Aquatic Hyphomycete Taxonomic Relatedness Translates into Lower Genetic Divergence of the Nitrate Reductase Gene

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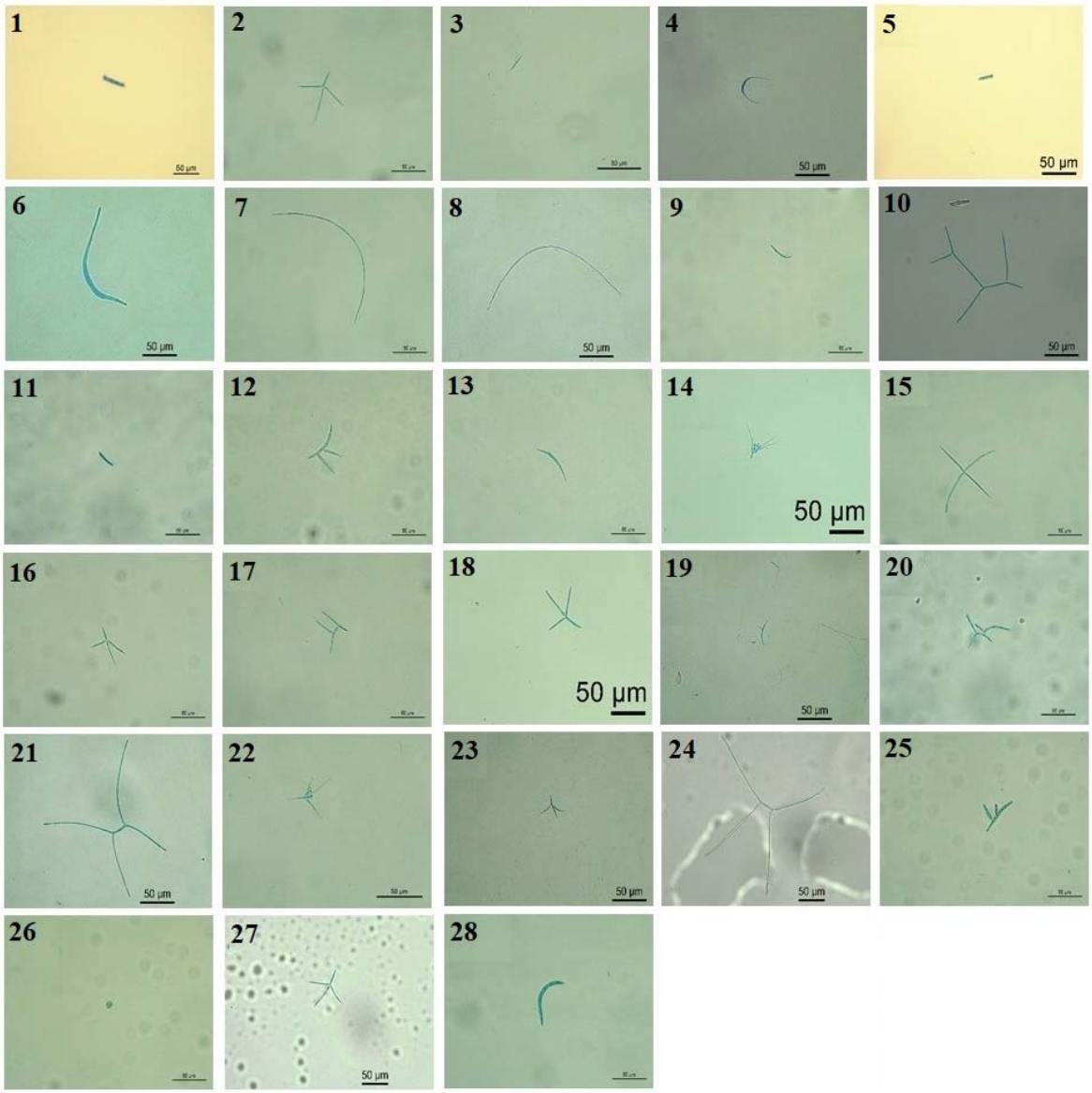


Figure S1. Conidia of aquatic hyphomycetes. 1- *Neonectria lugdunensis* (UMB-3.00), 2- *Articulospora tetracladia* (UMB-72.01), 3- *Collembolispora barbata* (UMB-88.01), 4- *Lunulospora curvula* (UMB-108.01), 5- *Neonectria lugdunensis* (UMB-160.01), 6- *Anguillospora crassa* (UMB-217.02), 7- *Anguillospora filiformis* (UMB-225.02), 8- *Anguillospora filiformis* (UMB-232.02), 9- *Flagellospora penicillioides* (UMB-304.05), 10- *Varicosporium elodeae* (UMB-310.06), 11- *Neonectria*

lugdunensis (UMB-311.06), 12- *Tricladium splendens* (UMB-414.09), 13- *Lunulospora curvula* (UMB-498.09), 14- *Tetracladium apiense* (UMB-535.10), 15- *Lemonniera aquatica* (UMB-594.10), 16- *Articulospora tetracladia* (UMB-712.10), 17- *Varicosporium elodeae* (UMB-713.10), 18- *Articulospora tetracladia* (UMB-719.10), 19- *Alatospora acuminata* (UMB-741.11), 20- *Varicosporium elodeae* (UMB-878.12), 21- *Tricladium chaetocladium* (UMB-904.12), 22- *Tetracladium marchalianum* (UMB-1028.13), 23- *Alatospora pulchella* (UMB-1115), 24- *Tricladium chaetocladium* (UMB-1116), 25- *Tricladium splendens* (UMB-1117), 26- *Dimorphospora foliicola* (UMB-1119), 27- *Articulospora tetracladia* (UMB-1144), 28- *Anguillospora crassa* (UMB-1150).

