**Supporting information**

**Table S1. Aquatic hyphomycete species, isolate reference, year of isolation, country of stream location, sampled substrate and Genbank accession number of sequenced isolates of the current study and those retrieved from NCBI.**

The sampled substrates were: foam (F), leaves (L), stream water (SW) and twigs (T). Sampling sites are: Ave River (sites L1 and L7); Bellinger River (Ho, Le and Jo sites); Botão Stream (Bo); lake Bracciano (Br); Cávado River (Ca); Caldeiras Stream (Cas); Caldeirões Stream (Cao); Candal Stream (Can); Este River (sites E1 and E5); Estorãos River (Es); Hastings River (Ha); Lamas Stream (Lm); Madrid Stream (Ma); Moredun Creek (Mo); Mungay Creek (Mu); Never Never River (sites NN1, NN2); Onyar Stream tributary (On); Pelhe River (Pel); Petimão Stream (Pet); Souto stream (So); Tanha Stream (Ta); Vez Stream tributary (Ve) and Vigo Stream (Ve).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Species | Isolate reference | Year | Stream location | Country | Sampled substrate | Genbank accession number |
| *Anguillospora filiformis* Ingold | | | | | | |
|  | UMB-704.11 | 2011 | Mu (31º44’S 152º46’E) | Australia | L | JX089461 |
|  | UMB-814.11 | 2011 | Mu (31º44’S 152º46’E) | Australia | L | JX089462 |
|  | UMB-815.11 | 2011 | Mu (31º44’S 152º46’E) | Australia | L | JX089463 |
|  | UMB-816.11 | 2011 | Mu (31º44’S 152º46’E) | Australia | L | JX089464 |
|  | UMB-817.11 | 2011 | Mu (31º44’S 152º46’E) | Australia | L | JX089465 |
|  | UMB-015.00 | 2000 | L7 (41°20’N 8°31’W) | Portugal | SW | GQ411263a |
|  | UMB-102.01 | 2001 | Pel (41°24’N 8°30’W) | Portugal | L | GQ411261a |
|  | UMB-117.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411262a |
|  | UMB-148.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411260a |
|  | UMB-232.02 | 2002 | E1 (41°34’N 8°19’W) | Portugal | L | GQ411259a |
|  | UMB-411.09 | 2009 | Es (41º77’N 8º62’W) | Portugal | L | JX089466 |
|  | UMB-434.09 | 2009 | Es (41º77’N 8º62’W) | Portugal | L | JX089467 |
|  | UMB-822.09 | 2009 | Es (41º77’N 8º62’W) | Portugal | L | JX089468 |
|  | UMB-823.09 | 2009 | Es (41º77’N 8º62’W) | Portugal | L | JX089469 |
|  | UMB-824.09 | 2009 | Es (41º77’N 8º62’W) | Portugal | L | JX089470 |
|  | UMB-827.11 | 2011 | E1 (41°34’N 8°19’W) | Portugal | L | JX089471 |
|  | UMB-828.11 | 2011 | E1 (41°34’N 8°19’W) | Portugal | L | JX089472 |
| *Flagellospora penicillioides* Ingold | | | | | | |
|  | UMB-623.10 | 2010 | NN2 (30º22’S 152º54’E) | Australia | L | JX089473 |
|  | UMB-624.10 | 2010 | NN2 (30º22’S 152º54’E) | Australia | L | JX089474 |
|  | UMB-629.10 | 2010 | Ho (30º14’S 153º9’E) | Australia | L | JX089475 |
|  | UMB-643.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089476 |
|  | UMB-646.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089477 |
|  | UMB-653.10 | 2010 | NN1 (30º23’S 152º53’E) | Australia | L | JX089478 |
|  | UMB-668.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089479 |
|  | UMB-679.10 | 2010 | Mo (30º08’S 151º3’E) | Australia | L | JX089480 |
|  | UMB-681.10 | 2010 | Mo (30º08’S 151º3’E) | Australia | L | JX089481 |
|  | UMB-693.10 | 2010 | Ha (30º56’S 151º58’E) | Australia | L | JX089482 |
|  | UMB-696.10 | 2010 | Ha (30º56’S 151º58’E) | Australia | L | JX089483 |
|  | UMB-699.10 | 2010 | Ha (30º56’S 151º58’E) | Australia | L | JX089484 |
|  | UMB-703.10 | 2010 | Mu (31º44’S 152º46’E) | Australia | L | JX089485 |
|  | UMB-561.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089486 |
|  | UMB-565.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089487 |
|  | UMB-566.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089488 |
|  | UMB-569.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089489 |
