsch, in Samuels & al., Fungal Divers. 55: 103. 2012.
Typos: [dry culture] (BPI 882297).
Ex-type culture: CBS 130751.
Representative sequences: tef1: JQ685869, rpb2: DQ857348.

Trichoderma saturnisporum Hammill, Mycologia 62: 112. 1970.
Typos: [dry culture] USA: ‘culture Hammill no. 85-68, isolated from forest soil in Clarke County, Georgia, June, 1988’ (SYRF).
Ex-type culture: ATCC 18903 = CBS 330.70.
Representative sequences: tef1: AY937414; rpb2: DQ87243, JN182309.
Trichoderma scalesiae Samuels & H.C. Evans, in Jaklitsch & al., Studies in Mycology 56: 172. 2006.
Typus: [dried culture] (BPI 872181).
Ex-type culture: CBS 120069.
Representative sequences: tef1: DQ841726, rpb2: EU252007.

Trichoderma semiorbis (Berk.) Jaklitsch & Voglmayr, Mycotaxon 126: 153. 2014.
(≡) Sphaeria semiorbis Berk., J. Bot. (Hooker) 2: 146. 1840.
(≡) Hypocreopsis semiorbis (Berk.) Berk., in Hooker, Fl. Tasm. 2: 278. 16 Aug 1859.
Typus: “Sphaeria semiorbis Berk., F.c. [annotated in pencil: ‘Not distinct from Sphaeria gelatinosa Tode’]” (K(M): 52655, Herb. Berk.).

Epitypus (hic designatus. MBT 201081): [specimen] NEW ZEALAND: Nelson: Nelson Lakes National Park, Lake Rototui, from S end of lake, trail along Travers River from Cold Water hut, elev. 650 m, 41°53’ S, 171°51’ E, on branches of Nothofagus sp., 8 Sep 1999, G.J. Samuels 8728a & S.E. Dodd (BPI 746666).
Ex-epitype culture: CBS 130716.
Representative sequences: tef1: JN133576, rpb2: JN133567.

Note: The type locality of S. semiorbis is not known with certainty. Berkeley (1840: 146) described two fungi from the collection of William Jackson Hooker, Lentinus fasciatus and Sphaeria semiorbis. The Lentinus was listed previously as Lentinus villosus by Berkeley in an account of fungi from Van Dieman’s Land but he did not provide the provenance of the collection of S. semiorbis. In the protologue the only collecting information given is “On bark. Hab. unknown.” We assume the original collection to have been made in Australia because the second known collection of this species is reported in Hooker’s Botany of the Antarctic Voyage, although even in this report the only clue to its origin is its collector, Ronald Campbell Gunn, who sent specimens from Tasmania to J.D. Hooker in Kew between 1830 and 1860.

Dingley (1956) examined a collection from Tasmania in Kew which she assumed to be the type collection, providing a description of this specimen and referring New Zealand collections she had earlier listed as Hypocreopsis patella to this species. In her description she described perithecia containing ascii with mostly immature spores. However, as Berkeley himself noted in the protologue, the type collection of S. semiorbis is immature, lacking spores and ascii. Dingley (1957) later described a Trichoderma asexual morph that was derived from her collections. She subsequently sent material to John Webster in Exeter. It is not known whether she sent a culture or a specimen from which Webster made a culture, but eventually a culture was deposited as CBS 244.63 with provenance ‘Dingley No. 12,’ New Zealand: Mohoka. This culture was redescribed by Bissett (1991) as the asexual morph of H. semiorbis under the number DAOM 67636 = CBS 244.63. Bissett’s description of H. semiorbis is consistent with Dingley’s, and Dingley collections of H. semiorbis (PDD) are consistent with the type collection of S. semiorbis. However, the culture CBS 244.63 cannot be linked to any Hypocreopsis collection; there is no specimen of H. semiorbis in the Sheffield University Herbarium and none of the collections in PDD can be linked to a specimen or culture that Dingley (Dingley 12) sent to Webster. Thus a question remains as to the link between CBS 244.63, which is the only living culture that links Bissett and Dingley’s concepts of the species and for which DNA sequences have been deposited in GenBank, and H. semiorbis as typified. An epitype for S. semiorbis is needed. There are three Dingley collections of H. semiorbis in her herbarium (PDD), all made from the same place in April and May 1953 (NEW ZEALAND: Hawkes Bay: Upper Mohoka River, Kaimanawa Range, elev. 2000 ft, on Nothofagus fusca, J.M. Dingley s.n. (PDD 12751 (May 1953), PDD 12755 (31 May 1953), PDD 12756 (April 1953) but none of them can be linked to a living culture and thus none of them can serve as an epitype. The material sent to Webster (Dingley 12 = CBS 244.63) is derived from a Dingley collection of H. semiorbis that was made from the Mohoka River on Nothofagus sp., date unknown, and there is a culture in ICMP (ICMP 1693) that is derived from H. semiorbis collected by Dingley (Dingley 584) from the Mohoka River, from Nothofagus sp. in 1952, but the specimen from which this culture was derived cannot be located (PDD, SHU). DNA sequences (tef1, Samuels unpubl.) indicate that CBS 244.63 is the same species as ICMP 1693, but the question as to the identity of teleomorphic H. semiorbis remained open. A recent New Zealand collection from Nothofagus sp. and its culture complete this circle and permit stabilization of the name H. semiorbis by epitypification proposed above. DNA sequences derived from this specimen indicate that it is the same species as ICMP 1693 and CBS 244.63; morphologically the stromata agree well with the type collection of S. semiorbis and the Dingley collections of H. semiorbis in PDD cited above, and the asexual morph matches descriptions of the asexual morph of H. semiorbis in publications from Dingley and Bissett. Although we do not know the substratum of either of the collections of H. semiorbis reported by Berkeley, the type collection of S. semiorbis was possibly collected in Tasmania where Nothofagus is common and thus could have been the substratum of the type collection. All of Dingley’s collections were from Nothofagus. Finally, the recent New Zealand collection was made in the South Island, which has a south temperate climate similar to that of Tasmania. Bissett (1991) and Chaverri et al. (2003a) redescribed the Trichoderma asexual morph of H. semiorbis, the description in the latter reference is based in part on the epitype collection. Chaverri et al. (2003a) redescribed the teleomorphic based on the three Dingley collections cited above. Hypocreopsis semiorbis is common on Nothofagus in New Zealand but is not known outside of Australasia.