Table S1. ITS1-5.8S-ITS2 and Nitrate reductase DNA sequences retrieved from full genomes available in NCBI and referred in Table 1.

Species	Genbank accession number	ITS1-5.8S-ITS2 sequence	Nitrate reductase sequence
Articulospora tetracladia	NNIBRFG329	AAGTCGTAACAAGGTTTCCGTAGGT GAACCTGCGGAAGGATCATTACAG AGTTCATGCCCTCACGGGTAGATCT CCCACCCTTGAATATTATACCTTAG TTGCTTTGGCAGGCCGTGGAAACAC CACGGGCTTTGGCTTGTGCGTGCCT GCCAGAGGAAACAAACTCTGTTTTT AGTGATGTCTGAGTACTATATAATA GTTAAAACTTTCAACAACGGATCTC TTGGTTCTGGCATCGATGAAGAACG CAGCGAAATGCGATAAGTAATGTG AATTGCAGAATTCAGTGAATCATCG AATCTTTGAACGCACATTGCGCCCT GTGGTATTCCGCAGGGCATGCCTGT TCGAGCGTCATTTCAACCCATCAAG CTTACGCTTGGTATTGGGGCCTGCG GTTTCGCAGCCTCTAAACTCAGTGG CGGTGCAACTGAGCTCTGAGCGTAG TAATTTTTCTCGCTATAGGGTCTCGG TTGTTACTTGCCAGCAACCCCCAAT TTTTATCAGGTTGACCTCGGATCAG GTAGGGATACCCGCTGAACTTAA	CAGGTCAGAAAGTCGAAGGGATTTT CGTGGGGAGCGGCTGGTGTCTCCAC GGCGCTGTGGACGGGTGTTCCCATA AGCGAGTTGATCAGGAGAGCCGTG CCGATGCGAGGAGCAAAGTATTTCT GTATGGAAGGCGCCGACAAACTTC CTAATGGCTACTATGGCACCAGTAT CAAATTAAACTGGGCAATGGATCC AAACAGGGGCATCATGTTGGCCCA CAAGATGAATGGAGAAACACTCAC ACCAGATCACGGCAAGCCACTTCGT GTTGTTATCCCGGGTCAGATCGGCG GCCGCAGCGTGAAATGGCTGAAGA AGATCATCATTAGTGCAGAGCCAA GCGATAACTGGTATCACATCTACGA CAACAGAGTTCTTCCTACAATGGTG ACTCCTGAGATGGGTGCCGCCGACC CAAGCTGGTGGACAGATGAGCGAT ACGCCATTTACGACTTGAGTACGAA CAGTGCCACTGCCTACCCTGCACAC GACGAGCAGGTATCTCTTGTGGACG GTCCCAAGACATACAAAGTCAGAG GATATGCTTACGGTGGAGGTGGACG AAGAGTCACCCGCGTTGAAGTGAC ACTTGACAAAGGCAAATCATGGGC TCTGGCAAATATCAGATACCACGAG GATGATTACCGAGAGGCAGCGGAA GACGAGATGCTTTACGGCGGCAAG CTCGACATGGGATGGCGAGAGACT TGCTTTGCATGGTGCTTTTGGGATCT CGATCTGAGTGTTGAAGATATGGCT TTGTCTGGCGACATCATGGTTCGAG CAATGGACGAAAGCATGAACGTTC AGCCACGTGATATGTACTGGAGTGT GCTG
Aquanectria penicillioides	NNIBRFG19	AAGTCGTAACAAGGTCTCCGTTGGT GAACCAGCGGAGGGATCATTACCG AGTTTACAACTCCCAAACCCTGTGA ACTATACCATATTGTTGCCTCGGCG GCGTCCTGCTTCACGGCGGGCCCGC CAGAGGACCCAACTCTTGTATTTGA ATTGAGTCTTCTCTGAGTGATACAA GTAATAAATCAAAACTTTCAACAAC GGATCTCTTGGTTCTGGCATCGATG	ATAGTAAGAAAATCAAAAGGGTTT TCCTGGGGCGCCGCCGGTCTTTCAA CAGCATTGTGGACTGGAGTTCCCAT CCACAACCTTTTGGCGGCTGTGCGT CCCAAACGAGGTGCCAGATATGTTT GCTTCGAGGGCTCTGACAAGCTGCC GAATGGCTACTATGGAACGTCTATC AAGTTGAATTGGTGCATGGATCCGA ATAGAGGTGTCATGGTTGCCCACAA