|  | UMB-570.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089490 |
|  | UMB-571.10 | 2010 | Cas (37º79’N 25º45’W) | Azores | L | JX089491 |
|  | UMB-574.10 | 2010 | Cao (37º50’N 25º16’W) | Azores | T | JX089492 |
|  | UMB-543.10 | 2010 | Br (42º07’N 12º13’E) | Italy | L | JX089493 |
|  | UMB-545.10 | 2010 | Br (42º07’N 12º13’E) | Italy | L | JX089494 |
|  | UMB-300.05 | 2005 | E1 (41°34’N 8°19’W) | Portugal | SW | GQ411324a |
|  | UMB-302.05 | 2005 | E1 (41°34’N 8°19’W) | Portugal | SW | GQ411326a |
|  | UMB-304.05 | 2005 | E1 (41°34’N 8°19’W) | Portugal | SW | GQ411325a |
|  | UMB-350.07 | 2007 | Bo (40°18′N 8°23′W) | Portugal | L | GQ411323a |
|  | UMB-395.09 | 2009 | So (41º31’N 8º17’W) | Portugal | L | JX089495 |
|  | UMB-396.09 | 2009 | So (41º31’N 8º17’W) | Portugal | L | JX089496 |
|  | UMB-397.09 | 2009 | So (41º31’N 8º17’W) | Portugal | L | JX089497 |
|  | UMB-398.09 | 2009 | So (41º31’N 8º17’W) | Portugal | L | JX089498 |
|  | UMB-425.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089499 |
|  | UMB-611.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089500 |
|  | UMB-612.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089501 |
|  | UMB-583.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089502 |
|  | UMB-584.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089503 |
|  | UMB-585.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089504 |
|  | UMB-586.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089505 |
|  | UMB-587.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089506 |
|  | UMB-588.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089507 |
|  | UMB-607.10 | 2010 | Ma (40º33’N 3º32’E) | Spain | L | JX089508 |
|  | UMB-795.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089509 |
|  | UMB-797.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089510 |
|  | UMB-799.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089511 |
|  | UMB-800.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089512 |
| *Geniculospora grandis* (Greath.) Nolan | | | | | | |
|  | UMB-723.11 | 2011 | NN2 (30º22’S 152º54’E) | Australia | L | JX089513 |
|  | UMB-806.11 | 2011 | NN2 (30º22’S 152º54’E) | Australia | L | JX089514 |
|  | UMB-807.11 | 2011 | NN2 (30º22’S 152º54’E) | Australia | L | JX089515 |
|  | UMB-808.11 | 2011 | NN2 (30º22’S 152º54’E) | Australia | L | JX089516 |
|  | UMB-809.11 | 2011 | NN2 (30º22’S 152º54’E) | Australia | L | JX089517 |
|  | UMB-176.01 | 2001 | Lm (41°30’N 8°25’W) | Portugal | F | GQ411354a |
|  | UMB-198.01 | 2001 | E1 (41°34’N 8°19’W) | Portugal | F | GQ411353a |
|  | UMB-488.10 | 2010 | Vi (42º15N’ 8º71’W) | Spain | F | JX089518 |
|  | UMB-495.10 | 2010 | Vi (42º15’N 8º71’W) | Spain | F | JX089519 |
|  | UMB-502.10 | 2010 | Vi (42º15N’ 8º71’W) | Spain | F | JX089520 |
| *Lunulospora curvula* Ingold | | | | | | |
|  | UMB-659.10 | 2010 | NN1 (30º23’S 152º53’E) | Australia | L | JX089521 |
|  | UMB-666.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089522 |
|  | UMB-670.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089523 |
|  | UMB-688.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089524 |
|  | UMB-706.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089525 |
|  | UMB-108.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411321a |
|  | UMB-115.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411322a |
|  | UMB-305.05 | 2005 | E1 (41°34’N 8°19’W) | Portugal | SW | GQ411320a |
|  | UMB-498.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089526 |
|  | UMB-499.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089527 |
|  | UMB-500.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089528 |
