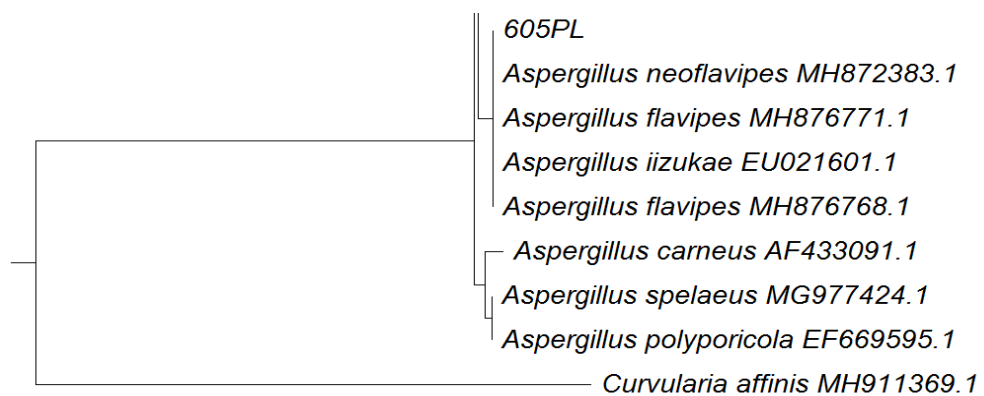


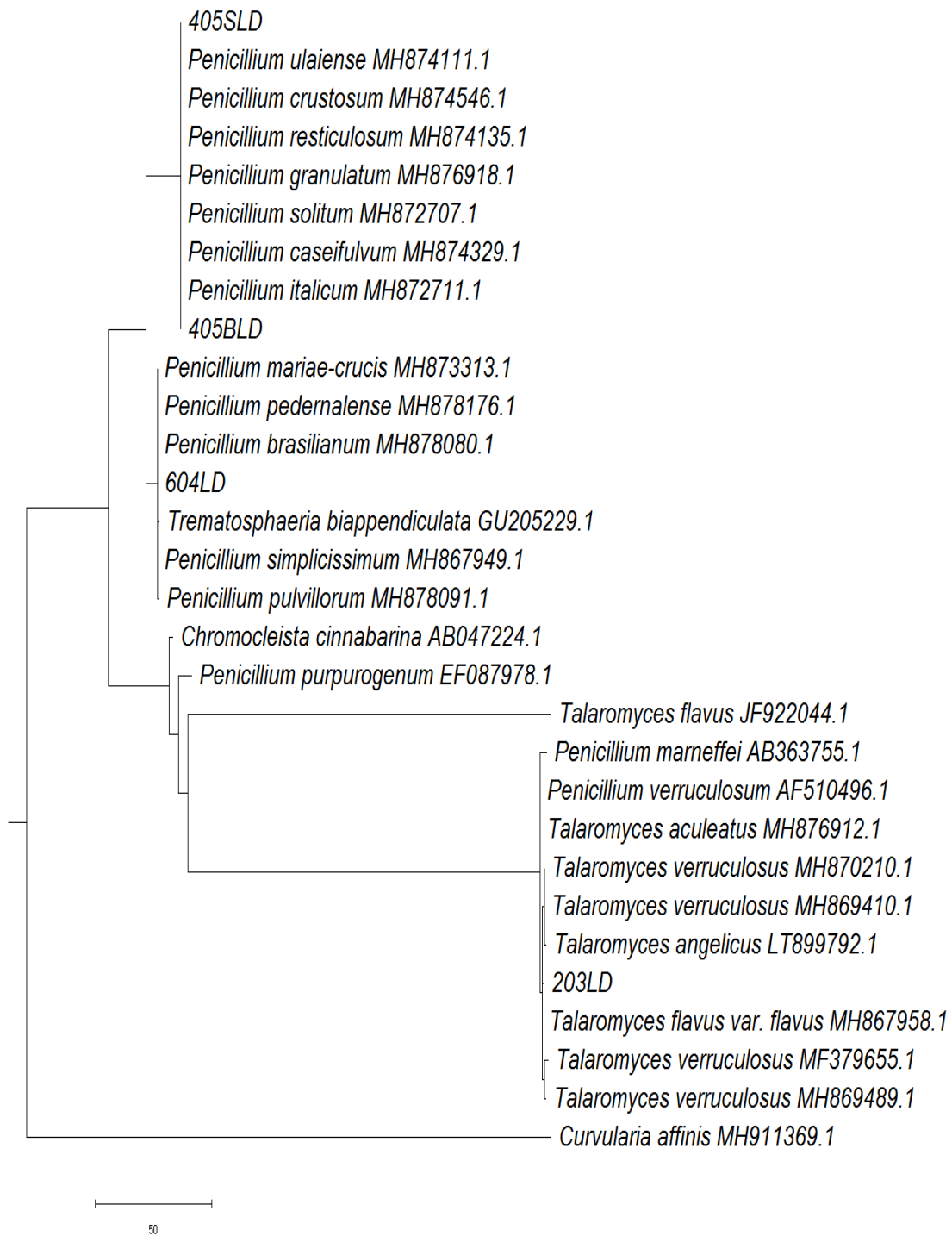


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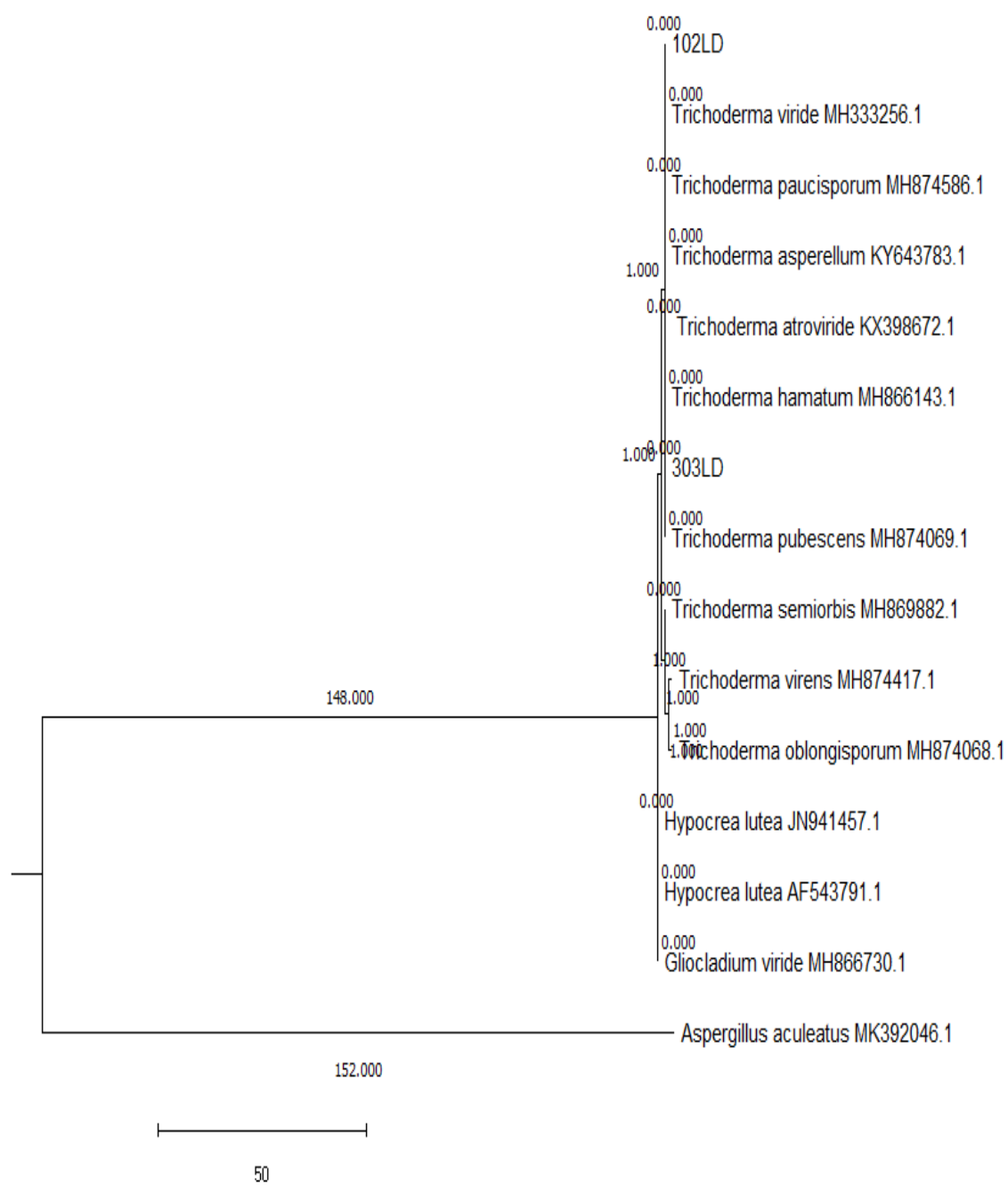
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