		AAGAACGCAGCGAAATGCGATAAG TAATGTGAATTGCAGAATTCAGTGA ATCATCGAATCTTTGAACGCACATT GCGCCCGCCAGTATTCTGGCGGGCA TGCCTGTTCGAGCGTCATTTCAACC CTCAAGCCCCCCGGGCTTGGTGTTG GAGATCGGCAAAACGGCCCCCTCG GGGTTCGCGCCGTCTCCCAAATCTA GTGGCGGTCTCGCTGTAGCTTCCTCT GCGTAGTAACTCACCTCGCACTGGG ACTGGGCGCGGCCACGCCGTTAAA CACCCCACTTCTGAAGGTTGACCTC GGATCAGGTAGGACTACCCGCTGA ACTTAA	AATGAACGGAGACCCTTTGCATCCC GATCATGGCAAGCCGGTTCGCATAA TAATTCCTGGCCAGATCGGAGGTAG GAGCGTCAAGTGGCTGAAACGGAT CATCGTCACTCCTGGGCCGAGTGAG AATTGGTACCACATCTTCGACAATC GCGTGCTTCCCACCATGATCACTCC TGAGGCTAGCGCAGATCTACCCGA GGTCTGGAGAGACGAGAATTATGC AATCTACGACCTAAATGTCAACAGC GCAATATGCTATCCCAGCCATGATG AAATCGTGCCTCTGGGAAAGAGTG GCATCACTTACACTGCACGAGGATA CGCCTACAGCGGTGGCGGAAGGCG AGTCACAAGGGTTGAAGTCACCCTA GACAAGGGGAAATCTTGGAGACTC GCAAATGTTGATTACCCAGAAGAC GCCTATCGACTTGCGCCGGAAGGG GACACGCTGTTTGGCGGGAAGGTTG ACATGTGGTGGCGGGAGACGTGTTT CTGTTGGTGCTTCTGGGAACTTAAG ATTCCACTAGATGACTTGCGAGATG CTGAAGACATCATGATTCGAGCAAT GGACGAATCGATGATGGTGCAGCC TCGCGATATGTACTGGAGTGTGCTC
Clavariopsis aquatica	*WD(A)-00-1*	AAGTCGTAACAAGGTTTCCGTAGGT GAACCTGCGGAAGGATCATTACCGT GGGGATTCGTCCCCATTGAGATAGC ACCCTTTGTTTATGAGTACCCTGTTT CCTCGGCGGGCTTGCCCGCCGCTAG GACCTTTAAAACCCTTTGTAGTAGC AGTATCTTCAGTTAAAACAAAATTA TTAAAACTTTCAACAACGGATCTCT TGGTTCTGGCATCGATGAAGAACGC AGCGAAATGCGATAAGTAGTGTGA ATTGCAGAATTCAGTGAATCATCGA ATCTTTGAACGCACATTGCGCCCTT CGGTATTCCGTTGGGCATGCCTGTTC GAGCGTCATTTAAACCTTCAAGCTC TGCTTGGTGTTGGGTGTTTGTTCCGC CTAGTGCGTGGACTCGCCTTAAATT CATTGGCAGCCGGTAAGTTGGCTTC GTGCGCAGCACATTGTGTCGCGATC CAGTTTACCTCCTTCCATCAAGCCTC TTTTTTACTTTGACCTCGGATCAGGT AGGGATACCCGCTGAACTTAA	GTGGTTCGTAAATCCAAAGGCTTTT CCTGGGGACCGGCTGGAGTGTCCAC GGCACTTTTTACAGGTGTGGTTATG GCCGATGTCATTAGGAGAGCACGC CCTCTACGAAAGGCGAAGTACGTCT GCATGGAAGGTGCCGACAAATTAG TGAGTCTAGACAATCAACAGAAAT CATCATAGCTGACTTGAGGTAGCCG AATGGATACTATGGGACCTCTGTTA AGCTGAACTGGGTCATGGACCCCA ATCGAGGAATCATGCTCGCCCACA AAATGAACGGAGAAGCTCTAACAC CTGATCATGGTAAACCCTTACGGGC GGTAATTCCAGGTCAAATTGGCGGC CGAAGTGTGAAGTGGCTTAAGAAG CTTATTCTAACCGCGGAGCCGAGTG ATAACTGGTACCACATTTACGACAA CAGGGTACTCCCGTGAGTTATCTTTT TGTCACTTTTGAGGCCTGAAACTAA CATGGACAGAACGATGGTGGATCC AGATGAGTCAGCTAGAAATCCGGC ATGGTGGAAGGACGAGCGTTATGC AATCTACGATTTAAACCCGAATGCC GCAATTGCCCAACCAGCCCACGAT GAACAGCTCCTCCTTGAAAATGCCC CAGAGATGTACACAGCAAGAGGTT ATGCATACAGCGGAGGTGGCCGCC GCATCACACGAGCCGAAGTGTCAA TTGACAAAGGCAAAACATGGAGAC TGGCCAACATCGAATATGCCGAAG ATCGCTATCGAGACTATGAAGACA AACAACTGTTTGGCGGAAGACTAG ACATGGACTGGCGGGAAACGTCCTT CTGCTGGTGCTTTTGGAGCCTCGAC ATACCAATGGTAGAACTCAAGGAC