Trichoderma sempervirens Jaklitsch & Voglmayr, in Jaklitsch & al., Persoonia 31: 143. 2013.
Typus: [metabolically inactive culture] (CBS 133498).
Ex-type culture: CBS 133498.
Representative sequences: tef1: KC285755, rpb2: KC285632.

Trichoderma seppoi Jaklitsch, in Jaklitsch & Gruber & Voglmayr, Karstenia 48: 5. 2008.
Typus: [specimen] (WU 28698).
Ex-type culture: C.P.K. 3161 = CBS 122498. Representative sequences: tef1: FJ179581, rpb2: FJ179617.

**Trichoderma silvae-virginiae** Jaklitsch, Fungal Divers. 48: 221. 2011. Typus: [dry culture] (WU 29227a) (=) Hypocrea silvae-virginiae Jaklitsch, Fungal Divers. 48: 221. 2011. Typus: [specimen] (WU 29227). Ex-type culture: CBS 120922. Representative sequences: tef1: FJ860696, rpb2: FJ860587.

**Trichoderma simmonsii** P. Chaverri, F.B. Rocha, Samuels, Degenkolb & W. Jaklitsch, in Chaverri & al., Mycologia 107: 586. 2015. Typus: [specimen] (BPI 1112907). Ex-type culture: G.J.S. 91-138 = CBS 130431. Representative sequences: tef1: AF443935, AF443936, AF443933; rpb2: FJ442677, AY391925, FJ442710.

**Trichoderma sinense** Bissett, C.P.Kubicek & Szakács, in Bissett & al., Can. J. Bot. 81: 572. 2003. Typus: [dry culture] (DAOM 230000). Ex-type culture: DAOM 230000. Representative sequences: tef1: AY750889, rpb2: JN175528.

**Trichoderma sinoluteum** Z.X. Zhu & W.Y. Zhuang, Mycologia 107: 335. 2015. Typus: CHINA: Jilin: Antu, Changbaishan, 1100 m, on twig, 26 Jul 2012, W.Y. Zhuang, Z.X. Zhu, Z.Q. Zeng, H.D. Zheng & F. Ren 8205 (HMAS 252868). Ex-type culture HMAS 245077 = CGMCC 3.17528. Representative sequences: tef1: KJ634777, rpb2: KJ634744.

**Trichoderma sinuosum** P. Chaverri & Samuels, Stud. Mycol. 48: 81. 2004 ["2004"). Typus: [dry culture] BPI 843649. (=) Hypocrea sinuosa P. Chaverri & Samuels, Stud. Mycol. 48: 812004 ["2004"). Typus: [specimen] (BPI 843649). Ex-type culture: CBS 114247. Representative sequences: tef1: AY737743, AY391997; rpb2: FJ179619. Note: *Trichoderma sinuosum* may represent a species complex within which three or more phylogenetic species can be seen (Jaklitsch & Voglmayr 2015).

**Trichoderma solani** Samuels, V. Doyle & V.S. Lopez, in Samuels & al., Fungal Divers. 55: 83. 2012. Typus: [dried culture] (BPI 882998). Ex-type culture: CBS 130506. Representative sequences: tef1: JN175597, rpb2: JN175546.

**Trichoderma songyi** M.S. Park, S.-Y. Oh & Y.W. Lim, in Park & al., Antonie van Leeuwenhoek 106: 600. 2014. Typus: [metabolically inactive culture] (SFC20130926-S001). Ex-type culture: KCTC 46205 = CBS 138099. Representative sequences: tef1: KJ636511, rpb2: KJ636525.

**Trichoderma spinulosum** (Fuckel) Jaklitsch & Voglmayr, Mycotaxon 126: 153. 2013. (=) Hypocrea spinulosa Fuckel, Jahrb. Nassauischen Vereins Naturk. 23/24: 184. 1870 ["1869"). Typus: [GERMANY] "... im Frühling, auf einem sehr faulen Stengel von *Chelidonium majus*. Am Mühlberg bei Oestrich" (G). Ex-type culture. None. Representative cultures: CBS 310.50, CBS 311.50, CBS 121272. Representative sequences: tef1: FJ860701, rpb2: FJ860591. Note: This species is not known to produce an asexual morph.

**Trichoderma spirale** Bissett, Can. J. Bot. 69: 2408. 1992 ["1991"] Typus: [dry culture] (DAOM 183974). Ex-type culture: DAOM 183974. Representative sequences: tef1: AY50890, rpb2: FJ442694, KJ665348.

**Trichoderma stercorarium** (Barrasa, A.T. Martínez & G. Moreno) Jaklitsch & Voglmayr, Stud. Mycol. 80: 83. 2015. (=) Aphysiostroma stercorarium Barrasa, A.T. Martínez & G. Moreno, Can. J. Bot. 63: 2441. 1986 ["1985"). Typus: [specimen] SPAIN: Puerto de Samossierra, on cow dung, 16 Sep. 1982, G. Moreno (MA-Fungi 3059 [IJFMA-12]). Ex-type culture: CBS 148.85 = ATCC 62321. Representative sequences: tef1: FJ860607, rpb2: EF469103.

**Trichoderma stilbohypoxyli** Samuels & Schroers, in Samuels & al., Stud. Mycol. 56: 128. 2006. Typus: [dry culture] (BPI 744463B). Ex-type culture: CBS 992.97 = ATCC MYA 2970 = DAOM 231834. (=) Hypocrea stilbohypoxyli B.S. Lu & Samuels, Sydowia 55: 265. 2003. Typus: [specimen] (MA-Fungi 3059 [IJFMA-12]). Ex-type culture: CBS 148.85 = ATCC 62321. Representative sequences: tef1: DQ109546, rpb2: EU341805.