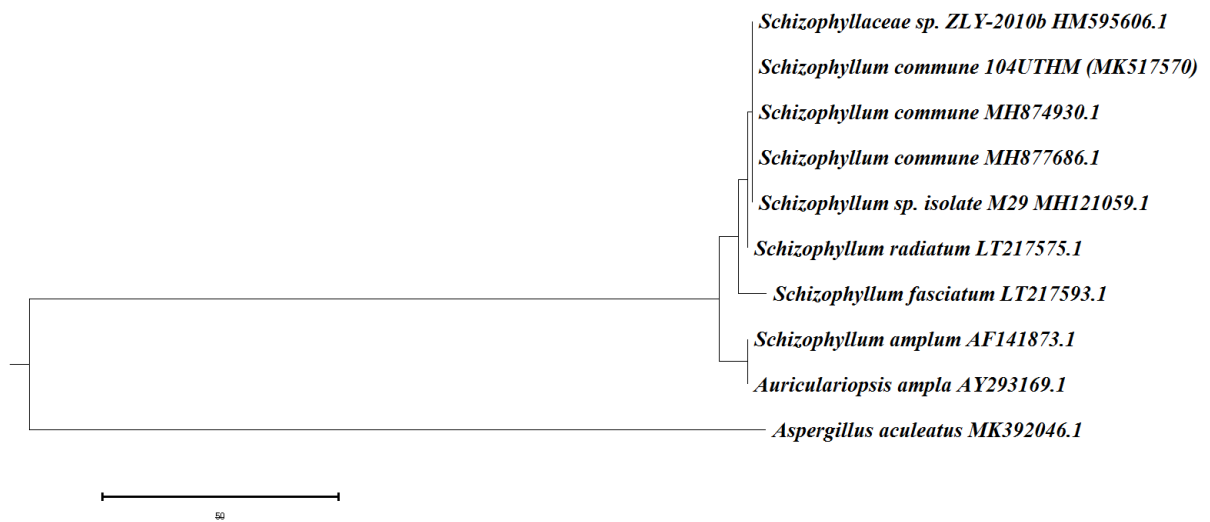
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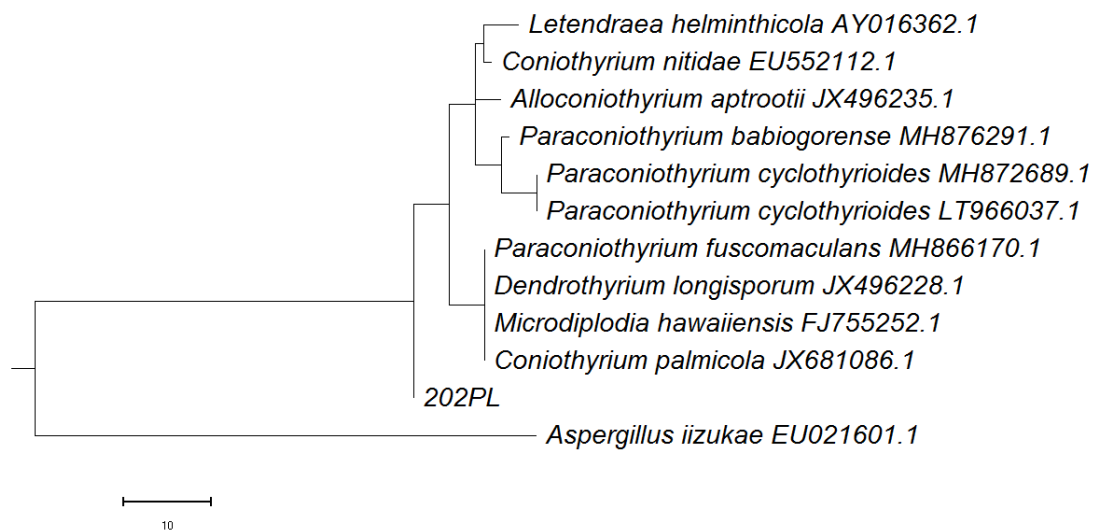
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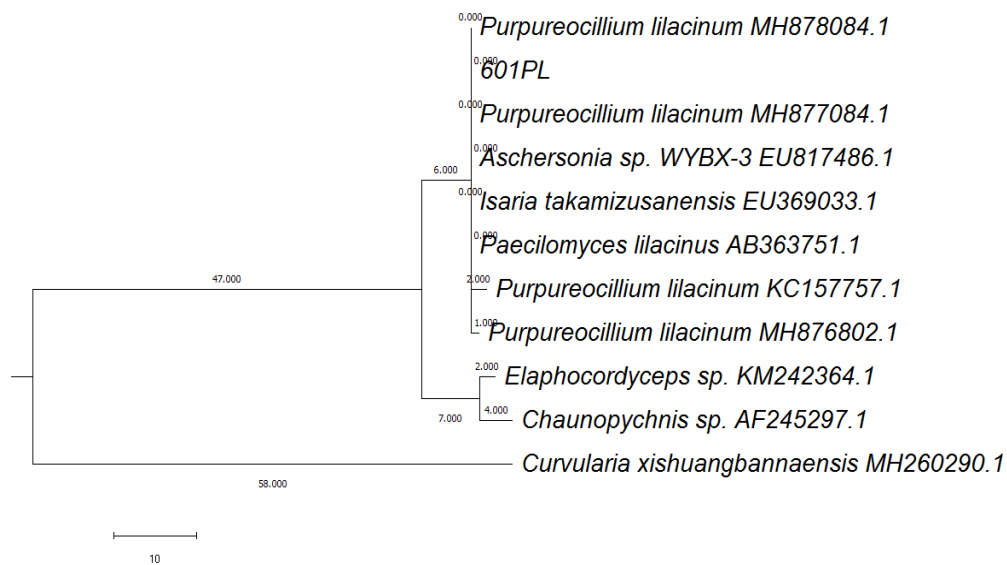