			TCCAAGGATCTGTTGGTCCGTGCGA TGGACGAGAGCATGAACATCATGC CTAGAGACATGTATTGGTCTGTTCT G
Dactylella cylindrospora	CBS325.70	AAGTCGTAACAAGGTCTCCGTTGGT GAACCAGCGGAGGGATCATTACCG AGTTTACAACTCCCAAACCCCTGTG AACATACCTATTCTTGCTTCGGCGG ACCACCCTCGCCTGACCGCGGGGG CCCGCCAGAGGACCCAAAACCCAA CTTTGTCTTTGTCTTGCAAACGAACT TCTGAGTGGATTTTATAAATCAAAT CAAAACTTTCAACAACGGATCTCTT GGCTCTGGCATCGATGAAGAACGC AGCGAAATGCGATAAGTAATGTGA ATTGCAGAATTCAGTGAATCATCGA ATCTTTGAACGCACATTGCGCCCGC CAGTATTCTGGCGGGCATGCCTGTT CGAGCGTCATTAACACCCCTCAAGC CCCCGGGCTTGGTGTTGGGGATCGG GAATCGCGCTGGCGGGATGGCCCCT CGGGGTCCCCCCCGCCCGCCGCGCC CGTCCCCCAAACGCATCGGCGGTCA CGCCGCGGCCTCTTGCGCGTAGTAG CTAACACCTCGCGCCGGAGCCCGTC GTGGTCCACGCCGTAAAACCCCCG ACTTTCTCAAAGTTGACCTCGAATC AGGTAGGACTACCCGCTGAACTTAA	ATGGTGAGGAAAACTAAGGGGTTT AGTTGGGGTGCGGCTGGTGTTAGTA CTGCACTGTGGACGGGACCTATGCT TAAGGATATAATCAAGCGAGCCAA ACCGTTGAGGAGAGCGAAATATGT ATGCATGGAAGGGGCCGACAAACT ACCTAATGGGTACTATGGCACCAAT GTTAGGCTGAGCTGGGTTAATGATC CGAATAAGGGTATCATGCTAGCGC ACAAGATGAACGGAGAAACGTTGA CGCCCGACCATGGAAAGCCTATTCG TGTTGTTATTCCAGGGCAAATCGGA GGAAGGAGCGTCAAGTGGTTGACA AAACTAATATTGACGGAAGGGCCG AGTGAAAATTGGTACCACATCTATG ATAATCGGGTATTACCGTAGGTACC GACCGCCAGAAATTCTGTCTGGATT TCTTACTAAACAATATATAGGACAA TGGTTACCCCAGAAATGTCAACCCA GGATCCAAGCTGGTGGACAGATGA AAGATACGCTATCTACGACCTGTCT ACAAACTCTGCGATCGCCTACCCGC AACATGGTGAAACATTAAATCTAGC GACCGCCCCAAAGACATATCGAGC TCGAGGTTACGCTTACGGTGGAGGT GGCAGACGAATCTCACGTGTTGAG GTTTCAACCGACCGTGGGAATACAT GGTCCCTAGCTAACATATCTTACCC CGAGGACTTGTACCGGGATTATGAA GGTACTTACCTTTTCGGTGGGAAGC TCGATATGTACTGGCGAGATGCTTG CCATTGTTGGTGCTTCTGGTCTATCG ATCTCGACGTCGCTACGCTAGCGAG CTCGGAGGGAATTCTGCTACGAGCT ATGGACGAGTCGATGAACCTGCAG CCGAGAGATATGTACTGGTCAGTAC TT
Margaritispora aquatica	NNIBRFG339	AAGTCGTAACAAGGTTTCCGTAGGT GAACCTGCGGAAGGATCATTACAG AGTTCATGCCTCACGGGTAGATCTC CCACCCTTGAATATTATACCTTAGTT GCTTTGGTAGGCCGTGGAAACACTA CGGGCTCCGGCTCGTACGTGCCTAC CGAAGGAAACAAACTCTGTTTTTAG TGATGTCTGAGTACTATAATAATAG TTAAAACTTTCAACAACGGATCTCT TGGTTCTGGCATCGATGAAGAACGC AGCGAAATGCGATAAGTAATGTGA ATTGCAGAATTCAGTGAATCATCGA ATCTTTGAACGCACATTGCGCCCCG TGGTATTCCGCGGGGCATGCCTGTT CGAGCGTCATTACAACCCTCAAGCT CACGCTTGGTATTGGAGCATGCGGT TTCGCAGCCCTAAACTCAGTGGCGG TGCCATCGAGCTCTGAGCGTAGTAA ATTTTCTCGCTATAGGGTCTCGGTGG	CAAGTAAGAAAGTCGAAGGGATTC TCGTGGGGAGCCGCTGGTGTGTCGA CAGCGTTGTGGACCGGTGTCGCAAT AAGCGAGCTGCTCAAGAGGGCCGT CCCGCTTCGAGGAGCAAAGTACAT GTGCATGGAAGGAGCCGACAAACT ACCCAATGGTTATTATGGAACGAGT ATCAAGTTGAACTGGGCAATGGAC CCAAATAGGGGCATCATGTTGGCTC ACAAGATGAACGGTGAGACTCTTA CACCAGATCACGGCAAGCCGTTGC GAGTGGTTATCCCCGGCCAGATTGG AGGCCGAAGTGTGAAATGGCTCAA GAGACTCATCGTCACAGCCGCACC AAGTGATAACTGGTACCACATCTAC GACAACAGAGTCCTTCCTACCATGG TTACGCCTGAGATGGGTGCCGAGGA TCCATCCTGGTGGACTGATGAGCGA TACGCCATCTACGACCTGAGCACCA