**Trichoderma stipitatum** Z.X. Zhu & W.Y. Zhuang, Persoonia 34: 122. 2015. Typus: CHINA: Jilin: Cheli, Qianjin Forestry Farm, alt. 450 m, on rotten bark, 24 July 2012, W.Y. Zhuang, Z.X. Zhu, Z.Q. Zeng, H.D. Zheng & F. Ren 8205 (HMAS 252868). Ex-type culture HMAS 245077 = CGMCC 3.17528. Representative sequences: tef1: AY737743, AY391997; rpb2: FJ179619. Note: *Trichoderma stipitatum* may represent a species complex within which three or more phylogenetic species can be seen (Jaklitsch & Voglmayr 2015).

**Trichoderma stramineum** P. Chaverri & Samuels, Stud. Mycol. 48: 86. 2004 ["2003"). Typus: [dry culture] BPI 843667. (=) Hypocrea straminea P. Chaverri & Samuels, Stud. Mycol. 48: 86. 2004 ["2003"); nom. illegit. (Art. 53.1). Typus: [specimen] (MA-Fungi 3059 [IJFMA-12]). (=) Hypocrea straminella P. Chaverri, Samuels & Minnis, in Minnis & al., Mycotaxon 109: 245. 2009. Typus: [specimen] (BPI 843649). Ex-type culture: CBS 992.97 = ATCC MYA 2970 = DAOM 231834. Representative sequences: tef1: FJ860607, rpb2: AY391945.
Trichoderma strictipile Bissett, Can. J. Bot. 69: 2411. 1992 [*1991*]; as “strictipilis”.

(≡) Hypocrea strictipilosa Chavero & Samuels, Mycologia 95: 1128. 2003 [28 Apr 2004].
Typus: CANADA: Quebec: Montreal, on rotting log, 20 Sep 1979, G. P. White (DAOM 172827).
Ex-type culture: DAOM 172827.

(≡) Hypocrea auroviridis f. macrospora Yoshim. Doi, Bull. Natl. Sci. Mus. Tokyo 14: 728. 1972.
Typus: [specimen] (TNS.D-148 = TNS-F 191611; isotypus NY No. 01293246).

(≡) Trichoderma fasciculatum Bissett, Can. J. Bot. 69: 2379. 1992 [*1991*].
Typus: [dry culture] (DAOM 167646).
Representative sequences: tef1: AY937451, AF534628, FJ860704; rpb2: AF545555, FJ860594.
Note: Trichoderma strictipile and H. strictipilosa are based on the same type specimen; thus they are obligate synonyms.

Trichoderma strigosellum López-Quintero, W. Gams, Boekhout & Druzhinina, in López-Quintero & al., Antonie van Leeuwenhoek 104: 669. 2013.
Typus: [dried culture] COLOMBIA (HUA 179963) (isotypus CBS H-21054) (ex-type culture CBS 102817 = C.P.K. 3604).
Ex-type culture: CBS 102817
Representative sequences: tef1: EU248631, JQ425705; rpb2: EU248607, EU856360.

Trichoderma strigosum Bissett, Can. J. Bot. 69: 2411. 1992 [*1991*].
Typus: [dry culture] (DAOM 166121).
Ex-type culture: DAOM 166121 = CBS 348.93.
Representative sequences: tef1: AY376057, rpb2: AF545556.

Trichoderma stromaticum Samuels & Paradowski, in Samuels & al., Mycol. Res. 104: 762. 2000.
Typus: “BRAZIL: Pará, Belem, from dead cocoa broom, C. N. Bastos, TVC, G.J.S. 97-183” (BPI 746496).
(≡) Hypocrea stromatica J.L. Bezerra, J.C.B. Costa & C.N. Bastos, Fitopatol. Brasil. 28: 409. 2003.
Typus: BRASIL: Bahia: Municipio de Ilhéus, Centro de Pesquisa do Cacau, 14° 45’ S, 39° 13’ W, 03 Jun 1998, sobre frutos secos de cacau, J.L. Bezerra (Herbario CEPEC, 94.140).
Ex-type culture: ATCC 204426 = CBS 101875.
Representative sequences: tef1: AY376057, rpb2: AY391954.

Trichoderma subalpinum Jaklitsch, Fungal Divers. 48: 227. 2011.
Typus: [dry culture] (WU 29487a).
Ex-type culture: DAOM 167646.

(≡) Hypocrea subalpina Petrak, Ann. Mycol. 38: 2621940; nom. illegit. (Art. 53.1); non Hypocrea discoida Berk. & Broome, 1873.
Lectotypus (vide Jaklitsch, Fungal. Divers. 48: 232. 2011): [specimen] AUSTRIA, Rehm, Ascomyceten 1446 (K (M) 165796).

(≡) Hypocrea ruta var. discoida Rehm, Hedwigia 41: 206. 1902.

Epitypus (vide Jaklitsch, ibid.): [specimen] AUSTRIA (WU 29481).
Ex-epitype culture: CBS 119128.
Representative sequences: tef1: FJ860705, rpb2: FJ860595.

Trichoderma subeffusum Jaklitsch, Fungal Divers. 48: 55. 2011.
Typus: [dry culture] WU 29487a.
(≡) Hypocrea subeffusa Jaklitsch, Fungal Divers. 48: 55. 2011.
Ex-type culture: CBS 120929.
Representative sequences: tef1: FJ860707, rpb2: FJ860597.

Trichoderma sulawense (Yoshim. Doi) Jaklitsch & Voglmayr, Mycotaxon 126: 154. 2014.
(≡) Hypocrea sulawensis Yoshim. Doi, in Samuels & al., Mem. New York Bot. Gard. 59: 23. 1990.
Typus: [specimen] (NY No. 01169121).
Ex-type culture: G.J.S. 2000 (lost); Representative culture: G.J.S. 85-228 (lost).
Representative sequences: tef1: AY737730, AY392002; rpb2: AY391954.
Note: There are no longer living cultures of this species available.

Trichoderma sulphureum (Schwein.) Jaklitsch & Voglmayr, Mycotaxon 126: 154. 2013.
(≡) Sphaeria sulphurea Schwein., Trans. Amer. Philos. Soc. 4: 193. 1832.
(≡) Hypocrea sulphurea (Schwein.) Sacc., Syll. Fung. 2: 535. 1883.