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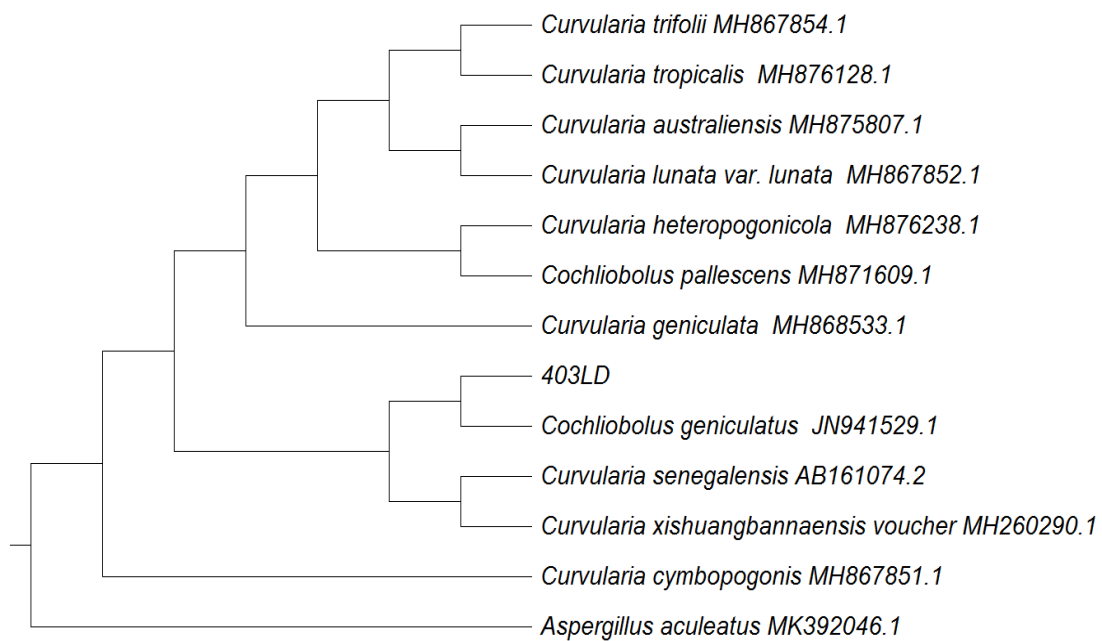
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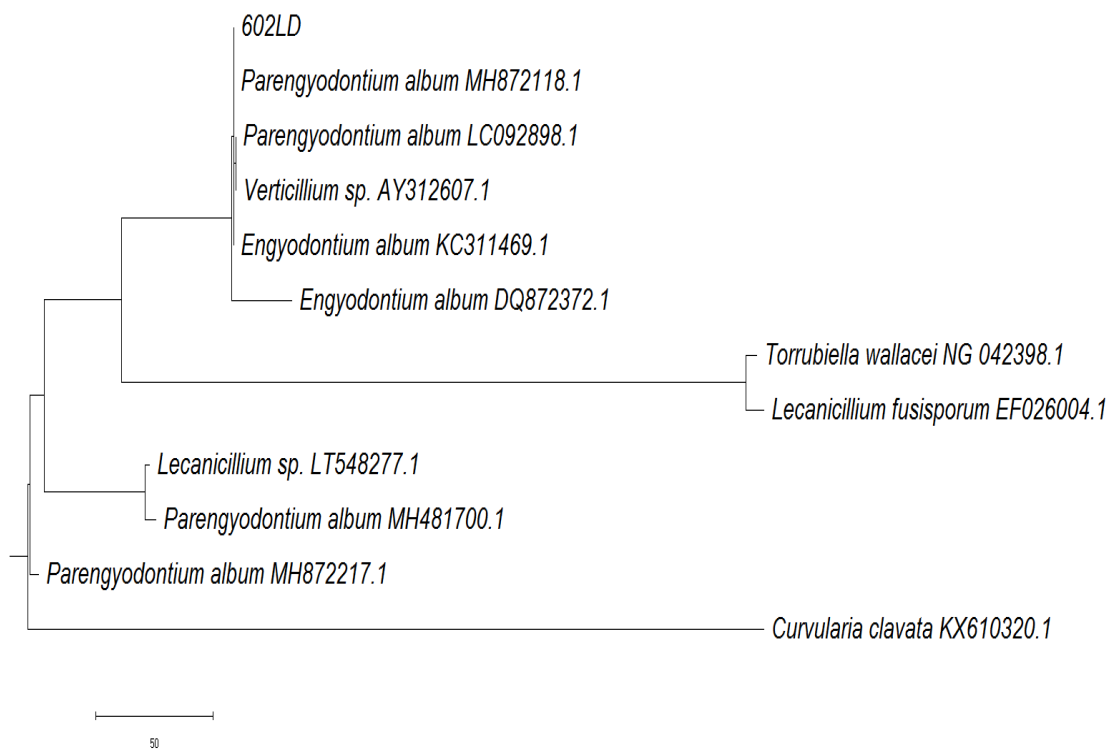
(f)