|  | UMB-578.10 | 2010 | Ta (41º23’N 7º69’W) | Portugal | L | JX089529 |
|  | UMB-579.10 | 2010 | Ta (41º23’N 7º69’W) | Portugal | L | JX089530 |
|  | UMB-825.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089531 |
|  | UMB-826.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089532 |
|  | UMB-782.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089533 |
|  | UMB-783.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089534 |
|  | UMB-791.11 | 2011 | On (41º98’N 2º81’E) | Spain | L | JX089535 |
| *Tetrachaetum elegans* Ingold | | | | | | |
|  | UMB-648.10 | 2010 | Ho (30º14’S 153º9’E) | Australia | L | JX089536 |
|  | UMB-810.11 | 2011 | Ho (30º14’S 153º9’E) | Australia | L | JX089537 |
|  | UMB-811.11 | 2011 | Ho (30º14’S 153º9’E) | Australia | L | JX089538 |
|  | UMB-812.11 | 2011 | Ho (30º14’S 153º9’E) | Australia | L | JX089539 |
|  | UMB-813.11 | 2011 | Ho (30º14’S 153º9’E) | Australia | L | JX089540 |
|  | UMB-435.09 | 2009 | Ve (41º99’N 8º33’W) | Portugal | L | JX089541 |
|  | UMB-483.09 | 2009 | Ca (41°38’N 8°19’W) | Portugal | L | JX089542 |
|  | UMB-522.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089543 |
|  | UMB-529.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089544 |
|  | UMB-532.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089545 |
|  | UMB-534.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089546 |
|  | UMB-609.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089547 |
|  | UMB-615.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089548 |
|  | UMB-617.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089549 |
|  | UMB-717.11 | 2011 | Can (40º08’N 8º20’W) | Portugal | L | JX089550 |
| *Tricladium chaetocladium* Ingold | | | | | | |
|  | UMB-631.10 | 2010 | Ho (30º14’S 153º9’E) | Australia | L | JX089551 |
|  | UMB-642.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089552 |
|  | UMB-644.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089553 |
|  | UMB-667.10 | 2010 | Le (30º43’S 152º8’E) | Australia | L | JX089554 |
|  | UMB-685.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089555 |
|  | UMB-686.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089556 |
|  | UMB-687.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089557 |
|  | UMB-689.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089558 |
|  | UMB-690.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089559 |
|  | UMB-691.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089560 |
|  | UMB-711.10 | 2010 | Jo (30º14’S 152º5’E) | Australia | L | JX089561 |
|  | UMB-013.99 | 1999 | L1 (41°33’N 8°14’W) | Portugal | L | GQ411309a |
|  | UMB-035.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411310a |
|  | UMB-062.01 | 2001 | E5 (41°30’N 8°27’W) | Portugal | L | GQ411308a |
|  | UMB-065.01 | 2001 | Pel (41°24’N 8°30’W) | Portugal | L | GQ411307a |
|  | UMB-523.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089562 |
|  | UMB-527.10 | 2010 | Can (40º08’N 8º20’W) | Portugal | L | JX089563 |
|  | UMB-547.10 | 2010 | Ta (41º23’N 7º69’W) | Portugal | L | JX089564 |
|  | UMB-549.10 | 2010 | Ta (41º23’N 7º69’W) | Portugal | L | JX089565 |
|  | UMB-616.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089566 |
|  | UMB-618.10 | 2010 | Pet (41º48’N 8º01’W) | Portugal | L | JX089567 |
|  | UMB-716.11 | 2011 | Can (40º08’N 8º20’W) | Portugal | L | JX089568 |
|  | UMB-720.11 | 2011 | Can (40º08’N 8º20’W) | Portugal | L | JX089569 |
|  | UMB-721.11 | 2011 | Can (40º08’N 8º20’W) | Portugal | L | JX089570 |
|  | UMB-504.10 | 2010 | Vi (42º15’N 8º71’W) | Spain | F | JX089571 |
|  | UMB-516.10 | 2010 | Vi (42º15’N 8º71’W) | Spain | F | JX089572 |

a, sequences retrieved from NCBI