		TTGCTTGCCAACAACCCCCCATTTT ATCAGGTTGACCTCGGATCAGGTAG GGATACCCGCTGAACTTAA	ACAGTGCAACAGCCTACCCAGCAC ATGACGAGCAACTATGCCTCGTCGG TGGACCAAAGACGTACAAGGTACG AGGGTACGCCTACGGAGGTGGTGG ACGTCGGGTCACTCGCGTCGAAGTC ACTCTCGACAAGGGCAAATCCTGG GCTTTAGCGAACATCAGATACCACG AGGATGACTACCGGGAGGCAGCCG AAGACGAGATGCTGTTCGGTGGTAA GCTGGATATGGGATGGAGAGAGAC CTGCTTTGCGTGGTGCTTCTGGGATA TTGATTTGCCTGTGTCTGATCTCGCG GTAGCTGGAGATGTCATGGTCCGAG CGATGGACGAGAGCATGAATGTCC AGCCACGTGATATGTACTGGAGTGT CCTG
Thelonectria rubi	CBS 177.27	AAGTCGTAACAAGGTCTCCGTTGGT GAACCAGCGGAGGGATCATTACCG AGTTTACAACTCCCAAACCCCTGTG AACATACCTATTCTTGCTTCGGCGG ACCACCCTCGCCTGACCGCGGGGG CCCGCCAGAGGACCCAAAACCCAA CTTTGTCTTTGTCTTGCAAACGAACT TCTGAGTGGATTTTATAAATCAAAT CAAAACTTTCAACAACGGATCTCTT GGCTCTGGCATCGATGAAGAACGC AGCGAAATGCGATAAGTAATGTGA ATTGCAGAATTCAGTGAATCATCGA ATCTTTGAACGCACATTGCGCCCGC CAGTATTCTGGCGGGCATGCCTGTT CGAGCGTCATTAACACCCCTCAAGC CCCCGGGCTTGGTGTTGGGGATCGG GAATCGCGCTGGCGGGATGGCCCCT CGGGGTCCCCCCCCGCCCGCCGCGCC CGTCCCCCAAACGCATCGGCGGTCA CGCCGCGGCCTCTTGCGCGTAGTAG CTAACACCTCGCGCCGGAGCCCGTC GTGGTCCACGCCGTAAAACCCCCG ACTTTCTCAAAGTTGACCTCGAATC AGGTAGGACTACCCGCTGAACTTAA	ATGGTGCGAAAAACAAAGGGCTTC TCATGGGGAGCAGCGGGCTTGTCTA CGGCGCTGTGGACTGGTGTGCCAAT CCACAACCTTCTCGCGACTGCACGA CCAAAGCGAGGTGCGAGATACGTC TGCTTCGAGGGTGCCGACAAGCTTC CCAACGGTTACTATGGGACATCCAT CAAGCTGAACTGGTGCATGGATCCC AACAGAGGCGTCATGGTCGCCCATC GGATGAACGGAGAGAAGTTGCACC CCGATCATGGGAAGCCCGTTCGAAT CATCATCCCCGGCCAAATCGGCGG AAGAAGCGTCAAGTGGCTGAAGAG AATCATCGTCACCCCTGGGCCGAGC GACAATTGGTACCACATCTTTGACA ACCGCGTGTTGCCTACCATGATCAC CCCTGAAGCCAGCGCCGACTTGCCC GACGTGTGGAGGGATGAGAAGTAC GCCATCTACGATCTCAACGTCAATA GCGCCATATGCTTCCCTGGCCACCA AGAAACGCTACCCCTGTCCGATGGT CCGGCCAGTTATACGGCGCGAGGA TACGCATACAGCGGTGGTGGGAGA CGAGTCACAAGGGTAGAGGTCACA CTGGACAAGGGCAAGTCATGGAGA CTCGCAAAAATAAACTACCCCGAA GACGAGTACCGACAAGCTCCAGAC GACGACAGCCTGTACGGCGGGACG GTGGACGTGTGGTGGCGAGAGACG TGTTTCTGTTGGTGTTTTTGGGAGCT CGACATAGCGCTCGACGACATCAG GGGGGCCGACGACATCATGATTCG CGCAATGGACGAGTCCATGATGGTC CAGCCTCGCGACATGTACTGGAGCG TCTTG

Table S2. Number of clone colonies used for enzymatic restriction (EcoRI and BamHI), DNA inserts sent for sequencing and sequences utilized in the alignments of each fungal isolate (using all the sequencing efforts; both digestions with EcoRI and BamHI). nt, not tested.