(g)



(h)



(i)

Figure S1. (a) Phylogenetic tree showing the relationship between *Aspergillus* spp. and the related selected sequences based on 28S LrDNA sequence comparisons. (b) Phylogenetic tree showing the relationship between *Aspergillus iizukae* EAN605 and the related selected sequences based on 28S LrDNA sequence comparisons. (c) Phylogenetic tree showing the relationship between *Penicillium* spp. and the related selected sequences based on 28S LrDNA sequence comparisons. (d) Phylogenetic tree showing the relationship between *Trichoderma* spp. and the related selected sequences based on 28S LrDNA sequence comparisons. (e) Phylogenetic tree showing the relationship between *Schizophyllum commune* 104LD and the related selected sequences based on 28S LrDNA sequence comparisons. (f) Phylogenetic tree showing the relationship between *Paraconiothyrium* sp. 202UTHM and the related selected sequences based on 28S LrDNA sequence comparisons. (g) Phylogenetic tree showing the relationship between *Purpureocillium lilacinum* EAN601 and the related selected sequences based on 28S LrDNA sequence comparisons. (h) Phylogenetic tree showing the relationship between *Cochliobolus geniculatus* 403UTHM and the related selected sequences based on 28S LrDNA sequence comparisons. (i) Phylogenetic tree showing the relationship between *Parengyodontium album* EAN602 and the related selected sequences based on 28S LrDNA sequence comparisons

Table S1 Fungal strains, their accession no. and culture characteristics on different culture media after 7 days at 28±2°C and 37°C, (±SD represent the standard division from the mean, n=3 measurements)

Isolate No.	Fungal strain	Accession No.		Media type	Colony diameter (mm)		Sporulation	spore size (µm) *	First time recorded in Malaysia
		28 LrDNA	ITS		at 28°C	at 37°C			
EAN506	<i>Aspergillus aculeatus</i>	<u>MK518351</u>	<u>MK518394</u>	V8A	80±0.0		++	1.45-4.02	×
				CZ	80±0.0		+++		
				CYA	50±5.8	40±3.9	++		
				MEA	50±6.8		++		
				PDA	35±2.5		+++		
				SDA	29±7.4	25±6.6	+++		
				SDA (4%)	65±11.2		++++		
				DCZ	37±4.8		+++		
				EVA	80±0.0		++++		
				V8A	9±0.8		-		
EAN603	<i>Aspergillus arenarioides</i>	<u>MK518366</u>	ND	CZ	11±0.6		+	1.6-4.3	√
				CYA	12±0.6	0	+		
				MEA	21±0.4		-		
				PDA	8±0.3		+		
				SDA	12±0.5	0	+		
				SDA (4%)	10±0.8		-		
				DCZ	12±1.2		+		
				EVA	19±1.4		+		
				V8A	25±2.8		++		
				CZ	28±2.8		+++		
EAN605	<i>Aspergillus izukae</i> EAN605	<u>MK518343</u>	ND	CYA	32±8.5	10±1.4	++++	2.6-4.1	√
				MEA	29±5.8		++		
				PDA	24±7.9		+++		
				SDA	33±5.2	18±0.3	++		
				SDA (4%)	27±1.2		+++		
				DCZ	23±1.8		++		
				EVA	31±2.4		+++		
				V8A	27±1.8		++		
				CZ	28±4.8		++		
				CYA	40±4.5	17±0.8	++		
EAN203	<i>Penicillium verruculosum</i>	<u>MK518350</u>	ND	MEA	45±6.3		+++	1.65-3.25	×
				PDA	38±3.2		++		
				SDA	40±9.2	15±0.6	++		
				SDA (4%)	37±8.5		++		
				DCZ	17±1.74		+		
				EVA	28±2.8		+++		

(Cont.)

Isolate No.	Fungal strain	Accession No.		Media type	Colony diameter (mm)		Sporulation	Spore size (µm)*	First time recorded in Malaysia
		28 LrDNA	ITS		at 28°C	at 37°C			
EFAQ406	<i>Penicillium crustosum</i>	ND	<u>MK530088</u>	V8A	30±8.3		++	2.47-4.29	×
				CZ	21±6.3		+		
				CYA	20±1.8	0	++		
				MEA	24±7.9		++		
				PDA	23±2.3		++		
				SDA	14±5.2	0	+++		
				SDA (4%)	16±0.6		++		
				DCZ	18±2.2		+++		
				EVA	12±3.1		++		
				V8A	59±7.3		++++	1.66-3.33	√
EAN604	<i>Penicillium pedemalense</i>	<u>MK518385</u>	ND	CZ	25±7.7		++		
				CYA	46±1.8	0	+++		
				MEA	21±6.6		++		
				PDA	24±2.9		+++		
				SDA	34±9.5	0	+++		
				SDA (4%)	18±3.8		++		
				DCZ	13±2.2		+		
				EVA	30±1.8		+++		
				V8A	24±4.8		++	3.05-5.54	×
				CZ	19.6±2.8		+		
EFAQ405	<i>Penicillium crustosum</i>	<u>MK530708</u>	<u>MK530709</u>	CYA	24±4.5	0	++		
				MEA	20±2.5		++		
				PDA	25±2.5		++		
				SDA	22±1.7	0	++		
				SDA (4%)	15±1.9		+		
				DCZ	17±1.2		++		
				EVA	23±1.8		++		

(Cont.)