Lectotypus (hic designatus, MBT 201082): USA: “[North Carolina?], Salem. 1221—Syn. Fung. 75” (PH 1107657).
Isolate and hypotypos: “Salem. 45” (PH 01107658); “Salem and Bethlehem” (K); “Salem nec Pennsylv.” (BPI 801107, a microslide).
Ex-type culture: None.

Epitypus (hic designatus, MBT 202326): [specimen] AUSTRIA (WU 29493).
Ex-epitype culture CBS 119929.
Representative sequences: tef1: FJ860709, rpb2: FJ860599.
Note: The original material of S. sulphurea is given as “1221. 75. S. sulphurea, L.v.s., rara in cortice insidens, Salem nec Pennsylv.” The specimen PH 01107657 includes two parts. One is labeled presumably in Schweinitz’ hand as “Sphaeria sulphurea 1221 – 75 Syn. Fung., Salem” The other is labeled “Sphaeria sulphurea Schw. β parasitica Schw. 1221 — 75 Syn. Fung., Ohio.” The printed label that contains these two specimens gives “Salem, Ohio.” The specimen BPI 801107, from the Collins autograph collection (Shear & Stevens 1917a: 203), is labeled ‘North Carolina, Salem’ and is certainly part of the original material that was studied by Schweinitz. Unfortunately the packet is empty, save for a microscope slide. Schweinitz is known to have collected extensively both in Salem, North Carolina, and in Pennsylvania but he also travelled to Ohio, and he is known to have combined into one packet specimens of what he thought were the same species that were collected in different localities (Shear & Stevens, 1917a, b). We follow the Collins collection label in concluding that the original collection of
S. sulphurea was collected in Salem, North Carolina. The specimen in K is labeled ‘Salem and Bethlehem’ also is an isolectotype. We have not seen Schweinitz material of S. sulphurea from Pennsylvania.

**Trichoderma surrotundum** P. Chaverri & Samuels, Stud. Mycol. 48: 90. 2004 [‘2003’].
Typos: [dry culture] BPI 843668.

(=) Hypocrea surrotunda P. Chaverri & Samuels, Mycologia 95: 1134. 2004 [‘2003’].

Typus: USA: Connecticut: Fairfield County, Weston, Devil’s Glen Conservancy, on decorticated wood, Nov 1988, S. Stein (NY).
Ex-type culture: G.J.S. 95-73 = CBS 111145
Representative sequences: tef1: AY737734, AF534594; rpb2: AF545540.

**Trichoderma tawa** P. Chaverri & Samuels, Stud. Mycol. 48: 92. 2004 [‘2003’].

Typos: [dry culture] BPI 843669.
Ex-type culture: G.J.S. 95-93 = CBS 119058.
Representative sequences: tef1: DQ284973.

**Trichoderma taiwanense** Samuels & M.L. Wu, in Samuels & al., Stud. Mycol. 56: 130. 2006.

Typos: [dry culture] BPI 737694.
Ex-type culture: G.J.S. 95-93 = CBS 119058.
Representative sequences: tef1: DQ284973.

**Trichoderma tropicosinense** P. Chaverri & Samuels, Stud. Mycol. 48: 96. 2004 [‘2003’].

Typos: [dry culture] BPI 843671.

(=) Hypocrea tropicosinensis P. Chaverri & Samuels, Stud. Mycol. 48: 962004 [‘2003’].

Ex-type culture: G.J.S. 95-135 = CBS 114237 = DAOM 232843 = ATCC MYA-3232.
Representative sequences: tef1: AY737735, AY392006; rpb2: AY391958.

**Trichoderma thelephoricola** Samuels & H.C. Evans, in Samuels & al., Mycol. Res. 110: 111. 2006.

Typos: [dry culture] BPI 871726.
Ex-type culture: DIS 85f = CBS 111920 = IMI 393419 = ATCC MYA-3640.
Representative sequences: tef1: EU856321, rpb2: FJ007374.

**Trichoderma tomentosum** Bissett, Can. J. Bot. 69: 2412. 1992 [‘1991’].

Typos: [dry culture] DAOM 178713a.
Ex-type culture: DAOM 178713a.
Representative sequences: tef1: AY750882, rpb2: AF545557.

**Trichoderma tremelloides** Jaklitsch, Fungal Divers. 48: 232. 2011.

Neotypus: [dry culture] WU 29508a.

(=) Sphaeria tremelloides Schum., Enum. Pl. 2: 173. 1803 :
Fries, Syst. Mycol. 2: 235. 1823.

(≡) Hypocrea tremelloides (Schum. : Fr.) Fr., Summa Veg. Scand., Sectio Posterior p. 383. 1849.

Typus: [con] Fl. Danica: pl. 1858 fig. 2 (C, vide Jaklitsch, Fungal Divers. 48: 232. 2011).
Epitypus (vide Jaklitsch in Fungal Divers. 48: 232. 2011): [specimen] (WU 29508).
Ex-epitype culture: CBS 121140.
Representative sequences: tef1: FJ860714, rpb2: FJ860603.

**Trichoderma trixiae** Samuels & Jaklitsch, in Jaklitsch & al., Persoonia 33: 133. 2013.

Typos: [metabolically inactive culture] (CBS 134702).
Ex-type culture: CBS 134702.
Representative sequences: tef1: DQ307526, DQ672606; rpb2: KC85770.

**Trichoderma tropicosinensis** (P.G. Liu) P.G. Liu, Z.X. Zhu & W.Y. Zhuang, in Zhu & Zhuang, Persoonia 34: 126. 2015.

(≡) Hypocrea tropicosinensis P.G. Liu, in Liu & al., Mycotaxon 86: 278. 2003.

Typus: CHINA: Yunnan: Mengla, Cuiingfeng tropical rain forest park, alt. 800 m, on dead bark of Castanopsis, 1 Oct 1993, P.G. Liu D’93-40 (HKAS 26198).

Epitypus (hic designatus, MBT 201086): CHINA: JiLin: Jiahe, Qianjin Forestry Farm, alt. 450 m, on rotten twig, 23 Jul 2012, W.Y. Zhuang, Z.X. Zhu, Z.Q. Zeng, H.D. Zheng & F. Ren 8082 (HMAS 252546).
Ex-epitype culture: HMAS 244983.
Representative sequences: tef1: KF923286, rpb2: KF923313.
Note: Hypocrea tropicosinensis was described without
Trichoderma tsugarensense  
Yabuki & Okuda, in Yabuki & al., Mycoscience 55: 209. 2014.  
Ex-type culture: G.J.S. 99-200 = CBS 140064.  
Typus: [specimen] (BPI 747361).  
Mycol. 56: 55. 2006.  
we designate their collection as epitype.