Aquatic hyphomycete	Strain code	Number of			
		Clone colonies		Inserts sequenced	Sequences used
		EcoRI	BamHI		
Alatospora acuminata	UMB-741.11	8	Nt	4	4
Alatospora pulchella	UMB-1115	8	Nt	6	5
Anguillospora crassa	UMB-1150	8	Nt	5	4
Anguillospora filiformis	UMB-225.02	7	6	5	1 (+1 partial)
Anguillospora filiformis	UMB-232.02	8	4	6	1 (+1 partial)
Articulospora tetracladia	UMB-712.10	6	5	7	1 (+ 2 partials)
Articulospora tetracladia	UMB-719.10	8	Nt	6	3
Collembolispora barbata	UMB-88.01	7	5	4	1 (+1 partial)
Dimorphosphora foliicola	UMB-1119	8	Nt	5	4
Lemmoniera aquatica	UMB-594.10	8	3	7	3
Tetracladium apiense	UMB-535.10	10	Nt	7	7
Tetracladium marchalianum	UMB-1028.13	8	Nt	5	3
Tetracladium marchalianum	UMB-1079.13	6	Nt	6	6
Tricladium chaetocladium	UMB-904.12	8	Nt	8	6
Tricladium chaetocladium	UMB-1116	10	1	4	3
Tricladium splendens	UMB-100.01	8	7	7	1
Tricladium splendens	UMB-1117	8	Nt	5	4
Varicosporium elodeae	UMB-713.10	8	5	4	1

Table S3. Evolutionary divergence (%) between aquatic hyphomycete species (interspecific level) based on ITS-5.8S-ITS2 sequences. The number of base substitutions per site from averaging overall sequence pairs and single isolates between the species is shown. Analyses were performed resorting to the maximum composite likelihood-parameter method. The lower half of the matrix contains p-distance values (in percentage) and the upper half values correspond to the standard error for each p-distance.

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Alatospora acuminata (1)		0.9%	1.6%	1.6%	1.8%	1.5%	1.7%	1.5%	1.6%	1.7%	1.5%	1.5%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%	1.5%	1.6%	1.6%
Alatospora pulchella (2)	**4.4%**		1.7%	1.6%	1.8%	1.4%	1.7%	1.5%	1.7%	1.6%	1.6%	1.5%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	1.6%	1.7%	1.5%
Anguillospora crassa (3)	**19.3%**	**19.0%**		1.6%	1.7%	1.5%	1.9%	1.5%	1.9%	1.5%	1.7%	1.6%	1.7%	1.7%	1.6%	1.7%	1.8%	1.9%	1.5%	0.6%	1.6%
Anguillospora filiformis (4)	**17.1%**	**17.4%**	**16.9%**		1.8%	1.0%	1.9%	1.5%	1.9%	1.6%	1.1%	1.1%	1.6%	1.6%	1.6%	1.6%	1.6%	1.9%	1.5%	1.6%	1.0%
Aquanectria penicillioides (5)	**21.6%**	**21.7%**	**23.9%**	**21.1%**		1.7%	1.8%	1.7%	1.5%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%	1.7%	1.5%	1.7%	1.7%	1.8%
Articulospora tetracladia (6)	**16.0%**	**14.7%**	**16.1%**	**6.6%**	**21.2%**		1.7%	1.4%	1.7%	1.6%	1.0%	0.9%	1.4%	1.4%	1.4%	1.5%	1.5%	1.7%	1.4%	1.5%	0.8%
Clavariopsis aquatica (7)	**21.4%**	**21.9%**	**24.0%**	**22.7%**	**25.8%**	**19.2%**		1.8%	1.8%	1.8%	1.7%	1.7%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%	1.7%	1.8%	1.8%
Collembolispora barbata (8)	**16.4%**	**15.9%**	**17.9%**	**15.7%**	**24.2%**	**14.1%**	**23.0%**		1.7%	1.6%	1.6%	1.5%	1.6%	1.7%	1.6%	1.6%	1.7%	1.7%	1.5%	1.5%	1.4%
Dactylella cylindrospora (9)	**21.9%**	**21.3%**	**24.0%**	**23.5%**	**14.3%**	**22.5%**	**26.3%**	**22.3%**		1.8%	1.8%	1.7%	1.7%	1.8%	1.7%	1.7%	1.8%	0.0%	1.7%	1.8%	1.8%
Dimorphospora foliicola (10)	**20.2%**	**19.2%**	**16.7%**	**16.0%**	**22.0%**	**16.3%**	**24.4%**	**21.8%**	**23.7%**		1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.8%	1.5%	1.5%	1.6%
Lemonniera aquatica (11)	**17.2%**	**16.7%**	**18.4%**	**8.1%**	**20.9%**	**6.1%**	**20.4%**	**16.7%**	**23.2%**	**17.4%**		0.5%	1.4%	1.5%	1.5%	1.5%	1.5%	1.8%	1.4%	1.6%	1.1%
Margaritispora aquatica (12)	**16.2%**	**15.3%**	**17.2%**	**7.3%**	**21.0%**	**4.7%**	**20.4%**	**15.5%**	**22.2%**	**16.6%**	**1.5%**		1.4%	1.5%	1.4%	1.5%	1.5%	1.7%	1.3%	1.6%	1.0%
Tetracladium apiense (13)	**18.1%**	**17.5%**	**18.7%**	**16.8%**	**23.1%**	**13.9%**	**19.9%**	**16.6%**	**21.5%**	**19.4%**	**13.9%**	**13.2%**		0.7%	0.6%	0.7%	0.7%	1.7%	1.5%	1.7%	1.5%
Tetracladium furcatum (14)	**18.7%**	**18.1%**	**18.7%**	**16.1%**	**22.4%**	**14.0%**	**21.5%**	**17.2%**	**21.6%**	**18.3%**	**14.8%**	**13.9%**	**2.5%**		0.7%	0.5%	0.0%	1.8%	1.6%	1.7%	1.5%
Tetracladium marchalianum (15)	**18.3%**	**17.5%**	**18.8%**	**17.6%**	**23.1%**	**14.3%**	**21.0%**	**17.6%**	**21.3%**	**18.5%**	**14.5%**	**14.1%**	**2.0%**	**3.0%**		0.8%	0.7%	1.7%	1.5%	1.6%	1.5%
Tetracladium maxilliforme (16)	**18.8%**	**18.2%**	**18.0%**	**16.2%**	**22.8%**	**14.7%**	**21.0%**	**17.3%**	**21.9%**	**18.4%**	**15.3%**	**14.4%**	**2.9%**	**1.4%**	**3.6%**		0.5%	1.7%	1.6%	1.7%	1.5%
Tetracladium setigerum (17)	**19.0%**	**18.4%**	**18.8%**	**16.4%**	**22.6%**	**14.3%**	**21.6%**	**17.5%**	**21.7%**	**18.6%**	**15.1%**	**14.2%**	**2.5%**	**0.0%**	**3.0%**	**1.4%**		1.8%	1.6%	1.7%	1.5%
Thelonectria rubi (18)	**21.9%**	**21.3%**	**24.0%**	**23.5%**	**14.3%**	**22.5%**	**26.3%**	**22.3%**	**0.0%**	**23.7%**	**23.2%**	**22.2%**	**21.5%**	**21.6%**	**21.3%**	**21.9%**	**21.7%**		1.7%	1.8%	1.8%
Tricladium chaetocladium (19)	**17.8%**	**18.0%**	**16.8%**	**17.1%**	**20.4%**	**15.8%**	**23.2%**	**20.1%**	**21.6%**	**15.2%**	**16.2%**	**15.0%**	**17.5%**	**18.3%**	**17.0%**	**18.0%**	**18.6%**	**21.6%**		1.4%	1.5%
Tricladium splendens (20)	**20.1%**	**20.0%**	**2.5%**	**16.5%**	**23.3%**	**16.0%**	**23.1%**	**18.2%**	**23.4%**	**15.8%**	**17.5%**	**16.7%**	**18.4%**	**18.9%**	**18.0%**	**18.1%**	**18.9%**	**23.4%**	**16.4%**		1.6%
Varicosporium elodeae (21)	**16.7%**	**15.7%**	**17.4%**	**5.7%**	**21.6%**	**3.8%**	**21.5%**	**14.4%**	**23.2%**	**15.8%**	**6.8%**	**5.7%**	**14.4%**	**14.5%**	**14.2%**	**14.9%**	**14.7%**	**23.2%**	**17.1%**	**16.9%**	