Isolate No.	Fungal strain	Accession No.		Media type	Colony diameter (mm)		Sporulation	Spore size (µm)*	First time recorded in Malaysia
		28 LrDNA	ITS		at 28°C	at 37°C			
102UTHM	<i>Trichoderma viride</i>	<u>MK518057</u>	ND	V8A	80±0.0		++++	2.0-4.4	×
				CZ	80±0.0		++++		
				CYA	80±0.0	0	++++		
				MEA	80±0.0		++++		
				PDA	80±0.0		++++		
				SDA	80±0.0	0	++++		
				SDA (4%)	80±0.0		++++		
				DCZ	80±0.0		++++		
				EVA	80±0.0		++++		
				V8A	80±0.0		++++		
303UTHM	<i>Trichoderma asperellum</i>	<u>MK518056</u>	ND	CZ	80±0.0		++++	2.2- 3.8	×
				CYA	80±0.0	0	++++		
				MEA	80±0.0		++++		
				PDA	80±0.0		++++		
				SDA	80±0.0	0	++++		
				SDA (4%)	80±0.0		++++		
				DCZ	80±0.0		++++		
				EVA	80±0.0		++++		
				V8A	36±7.8		++		
				CZ	30±7.9		+++		
EAN601	<i>Purpureocillium lilacinum</i>	<u>MK518365</u>	ND	CYA	31±4.2	0	++	1.65- 2.01	√
				MEA	25±5.8		++		
				PDA	17±2.8		+		
				SDA	24±4.6	0	++		
				SDA (4%)	30±2.3		+++		
				DCZ	9±0.65		+		
				EVA	28±3.0		+++		
				V8A	39±4.9		+		
				CZ	26±9.5		-		
				CYA	19±6.5	0	-		
EAN202	<i>Paraconiothyrium brasiliense</i>	<u>MK517572</u>	<u>MK518445</u>	MEA	23±7.8		+	ND	√
				PDA	21±2.2		-		
				SDA	23±5.7	0	+		
				SDA (4%)	9±0.7		-		
				DCZ	25±2.4		-		
				EVA	18±1.4		-		

(Cont.)

Isolate No.	Fungal strain	Accession No.		Media type	Colony diameter (mm)		Sporulation	Spore size (µm)*	First time recorded in Malaysia
		28 LrDNA	ITS		at 28°C	at 37°C			
EAN403	<i>Cochliobolus geniculatus</i>	<u>MK517569</u>	<u>MK518444</u>	V8A	63±4.9		+++	ND	×
				CZ	69±3.3		+++		
				CYA	73±4.8	17±6.8	+++		
				MEA	68±3.9		+++		
				PDA	63±3.6		+++		
				SDA	66±4.4	17±1.9	+++		
				SDA (4%)	41±8.6		+++		
				DCZ	42±2.65		+++		
				EVA	80±0.0		+++		
				PDA	76.76±2.3		ND	ND	×
104UTHM	<i>Schizophyllum commune</i>	<u>MK517570</u>	ND	CZ	55±1.7				
				V8	80±12.1				
				SDA	60±3.7	70±1.0			
				SDA4% sucrose	50±3.5				
				CYA	50±4.9	67±5.3			
				MEA	73±9.1				
				DCZ	66±3.6				
				EVA	78±4.6				
				PDA	9±0.3		ND	ND	√
				CZ	8±0.4				
EAN602	<i>Parengyodontium album</i>	<u>MK518376</u>	ND	V8	16±0.5				
				SDA	9±0.6	0			
				SDA4%	9±0.7				
				CYA	13±0.8	0			
				MEA	8±0.3				
				DCZ	13±1.0				
				EVA	70±3.6				
				V8A	71±7.4		++++	7.95-	×
				CZ	66±4.8		++++	26.17	
				CYA	67±3.9	5±0.6	++++		
EFAQ504	<i>Fusarium solani</i>	NDf569	<u>MK530101</u>	MEA	63±8.2		++++		
				PDA	65±3.2		++++		
				SDA	56±5.9		++++		
				SDA (4%)	63±6.6	8±0.6	++++		
				DCZ	60±3.3		++++		
				EVA	68±2.7		++++		

Potato Dextrose Agar (PDA), V8 juice agar medium (V8A), Malt Extract Agar (MEA), Czapek Yeast Extract Agar (CYA), Czapek-Dox Agar (CZ), Sabouraud dextrose agar (SDA), CZ medium with rose bengal (CZR); PKM (EVA) Pumpkin peels medium; √(Yes); × (No); *As determined using light microscope with 100X; ND (non-detected); - (no sporulation was observed); + (low sporulation); ++ (Moderate sporulation); +++ (high sporulation); ++++ (very high sporulation)