Trichoderma turrialbense  
Samuels, Degenkolb, K.F. Nielsen & Gräfenhan, in Degenkolb & al., Mycol. Prog. 7: 217. 2008.  
Typus: [dry culture] (BPI 881031).  
Trichoderma vinosum  
Samuels, in Jaklitsch & al., Mycol. Prog. 56: 13. 2006.  
Typus: [dry culture] (PDD 88476).  
Ex-type culture: G.J.S. 99-158 (= collection G.J.S. 8702) = ICMP 16294 = CBS 119087.  
Ex-type culture: G.J.S. 99-200 = CBS 140064.  
Typus: [specimen] (BPI 747361).  
Mycol. 56: 55. 2006.  
we designate their collection as epitype.

Trichoderma victoriense  
Jaklitsch, Fungal Divers. 48: 59. 2011.  
Typus: [dry culture] WU 29561a.  
(=) Hypocrea victoriense  
Jaklitsch, Fungal Divers. 48: 59. 2011.  
Typus: [specimen] (WU 29561).  
Ex-type culture: CBS 120923.  
Representative sequences: tef1: EU338284, rpb2: EU338321.

Trichoderma valdunensis  
Jaklitsch, Fungal Divers. 48: 59. 2011.  
Typus: [dry culture] DAOM 230013.  
Ex-type culture: DAOM 230013.  
Representative sequences: tef1: FJ860717, rpb2: FJ860605.

Trichoderma velutinum  
Bissett, C.P. Kubicek & Szakács, in Bissett & al., Can. J. Bot. 81: 579. 2003.  
Typus: [dry culture] (DAO 230013).  
Ex-type culture: DAO 230013.  
Representative sequences: tef1: AF510444, rpb2: KF134794.

Trichoderma vermipilum  
Samuels, in Samuels & Ismaiel, Mycol. Prog. 11: 248. 2011.  
Typus: [dry culture] (BPI 881031).  
Ex-type culture: PRPI 3359 = CBS 127103.  
Representative sequences: tef1: HQ342219, rpb2: HQ342282.

Trichoderma victoriensis  
(Overton) Jaklitsch & Voglmayr, Mycotaxon 126: 154. 2013.  
(=) Hypocrea victoriensis  
Overton, in Overton & al., Stud. Mycol. 56: 55. 2006.  
Typus: [specimen] (BPI 747361).  
Ex-type culture: G.J.S. 99-200 = CBS 140064.  
Representative sequences: tef1: DQ835473, rpb2: DQ835517.

Trichoderma vinosum  
Samuels, in Jaklitsch & al., Stud. Mycol. 56: 13. 2006.  
Typus: [dry culture] (PDD 88476).  
Ex-type culture: G.J.S. 99-158 (= collection G.J.S. 8702) = ICMP 16294 = CBS 119087.  
(=) Hypocrea vinoso  
Cooke, Grevillea 8: 65. 1879, non Pat. 1881.  
Typus: NEW ZEALAND: Waitaki, [?Berggren] 307 (K, herb. Cooke).

Epitypus (vide Samuels & al., Stud. Mycol. 56: 165. 2006):  
NEW ZEALAND [specimen] (PDD 88476).  
Ex-epitype culture 119087 = ICMP 16294.  
Representative sequences: tef1: AY376047, DQ307527; rpb2: KC285778, KC285779.

Trichoderma virens  
(J.H. Miller, Giddens & A.A. Foster) Arx, Nova Hedwigia Beih. 87: 288. 1987.  
(=) Gliocladium virens  
J.H. Miller, Giddens & A.A. Foster, Mycologia 49: 792. 1957.  
Lectotypus (hic designatus, MBT 201086): [metabolically inactive culture] [USA] “No. 167, in Norfolk cultivated soil, Bleckley Co., Ga., January 6, 1956. J. E. Giddens” (CBS 249.59).  
(=) Gliocladium flavofuscum  
J.H. Miller, Giddens & A.A. Foster, Mycologia 49: 793. 1957.  
Trichoderma flavofuscum  
(J.H. Miller, Giddens & A.A. Foster) Bissett, Can. J. Bot. 69: 2385. 1992 [1991].  
Lectotypus (hic designatus, MBT 201087): [metabolically inactive culture] USA: “No. 1263, from soil, 2 inch depth, Herty Nursery, Dougherty Co., Ga., August 2, 1956. A. A. Foster” CBS 248.59 = DAOM 167652 ex ATCC 13308).  
(=) Hypocrea virens  
P. Chaverri, Samuels & E.L. Stewart, Mycologia 93: 1120. 2001.  
Typus: [specimen] (BPI 737768).  
Representative cultures: ATCC 13213 = CBS 249.59. ATCC 13308 = CBS 248.59.  
Representative sequences: tef1: AY750891, AF534631; rpb2: AF545558.  
Note: Miller et al. (1957) did not indicate a place of deposit for the types of their new species, G. virens and G. flavofuscum, and no herbarium material can be found for them. Neither did the authors specifically indicate a culture collection into which the type cultures were deposited. However the ex-type cultures of G. virens and G. flavofuscum, respectively, were deposited by the authors in ATCC, which subsequently (1959) deposited them in CBS. Because these cultures that are deposited in at least two culture collections are part of the original gatherings, they may be interpreted as isotypes. Accordingly, s we designate the metabolically inactive cultures that are stored in CBS for of each of these names as their respective lectotypes.

Trichoderma virensentiflavum  
(Speg.) Jaklitsch & Voglmayr, Mycotaxon 126: 154. 2013.  
(=) Hypocrea virensentiflava  
Speg., Bol. Acad. Nac. Ci. Argent. 11: 151. 1889.  
Typus: BRAZIL: Apiahy, in Bissett & al., Mycol. Prog. 7: 289. 1988, non Pat. 1889.  
Typus: [dry culture] (BPI 737768).  
Ex-type culture: None. Representative culture: P.C. 278 (lost).  
Representative sequences: tef1: AY7377749, AY392007; rpb2: AY391959.  
Note: Chaverri & Samuels (2003) cultured and sequenced a Costa Rican collection (INB, culture P.C. 278) identified as this species. That culture was lost but the sequences were deposited in GenBank.