Table S4. Evolutionary divergence (%) within aquatic hyphomycete species (intraspecific level) based on ITS-5.8S-ITS2 and Nitrate reductase sequences. The number of base substitutions per site from averaging overall sequence pairs and single isolates between the species is shown. Analyses were performed resorting to the maximum composite likelihood-parameter method. Values on the left side correspond to p-distances (in percentage) and values on the right side correspond to the standard error (SE) for each p-distance.

Species	ITS-5.8S-ITS2		Nitrate reductase	
	Divergence (%)	SE	Divergence (%)	SE
Anguillospora filiformis	**0.0%**	0.0%	**0.0%**	0.0%
Articulospora tetracladia	**0.2%**	0.2%	**2.1%**	0.5%
Tetracladium marchalianum	**0.2%**	0.2%	**0.7%**	0.2%
Tricladium chaetocladium	**0.0%**	0.0%	**30.0%**	1.5%
Tricladium splendens	**0.0%**	0.0%	**0.0%**	0.0%

Table S5. Evolutionary divergence (%) between aquatic hyphomycete species (interspecific level) based on nitrate reductase partial nucleotide sequences. The number of base substitutions per site from averaging overall sequence pairs and single isolates between the species is shown. Analyses were performed resorting to the maximum composite likelihood-parameter method. The lower half of the matrix contains p-distance values (in percentage) and the upper half values correspond to the standard error for each p-distance.