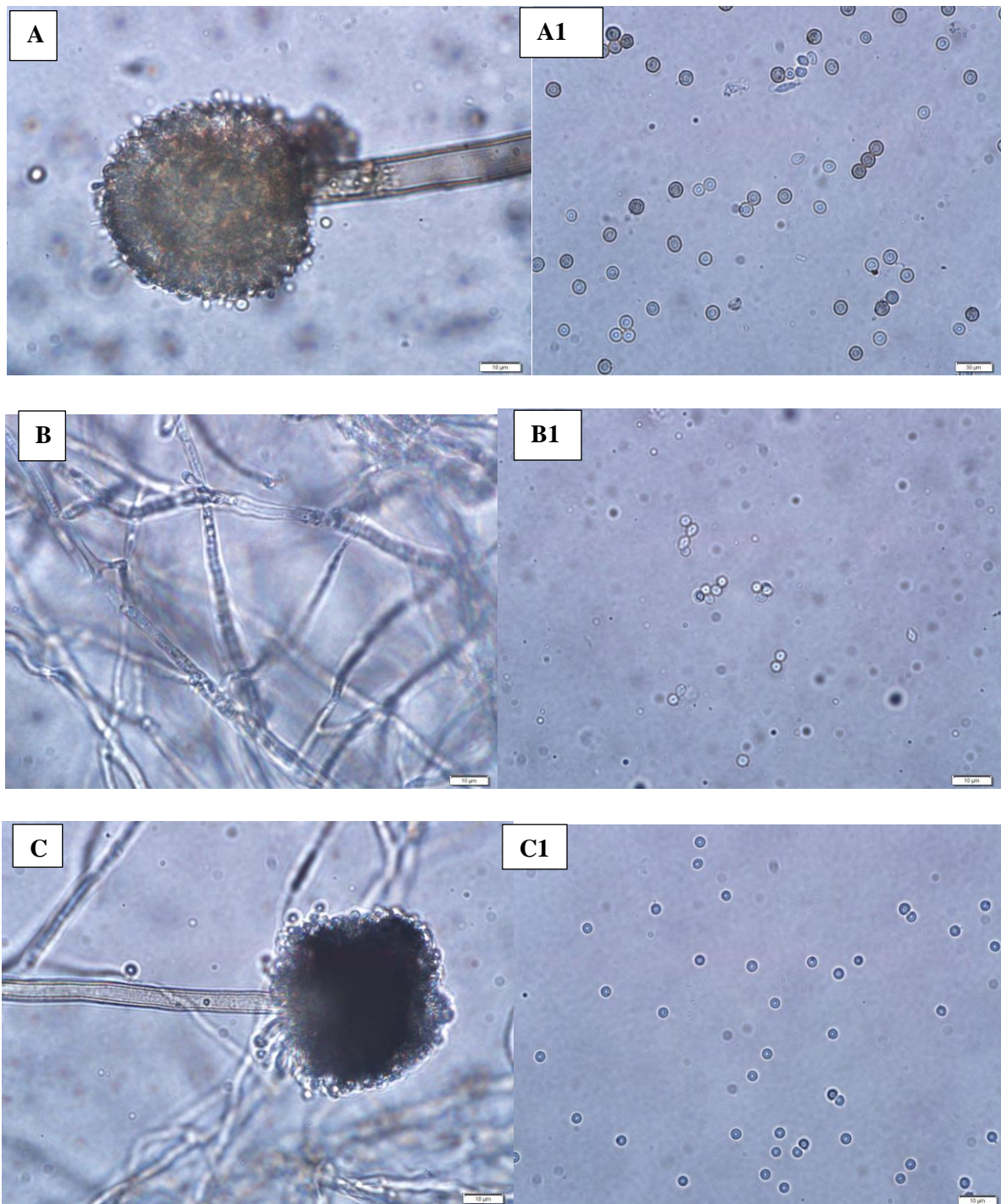


Figure S2: Scanning electron micrographs of fungal strains from peatland; A) *A. aculeatus* EAN506 conidiophore; A1) spores; B) *A. arenarioides* EAN603 conidiophore; B1) spores; (C) *A. iizukae* EAN605 conidiophore; (B) spores

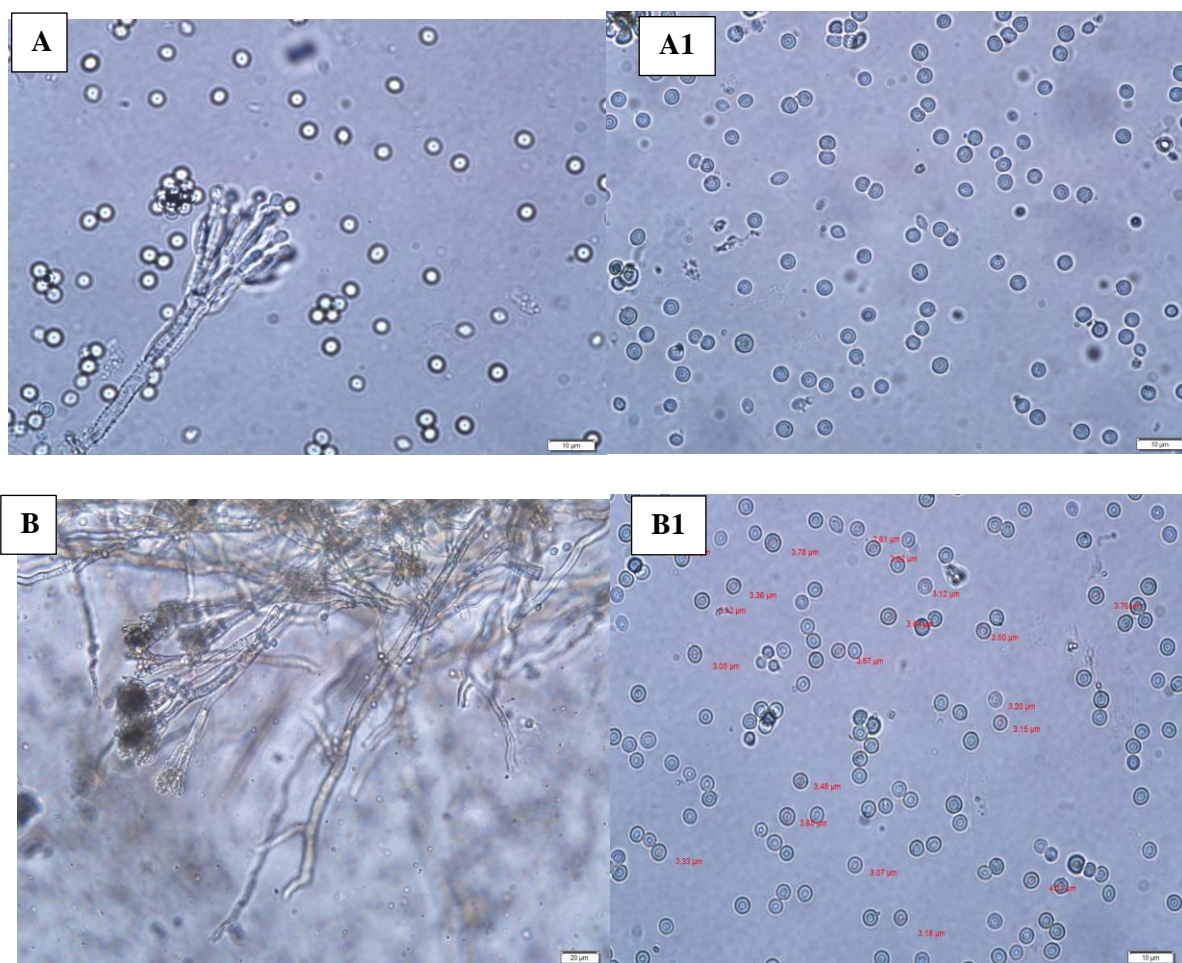


Figure S3: Scanning electron micrographs of fungal strains from peatland; A) *P. crustosum* 405EFAQ conidiophore; A1) spores; B) *P. crustosum* 406EFAQ conidiophore; B1) spores

