**Supplementary Table 1.** Species, strains, and their corresponding GenBank accession numbers of LSU sequences used for phylogenetic analyses.

|  |  |  |
| --- | --- | --- |
| **Name** | **Strain** | **GenBank accession number** |
| *Fuscosclera lignicola* | FMR 11236 | KY853504 |
| *Hyalopeziza leuconica* | KUS-F52474 | JN086719 |
| *Hyalopeziza nectrioides* | CBS597.77 | JN086684 |
| *Hyalopeziza* sp. | TNS-F-17879 | JN086740 |
| *Hyalopeziza* sp. | TNS-F-17975 | JN086743 |
| *Hyalopeziza* sp. | TNS-F-18048 | JN086749 |
| *Hyaloscypha albohyalina* var. *albohyalina* | TNS-F-17137 | JN086734 |
| *Hyaloscypha albohyalina* var. *albohyalina* | TNS-F-11213 | JN086738 |
| *Hyaloscypha albohyalina* var. *monodictys* | TNS-F-5013 | JN086756 |
| *Hyaloscypha albohyalina* var. *spiralis* | KUS-F52652 | JN086729 |
| *Hyaloscypha albohyalina* var. *spiralis* | TNS-F-17909 | JN086741 |
| *Hyaloscypha aureliella* | M234 | EU940152 |
| *Hyaloscypha aureliella* | TNS-F-11209 | AB546943 |
| *Hyaloscypha aureliella* | KUS-F52070 | JN086697 |
| *Hyaloscypha fuckelii Nannf.* | M233 | EU940154 |
| *Hyaloscypha hepaticicola* | M171 | EU940118 |
| *Hyaloscypha hepaticicola* | M339 | EU940150 |
| *Hyaloscypha leuconica* var. *bulbopilosa* | KUS-F52573 | JN086726 |
| *Hyaloscypha* sp. | TNS-F-17333 | AB546938 |
| *Hyaloscypha* sp. | TNS-F-17350 | JN086737 |
| *Hyaloscypha* sp. | TNS-F-31287 | JN086754 |
| *Hyaloscypha* sp. | TNS-F-17694 | JN086750 |
| *Hyaloscypha vitreola* | CBS 127.91 | JN086681 |
| *Hyaloscypha vitreola* | M39 | EU940155 |
| *Hyphodiscus hymeniophilus* | TNS-F-31801 | AB546946 |
| *Hyphodiscus hymeniophilus* | TNS-F-31802 | AB546950 |
| ***Isthmolonqispora quadricellularis*** | **YMF1.04719** | **MT507107** |
| ***Isthmolonqispora quadricellularis*** | **YMF1.04016** | **MT507108** |
| ***Isthmolonqispora quadricellularis*** | **YMF1.04011** | **MT507109** |
| ***Isthmolonqispora quadricellularis*** | **YMF1.04019** | **MT507110** |
| *Loramyces juncicola* | CBS293.52 | MH868576 |
| *Loramyces macrosporus* | CBS235.53 | MH868710 |
| *Niptera pulla* | CBS271.53 | MH868731 |
| *Olla millepunctata* | CBS100302 | JN086683 |
| *Venturiocistella japonica* | TNS-F-18030 | AB546954 |
| *Venturiocistella* sp. | KUS-F52028 | JN086694 |

Note: \*Numbers in bold are those generated in this study.