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Alatospora acuminata (1)		1.2%	1.5%	1.5%	1.6%	1.5%	1.6%	1.5%	1.6%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.6%	1.5%	1.5%	1.2%	1.5%	1.5%
Alatospora pulchella (2)	**13.3%**		1.5%	1.4%	1.6%	1.5%	1.7%	1.5%	1.6%	1.5%	1.5%	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%	1.6%	1.3%	1.4%	1.5%
Anguillospora crassa (3)	**26.2%**	**28.0%**		1.4%	1.6%	1.5%	1.5%	1.4%	1.5%	1.4%	1.4%	1.5%	1.4%	1.4%	1.5%	1.4%	1.5%	1.6%	1.2%	0.9%	1.4%
Anguillospora filiformis (4)	**29.2%**	**29.8%**	**21.9%**		1.5%	1.3%	1.6%	1.5%	1.6%	1.4%	1.3%	1.3%	1.5%	1.5%	1.5%	1.4%	1.5%	1.5%	1.2%	1.4%	1.3%
Aquanectria penicillioides (5)	**37.4%**	**36.9%**	**34.9%**	**34.5%**		1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.6%	1.6%	1.6%	1.6%	1.5%	1.4%	1.2%	1.6%	1.5%
Articulospora tetracladia (6)	**30.2%**	**30.1%**	**23.9%**	**19.7%**	**33.6%**		1.6%	1.4%	1.5%	1.5%	1.3%	1.3%	1.4%	1.5%	1.4%	1.5%	1.5%	1.5%	1.1%	1.4%	1.3%
Clavariopsis aquatica (7)	**33.7%**	**32.6%**	**32.0%**	**33.3%**	**36.6%**	**32.1%**		1.6%	1.4%	1.6%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	1.6%	1.6%	1.4%	1.6%	1.6%
Collembolispora barbata (8)	**31.2%**	**32.1%**	**24.1%**	**26.3%**	**35.7%**	**24.9%**	**33.1%**		1.6%	1.5%	1.4%	1.4%	0.0%	1.0%	1.0%	1.0%	1.1%	1.4%	1.1%	1.4%	1.4%
Dactylella cylindrospora (9)	**32.9%**	**34.5%**	**33.1%**	**34.5%**	**39.0%**	**32.3%**	**37.1%**	**36.8%**		1.5%	1.5%	1.5%	1.6%	1.5%	1.6%	1.6%	1.6%	1.6%	1.3%	1.5%	1.3%
Dimorphospora foliicola (10)	**28.7%**	**29.9%**	**22.1%**	**25.4%**	**35.6%**	**25.8%**	**31.8%**	**24.7%**	**36.1%**		1.5%	1.6%	1.5%	1.4%	1.4%	1.4%	1.3%	1.5%	1.1%	1.4%	1.5%
Lemonniera aquatica (11)	**30.4%**	**31.0%**	**22.9%**	**22.4%**	**34.6%**	**17.5%**	**32.6%**	**24.8%**	**33.8%**	**26.1%**		0.7%	1.4%	1.5%	1.5%	1.5%	1.5%	1.6%	1.1%	1.4%	1.3%
Margaritispora aquatica (12)	**29.3%**	**29.9%**	**23.3%**	**22.4%**	**33.6%**	**17.9%**	**32.2%**	**24.6%**	**34.1%**	**25.7%**	**4.8%**		1.4%	1.5%	1.5%	1.5%	1.5%	1.6%	1.1%	1.5%	1.2%
Tetracladium apiense (13)	**31.2%**	**32.1%**	**24.1%**	**26.3%**	**35.7%**	**24.9%**	**33.1%**	**0.0%**	**36.8%**	**24.7%**	**24.8%**	**24.6%**		1.0%	1.0%	1.0%	1.1%	1.4%	1.1%	1.4%	1.4%
Tetracladium furcatum (14)	**30.0%**	**32.0%**	**23.5%**	**26.2%**	**36.0%**	**25.4%**	**32.3%**	**10.6%**	**37.0%**	**23.8%**	**24.6%**	**24.4%**	**10.6%**		1.0%	1.0%	1.0%	1.5%	1.2%	1.4%	1.5%
Tetracladium marchalianum (15)	**29.8%**	**32.2%**	**25.1%**	**26.6%**	**35.4%**	**25.8%**	**32.8%**	**11.5%**	**37.2%**	**22.8%**	**26.3%**	**25.5%**	**11.5%**	**11.3%**		1.0%	1.0%	1.4%	1.1%	1.5%	1.5%
Tetracladium maxilliforme (16)	**30.8%**	**31.8%**	**24.6%**	**26.3%**	**35.6%**	**26.2%**	**33.3%**	**10.1%**	**37.8%**	**24.2%**	**26.4%**	**26.0%**	**10.1%**	**8.9%**	**10.5%**		0.9%	1.4%	1.2%	1.4%	1.4%
Tetracladium setigerum (17)	**31.8%**	**32.3%**	**25.1%**	**27.0%**	**34.9%**	**27.0%**	**32.3%**	**12.3%**	**38.4%**	**24.3%**	**27.4%**	**26.7%**	**12.3%**	**9.7%**	**12.3%**	**8.2%**		1.4%	1.2%	1.4%	1.4%
Thelonectria rubi (18)	**34.8%**	**34.6%**	**32.0%**	**32.1%**	**22.2%**	**32.4%**	**34.7%**	**34.9%**	**37.9%**	**33.2%**	**34.0%**	**32.6%**	**34.9%**	**35.0%**	**34.5%**	**34.4%**	**32.7%**		1.2%	1.5%	1.6%
Tricladium chaetocladium (19)	**29.8%**	**30.1%**	**26.6%**	**25.9%**	**35.4%**	**25.3%**	**33.8%**	**27.5%**	**37.6%**	**26.6%**	**26.4%**	**26.5%**	**27.5%**	**27.8%**	**26.5%**	**28.1%**	**27.1%**	**34.3%**		1.2%	1.1%
Tricladium splendens (20)	**26.7%**	**28.2%**	**7.4%**	**21.6%**	**35.1%**	**24.8%**	**32.5%**	**24.6%**	**32.9%**	**21.7%**	**23.9%**	**24.5%**	**24.6%**	**23.6%**	**23.7%**	**24.7%**	**25.7%**	**33.1%**	**26.5%**		1.3%
Varicosporium elodeae (21)	**29.0%**	**30.7%**	**22.7%**	**21.5%**	**34.8%**	**16.6%**	**31.1%**	**25.4%**	**33.8%**	**25.2%**	**17.0%**	**16.7%**	**25.4%**	**25.4%**	**25.7%**	**26.0%**	**26.3%**	**33.5%**	**26.7%**	**23.0%**	