Trichoderma viridarium  
Jaklitsch, Samuels & Voglmayr, Persoonia 33: 126. 2013.  
Typus: [specimen] (WU 31627).
**Trichoderma viride** Pers., Neues Mag. Bot. 1: 92. 1794 : Fr., Syst. Mycol. 3: 215. 1832.

Lectotypus (*vide* Bisby, Trans. Br. Mycol. Soc. 23: 152. 1939): (L 910 263 877). Epitypus (*vide* Jaklitsch & al., Stud. Mycol. 56: 154. 2006) [dry culture] (WU 24013a).

Ex-epitype culture: CBS 119325.

Representative sequences: (=) *Sphaeria rufa* Pers., Obs. Mycol. 1: 20. 1794 : Fr., Syst. Mycol. 2: 235. 1822.

Epitypus (*vide* Jaklitsch & al., Stud. Mycol. 56: 154. 2006): Fries, Scler. Suec. no. 303 (UPS).

Representative sequences: [icon] (Horne & Wiliamson in Ann. Bot. 37: 397, Fig. 5. 1923).

Ex-type culture: CBS 132573.

Representative sequences: tef1: KC285658, rpb2: DQ672608, KC285760.

Note: *Trichoderma viride* is the type species of *Trichoderma*. Its connection with *Hypocrea rufa*, though for a long time generally recognized, was fixed by the epitypification of Jaklitsch & al. (2006).

**Trichoderma viridescens** (A.S. Horn & H.S. Williamson) Jaklitsch & Samuels, in Jaklitsch & al., Stud. Mycol. 56: 156. 2006.

(*≡*) *Eidemia viridescens* A.S. Horn & H.S. Williamson, Ann. Bot. 37: 396. 1923.

Neotypus (*vide* Jaklitsch et al. in Persoonia 31: 126. 2013): [icon] (Horne & Wiliamson in Ann. Bot. 37: 397, Fig. 5. 1923).

Epitypus (*vide* Jaklitsch & al. in Persoonia 31: 126. 2013): [specimen] (WU 31264).

Ex-epitype culture: CBS 132569.

Representative sequences: tef1: KC2856476, rpb2: KC285758.

Note: Jaklitsch & al. (2006) linked *T. viridescens* to the sexual morph *H. viridescens* Jaklitsch & Samuels. However in a revision of the *T. viridescens* complex Jaklitsch et al. (2013) concluded that *H. viridescens* is actually the sexual morph of *T. paraviridescens* and that *T. viridescens* was linked to an unnamed sexual morph.

**Trichoderma viridalbum** Jaklitsch, & Voglmayr, Persoonia 33: 135. 2013.

Typus: [metabolically inactive culture] (CBS 133495).

Ex-type culture: CBS 133495.

Representative sequences: tef1: KC285705, KC285706; rpb2: KC285774.

**Trichoderma virilente** Jaklitsch & Voglmayr, in Jaklitsch & al., Persoonia 33: 131. 2013.

Typus: [specimen] (WU 31628).

Ex-type culture: CBS 132569.

Representative sequences: tef1: KJ665772, KC285692; rpb2: KC285767.

**Trichoderma voglmayrii** Jaklitsch, in Jaklitsch & al., Mycologia 97: 1368. 2005.

Typus: [dry culture] (WU 25711a).

(*≡*) *Hypocrea voglmayrii* Jaklitsch, in Jaklitsch & al., Mycologia 97: 1368. 2005.

Typus: [specimen] (WU 25711).

Ex-type culture: CBS 117711.

Representative sequences: tef1: DQ086146, rpb2: FJ179622.

**Trichoderma yunnanense** Z.F. Yu & K.Q. Zhang, in Yu & al., Antonie van Leeuwenhoek 92: 104. 2007.  
Non *Podostroma yunnanense* M. Zang, Mat. Diagn. Fung. Oecon. Yunnan. 21: 2. 1976.

Typus: CHINA: Yunnan: near Yuxi County, isolated from tobacco rhizosphere, Jun. 2002, Z.F. Yu (YMF 1.0169) [Key Laboratory of Yunnan Microbiology Fermentation]).

Ex-type culture: YMF 1.0169 = CBS 121219.

Representative sequences: tef1: AY94182, rpb2: GU198274.

Note: *Podostroma yunnanense* is distinct from *T. yunnanense*. Apparently *P. yunnanense* has not been cultured or sequenced.

**Trichoderma aeruginosum** Link, Mag. Gesellsch. naturf. Freunde, Berlin 8: 41. 1816.

**Trichoderma aeruginosum** Chevall., Fl. Gén. Env. Paris: 54. 1826; nom. illegit. (Art. 53.1); non *T. aeruginosum* Link, 1816.

Note: MycoBank gives *T. aeruginosum* Chevall. as a synonym of *T. violaceum* Oudem., but without explanation. In the original description of the latter species, no mention is made of *T. aeruginosum*. The protologue of *T. aeruginosum* Chevall. does not permit speculation as to the identity of the species.

**Trichoderma album** Preuss, Linnaea 24: 141. 1851.

**Trichoderma arachnoideum** Kuritzina & Sizova, Mykol. Fitopatol. 1: 343. 1967.

**Trichoderma atroviride** Bissett, Can. J. Bot. 62: 930. 1984 *non* P. Karst.

(*≡*) *Trichoderma ghanense*.

**Trichoderma aureum** Pers., Obs. mycol. 1: 99. 1796.

(*≡*) *Botryobasidium aureum* (Pers.) Fries, Syst. Mycol. 3(2): 418. 1832 fide Hughes (1958).

**Botryobasidium aureum** Parmasto, Eesti NSV Tead. Akad. Toim., Biol. Seer. 14(2): 220. 1965.

**Trichoderma brassicae** Schum., Enum. Pl. 2: 235. 1803.

**Trichoderma caesium** Pers., Neues Mag. Bot. 1: 92. 1794.
Trichoderma candidum Alb. & Schwein., Conspl. Fung. 137. 1805.