**Supplementary Table 2.** Species, strains, and their corresponding GenBank accession numbers of sequences used for phylogenetic analyses.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **strain** | **GenBank accession number** | | | |
| **LSU** | **SSU** | **RPB2** | **TEF1** |
| ***Antidactylaria minifimbriata*** | **YMF1.04578** | **MK577808** | **MK577793** | **MK577823** | **MK577838** |
| *Apiosporina collinsii* | CBS 118973 | GU301798 | GU296135 | — | GU349057 |
| *Chaetothyriothecium elegans* | CPC 21375 | NG058861 | — | — | — |
| *Coleroa robertiani* | CBS 458.64 | JQ036231 | — | — | — |
| *Fusicladium africanum* | CPC 12828 | EU035423 | — | — | — |
| *Fusicladium africanum* | CPC 12829 | EU035424 | — | — | — |
| *Fusicladium intermedium* | CBS 110746 | EU035432 | — | — | — |
| *Fusicladium pini* | CBS 463.82 | EU035436 | — | — | — |
| *Gibbera conferta* | CBS 191.53 | GU301814 | GU296150 |  | GU349041 |
| ***Isthmomyces dissimilis*** | **YMF1.04604** | **MK577811** | **MK577796** | **MK577826** | **MK607171** |
| ***Isthmomyces lanceatus*** | **YMF1.04514** | **MK577813** | **MK577798** | **MK577828** | **MK607173** |
| ***Isthmomyces macrosporus*** | **YMF1.04518** | **MK577812** | **MK577797** | **MK577827** | **MK607172** |
| ***Isthmomyces oxysporus*** | **YMF1.04513** | **MK577810** | **MK577795** | **MK577825** | **MK607170** |
| ***Isthmomyces relanceatus*** | **YMF1.04794** | **MK577814** | **MK577799** | **MK577829** | **MK607174** |
| ***Keqinzhangia aquatica*** | **YMF1.04262** | **MK577809** | **MK577794** | **MK577824** | **MK577839** |
| *Lichenoconium aeruginosum* | CBS 129239 | MH876629 | HQ174268 | — | — |
| *Lichenoconium aeruginosum* | JL359-09 | HQ174269 | — | — | — |
| *Lichenoconium erodens* | JL363-09 | HQ174267 | HQ174266 | — | — |
| *Lichenoconium lecanorae* | JL382-10 | HQ174263 | HQ174262 | — | — |
| *Lichenoconium usneae* | JL352-09 | HQ174265 | HQ174264 | — | — |
| *Lichenothelia cf. calcarea* | L 1323 | KC015061 | KC015081 | — | — |
| *Lichenothelia cf. calcarea* | L 1324 | KC015062 | KC015082 | — | — |
| *Lichenothelia convexa* | L 1606 | KC015068 | KC015083 | — | — |
| *Lichenothelia convexa* | L 1607 | KC015069 | KC015084 | — | — |
| *Lichenothelia convexa* | L 1608 | KC015070 | KC015085 | — | — |
| *Lichenothelia convexa* | L 1609 | KC015071 | KC015086 | — | — |
| *Lichenothelia sp.* | L 984 | KC015074 | KC015087 | — | — |
| *Lichenothelia sp.* | L 985 | KC015075 | KC015088 | — | — |
| *Lichenothelia sp.* | L 986 | KC015076 | KC015089 | — | — |
| *Microthyrium microscopicum* | CBS 115976 | GU301846 | GU296175 | GU371734 | GU349042 |
| *Microthyrium propagulensis* | IFRD 9037 | KU948989 | — | — | — |
| *Microthyrium sp.* | SH-2015 | KT306552 | KT306550 | — | — |
| *Natipusilla bellaspora* | PE91-1a | JX474863 | JX474868 | — | — |
| *Natipusilla bellaspora* | PE91-1b | JX474864 | JX474869 | — | — |
| *Natipusilla decorospora* | AF236-1a | HM196369 | HM196376 | — | — |
| *Natipusilla limonensis* | AF286-1a | HM196370 | HM196377 | — | — |
| *Natipusilla limonensis* | PE3-2b | JX474862 | JX474870 | — | — |
| *Natipusilla limonensis* | PE3-2a | JX474861 | JX474867 | — | — |
| *Natipusilla naponensis* | AF217-1b | HM196372 | HM196379 | — | — |
| *Natipusilla naponensis* | AF217-1a | HM196371 | HM196378 | — | — |
| *Phaeotrichum benjaminii* | CBS 541.72 | AY004340 | AY016348 | DQ677946 |  |
| *Protoventuria barriae* | CBS 300.93 | JQ036232 |  | — | — |
| ***Pseudocoronospora hainanensis*** | **YMF1.04517** | **MK577807** | **MK577792** | **MK577822** | **MK577837** |
| *Schismatomma decolorans* | DUKE 47570 | AY548815 | AY548809 | DQ883715 | DQ883725 |
| *Sympoventuria capensis* | CPC 12839 | DQ885905 | — | — | — |
| *Sympoventuria capensis* | CPC 12840 | DQ885904 | — | — | — |
| *Trichodelitschia bisporula* | CBS 262.69 | GU348996 | GU349000 | GU371802 | GU349020 |
| *Trichodelitschia munkii* | Kruys 201 | DQ384096 | DQ384070 | — | — |
| ***Triscelophorus anakonajensis*** | **YMF1.04398** | MK577819 | MK577804 | MK577834 | MK607178 |
| ***Triscelophorus anisopteriodeus*** | **YMF1.04267** | MK577818 | MK577803 | MK577833 | — |
| ***Triscelophorus guizhouensis*** | **YMF1.04156** | MK577821 | MK577806 | MK577836 | MK607180 |
| ***Triscelophorus konajensis*** | **YMF1.04065** | MK577820 | MK577805 | MK577835 | MK607179 |
| ***Triscelophorus mugecuoense*** | **YMF1.04593** | MK577815 | MK577800 | MK577830 | MK607175 |
| ***Triscelophorus multibramosus*** | **YMF1.04596** | MK577816 | MK577801 | MK577831 | MK607176 |
| ***Triscelophorus neoseptatus*** | **YMF1.04310** | MK577817 | MK577802 | MK577832 | MK607177 |
| *Tumidispora shoreae* | MFLUCC14-0574 | KT314074 | KT314076 | — | — |
| *Tumidispora shoreae* | MFLUCC12-0409 | KT314073 | KT314075 | — | — |
| *Tyrannosorus pinicola* | CBS 124.88 | DQ470974 | DQ471025 | DQ470928 | DQ471098 |
| *Venturia inaequalis* | CBS 815.69 | GU301878 | GU296204 | — | GU349023 |
| *Veronaeopsis simplex* | CBS 588.66 | EU041877 | — | — | — |

Note: \*Numbers in bold are those generated in this study.