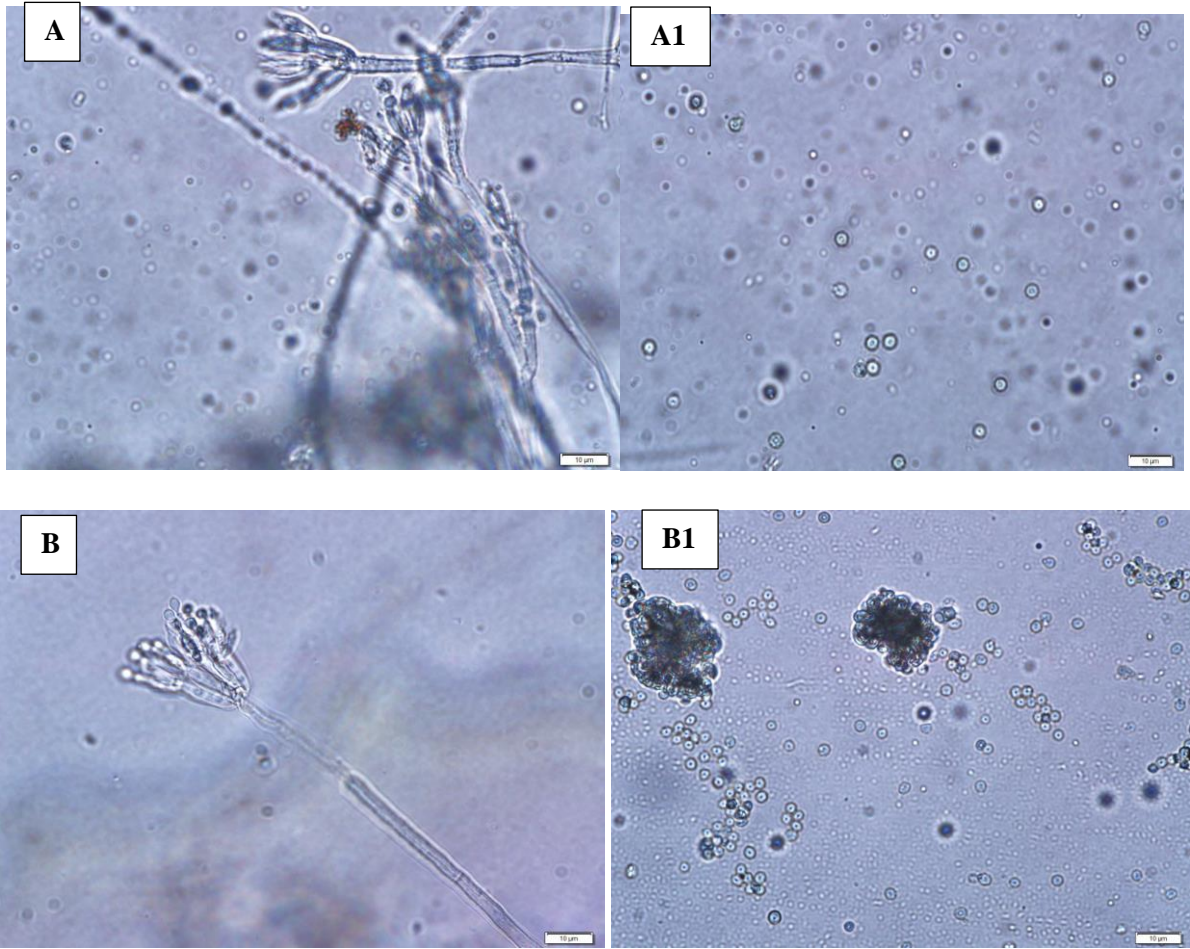


Figure S4: Scanning electron micrographs of fungal strains from peatland; A) *P. verruculosum* EAN203 conidiophore; A1) spores; B) *P. pedernalense* EAN604 conidiophore; B1) spores