Trichoderma carneum Schum., Enum. Pl. 2: 236. 1803.

Trichoderma cinnabarinum Wallroth, Fl. Crypt. Germ. 2: 246. 1833.

Trichoderma collae (Schwein.) Sacc., Syll. Fung. 4: 60. 1886.

Trichoderma cuneisporum (=) P. Chaverri & Samuels, Trichoderma corfecianum Yoshim. Doi, P.G. Liu & M. Tamura, Mycosystema 33: 1204. 2014.

Trichoderma corrugatum Yoshim. Doi, P.G. Liu & M. Tamura, Bull. Nat. Sci. Mus., Tokyo, B 27(2, 3): 58. 2001.

Trichoderma cordobense Speg., Bol Acad. Nac. Cienç Cordoba 29(2-3): 175. 1926.

Trichoderma crosceum Bissett, Can. J. Bot. 69: 2379. 1992 ["1991"].

Trichoderma carneum (Alb. & Schwein.) Sacc., Syll. Fung.: 233. 1801.

Trichoderma dubium (Alb. & Schwein.) S. Hughes, Can. J. Bot. 36: 731. 1958.

Trichoderma fomitopsis (P.G. Liu & Yoshim. Doi) P.G. Liu, Z.X. Zhu & W.Y. Zhuang, Mycosystema 33: 1204. 2014.

Hypocrella discoidea Berk. & Broome, J. Linn. Soc. Bot. 14: 113. 1873.

Hypocrea discoidea (Berk. & Broome) Sacc., Michelia 1:322. 1878.

Hypocrea fasciculata Bissett, Can. J. Bot. 69: 2379. 1992 ["1991"].

Hypocrea lageniformis (=) Xylohypha nigrescens (Pers.) E.W. Mason, in Deighton, Mycol. Pap. 78: 43. 1960.

Trichoderma fusca Hegn. (Mont.) Sacc., Syll. Fung. 4: 755. 1892 ["1991"].

Hypocrea lageniformis (=) Xylohypha nigrescens (Pers.) E.W. Mason, in Deighton, Mycol. Pap. 78: 43. 1960.

Trichoderma globuliferum Speg., Bol Acad. Nac. Cienç Córdoba 29(2-3): 175. 1926.

Trichoderma globum Sommerf., Suppl. Fl. Lapp.: 312. 1826.

Trichoderma fuliginoides Pers., Syn. Meth. Fung.: 233. 1801.

Trichoderma glaucum E.V. Abbott, Iowa St. Coll. J. Sci. 1: 27. 1927.

Trichoderma globosum Schwein., Schr. naturf. Ges. Leipzig 1: 77. 1822.

Trichoderma globosum Schwein., Schr. naturf. Ges. Leipzig 1: 77. 1822.

Trichoderma glaucum E.V. Abbott, Iowa St. Coll. J. Sci. 1: 27. 1927.
Trichoderma granulosum Fuckel, Jahrb. Nassau. Ver. Naturk. 23-24: 185. 1870 [ , 1869].

Trichoderma guttatum Alb. & Schwein., Conspr. fung. p. 137. 1805.

Trichoderma lacteum Bissett, Can. J. Bot. 69: 2367. 1992.

(=) Trichoderma citrinum.

Trichoderma laeve Pers., Obs. Mycol. 1: 12. 1796.
Note: Hughes (1958) did not offer an opinion on the application of this name.

Trichoderma laeve Schumach., Enum. Pl. 2: 236. 1803; nom. Illegit. (Art. 53: 1).

Trichoderma lateritio-roseum Libert, in Cooke, Grevillea 8: 83. 1880.

Trichoderma lignorum (Tode) Harz, Bull. Soc. Imp. Nat. Moscou 44: 117. 1872 [1871].
(≡) Pyrenium lignorum Tode, Fung. mecklenb. 1: 33. 1790.
Note: Trichoderma lignorum is generally considered a synonym of T. viride.

Trichoderma lignorum var. majus Donohue, 1931; as "major". 1961.

Trichoderma lignorum var. narcissi (Tochinai & Shimada) Pidopl., Grib. Fl. Grub. Korm.: 182. 1953.
(≡) Sporotrichum narcissi Tochinai & Shimada, Trans. Sapporo nat. Hist. Soc. 12: 24 (1931).
Note: The ex-type culture of this variety (= CBS 316.31) is morphologically T. harzianum.

Trichoderma minimum (Speg.) Gunth. Müller, Wiss. Z. Humboldt-Univ. Berl. 14: 775. 1965; as "minima".
(≡) Sporotrichum minimum Speg., Anal. Soc. Cl. Argentina 13: 24. 1882.
(≡) Beauveria bassiana (Bals.-Criv.) Vuill., Bull. Soc. Bot. Fr. 59: 40. 1912 (fide MycoBank).

Trichoderma minutum Bain., Bull. Soc. Mycol. Fr. 22: 133. 1906.
Note: Rifai (1969) synonymized T. minutum Bain. under T. polysporum, but Bain. ’s pl. XIV, figs. 14–16 do not appear to be T. polysporum and in fact might not even be a Trichoderma.

Trichoderma mycophilum (Persoon) Schwein., Schr. Naturf. Ges. Leipzig 1: 76. 1822.
(≡) Uredo mycophila Pers., Ann. Bot. (Usteri) 15: 16. 1796.
(≡) Hypomyces chrysospermus Tul. & C. Tul. Ann. Sci. Nat. Bot., sér. 4: 13:16. 1860 (fide Rogerson & Samuels, 1994).

Trichoderma narcissi (Tochinai & Shimada) Tochinai & Shimada, Trans. Sapporo nat. Hist. Soc. 12: 24 (1931).
(≡) Sporotrichum narcissi Tochinai & Shimada, Trans. Sapporo nat. Hist. Soc. 11: 124. 1930.
(≡) Trichoderma harzianum s. lat. (fide Rifai, 1969).
Ex-type culture CBS 316.31.

Trichoderma nigrescens Pers., Syn. Meth. Fung.: 232. 1801.
(≡) Xylohypha nigrescens (Pers.) E.W. Mason ex S. Hughes 1958 (fide Hughes, 1958).

Trichoderma nigrovirens Goddard, Bot. Gaz. 56: 273. 1913.

Trichoderma nigrovirens P. Chaverri & Samuels, Stud. Mycol. 48:78. 2004; nom. illegit. (Art. 53: 1); non Goddard 1913.
(≡) Trichoderma pseudonigrovirens.

Trichoderma nunbergii Szilv., Zentbl. Bakt. ParasitKde, Abt. II 86: 135 (1932).

Trichoderma parceramosum Bissett, Can. J. Bot. 69: 2418. 1991 [1992].
(≡) Trichoderma ghaneense.

Trichoderma pedunculatum Schumach., Enum. Pl. 2: 236. 1803. 236. 1803.

Trichoderma penicillatum Wallr., Fl. crypt. Germ. 2: 246. 1833.

Trichoderma pezizoideum Wallr., Fl. crypt. Germ. 2: 246. 1833; nom. rej. prop. (Art. 53, voted example 11); non T. pezizoides.
Note: Samuels (2014) proposed rejection of this name.

Trichoderma pyrenium (Tode) Pers., Syn. Meth. Fung. 1: 233. 1801.
(≡) Trichoderma aureum (Tode) Pers., Römer’s Neues Mag. Bot. 1:92. 1794.
(≡) Pyrenium lignorum[ var.] β. aureum Tode, Fungi Mecklenb. Sel. 1:33. 1790.
Note: This synonymy is from Hughes (1958). Hughes included this name in square brackets with the annotation: “Quid?” The identity of T. pyrenium (Tode) Pers. is not known.

Trichoderma pyrenium Schumach., Enum. pl. 2: 235. 1803; nom. illegit. (Art. 53:1); non T. pyrenium (Tode) Pers.

Trichoderma racemosum McAlpine, Fungus Dis. Stone-fruit Austr.: 105. 1902.

Trichoderma roseum Pers., Syn. Meth. Fung. 1: 231. 1801.
(≡) Trichothecium roseum (Pers.) Link (fide Hughes, 1958).

Trichoderma spadiceum Schwein., Schr. naturf. Ges. Leipzig 1: 51. 1822.
(≡) Hyphelia spadicea (Schwein.) Fr., Syst. mycol. 3(1): 212. 1829.
(≡) *Coniosporium spadiceum* (Schwein.) U. Braun, Mycol. Balc. 6: 108. 2009.

*Trichoderma sporulosum* (Link) S. Hughes, Can. J. Bot. 36: 820. 1958.

(≡) *Trichoderma polysporum*.

*Trichoderma stellatum* (B.S. Lu, Druzhinina & Samuels) Jaklitsch & Voglmayr, Mycotaxon 126: 153. 2014.

(≡) *Trichoderma polysporum*.

*Trichoderma subsulphureum* (Syd.) Jaklitsch & Voglmayr, Mycotaxon 126: 153. 2013.

(≡) *Hypocrea subsulphurea* Syd. In De Wildeman, Flore Bas et Moyen-Congo: 15. figs. 13. 14. 1909.

Typus: “Kisantu, 1907 (H. Vanderyst),”

Ex-type culture. None. Representative culture: None.

*Note:* Overton *et al.* (2006) did not locate the type specimen of *H. subsulphurea* in S, and the protocol did not include illustrations. Overton *et al.* (2006) identified a recent (2002) Japanese collection as *H. subsulphurea*, from which they obtained a culture and DNA sequences. Although Overton *et al.* (2006) reported that the specimen (Overton M 141) had been deposited in BPI, there are no specimens of *H. subsulphurea* or *Hypocrea* subsulphurea collected in Japan in 2002 in BPI. Moreover, the culture from the Overton specimen has apparently been lost. Thus *T. subsulphureum* is only known from DNA sequences of doubtful origin deposited in GenBank (ITS DQ835509, tef1 DQ835492, rpb2 DQ83552).

*Trichoderma symposium* Kulik, *Notul. syst. Sect. cryptog. Inst. bot. Acad. Sci. U.S.S.R* 13: 137. 1960

*Trichoderma todica* Sokoloff & Toda, nom. inval. (Art. 32.1).

*Note:* This name has not been effectively published; it is referred to as ‘sp. nov NRRL 3091’ in U.S. patent no. US 3323996 A, which is referred to as ‘sp. nov NRRL 3091’ in U.S. patent no. US 3323996 A, which is *T. ghanense* (Samuels *et al.* 1998).

*Trichoderma tuberculatum* Pers., *Obs. Mycol.* 1: 12. 1796.

*Note:* Hughes (1958) did not offer an opinion on this species.

*Trichoderma varians* Sartory & Bain., *Bull. Soc. Bot. Fr.* 59: 346. 1912.

*Trichoderma varium* Ehrenb., *Sylv. Mycol. Berol. : 22. 1818.

*Trichoderma violaceum* Oudemans, *Ned. kruidk. Archf, 3 sér. 2(4): 1123. 1904.

(≡) *Trichoderma aeruginosum* Chevall., *Fl. Gén. Env. Paris* 1: 54. 1826; nom. illegit. (Art. 53.1); non *T. aeruginosum* Link 1816.

*Note:* MycoBank indicates that the illegitimate name *T. aeruginosum* Chevall. is *T. violaceum*, but without explanation. Conidia of *T. aeruginosum* are described as ‘… presque globoseuses, violacé-tendre a l’état isolé, violacé-noirâtre en masse, apiculées à la base, et appliquées par moyen de cette petite proéminence a l’entour du sommet de la hyphé, lequel par là semble cinglé d’un anneau colorié.’ This description suggests that the fungus is not a *Trichoderma*.

*Trichoderma viride* Schumach., *Enum. Pl.* 2: 235. 1803; nom illegit. (Art. 53.1); non *T. viride* Pers. 1791.

*Trichoderma viride* var. *kizhanense* Krapiv., *L.A. Poljak. & Sizova, in Krapivina & al., Mikol. Fitopatol.* 9: 143. 1975.

*Trichoderma vulgarum* Fuckel, *Jahrb. Nassau. Ver. Naturk.* 27-28: 80. 1874.

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