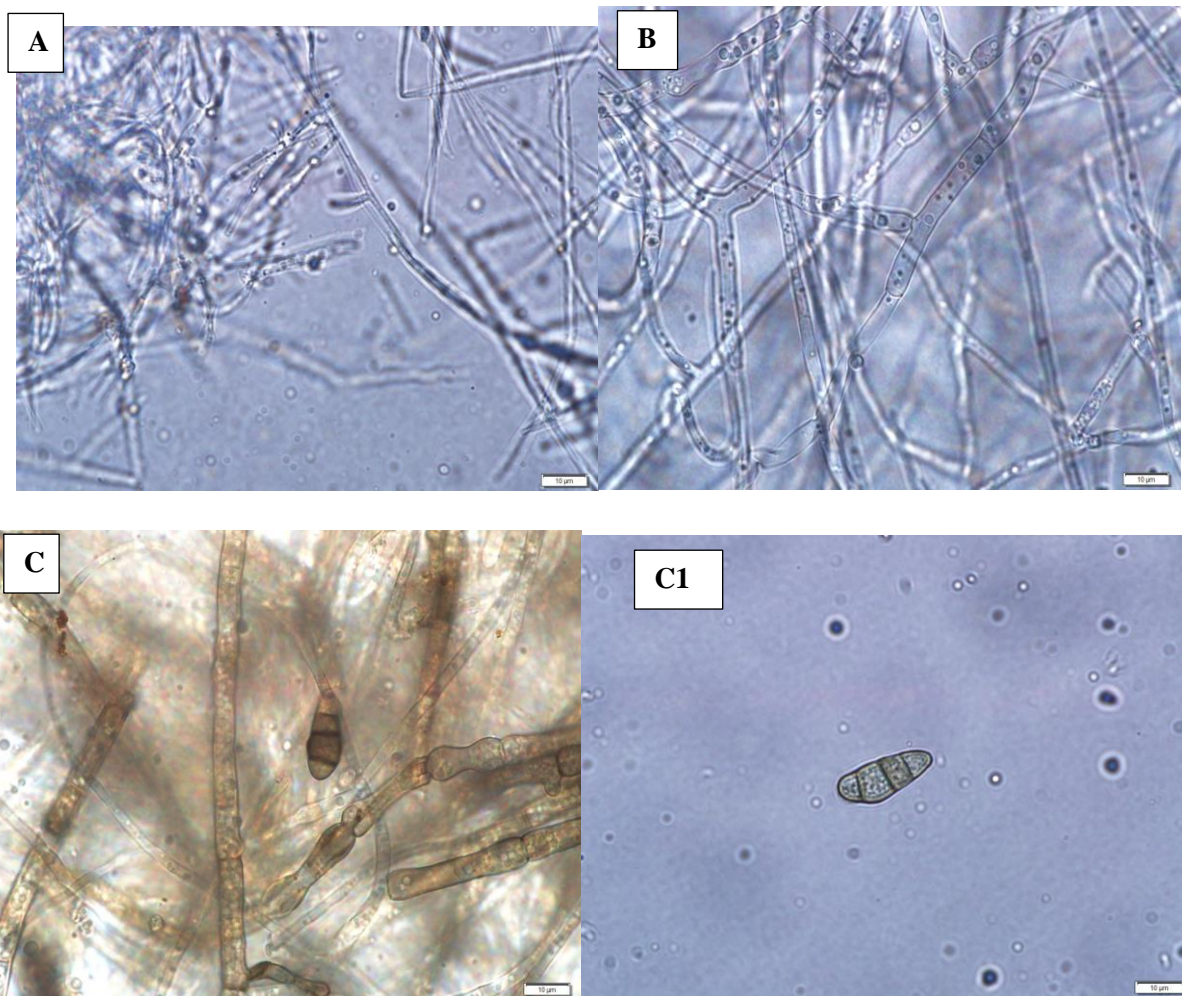


Figure S6: Scanning electron micrographs of fungal strains from peatland A) *P. album* EAN602; B) *P. brasiliense* EAN202; C) *C. geniculatus* EAN403; C1) spores

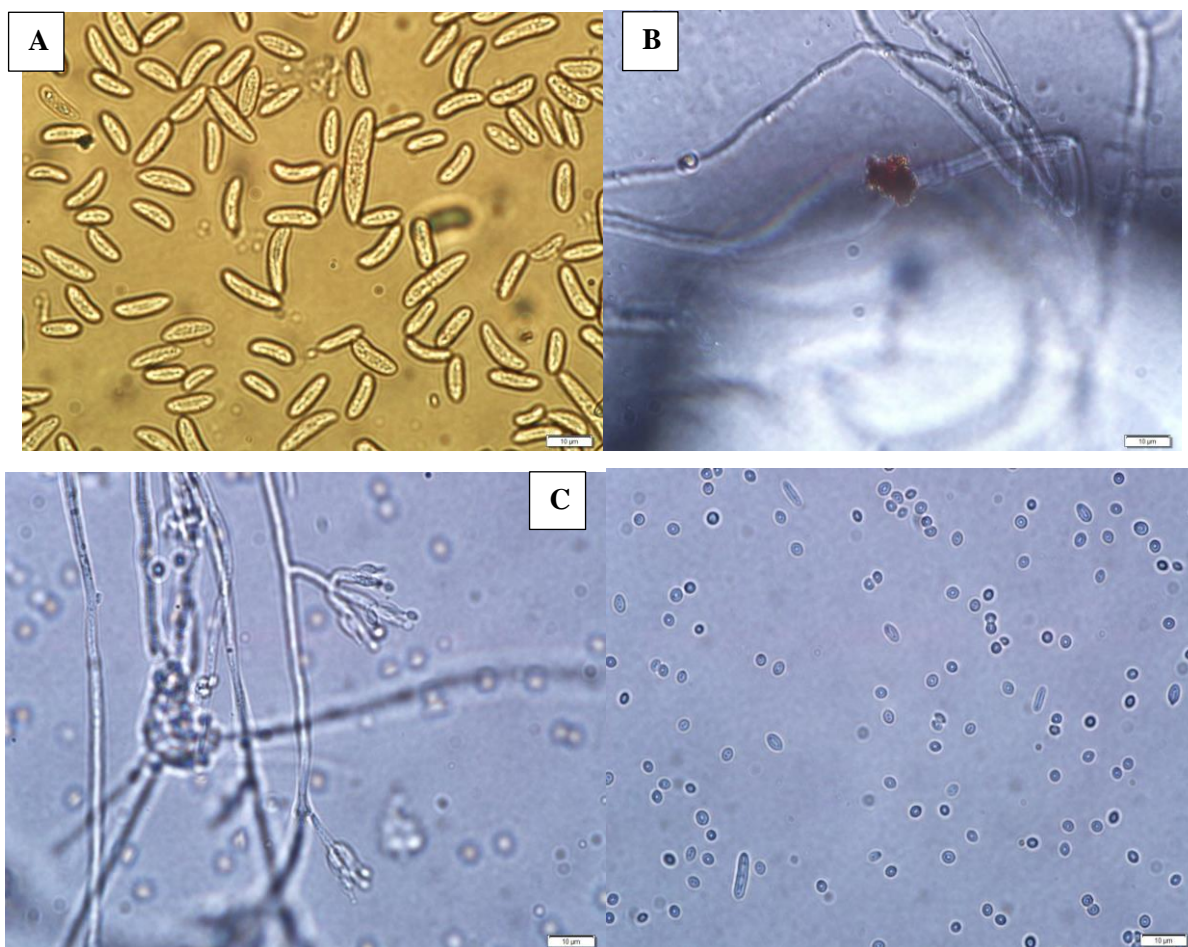


Figure S7: Scanning electron micrographs of fungal strains from peatland; A) *F. solani* EFAQ504; B) *P. lilacinum* EAN601; C) *S. commune* 104UTHM