

Fermentative Production of Diacylglycerol by Endophytic Fungi Screened from *Taxus chinensis* var. *mairei*

Wenqiang Xu ^{a, b}, Haoran Bi ^{a, b}, Hong Peng ^{a, b*}, Ling Yang ^{a, b}, Hongwei He ^{a, b},
Guiming Fu ^a, Yuhuan Liu ^{a, b}, Yin Wan ^a

¹ State Key Laboratory of Food Science and Technology, Nanchang University, Nanchang, 330047, P R. China;

² Engineering Research Center of Biomass Conversion, Ministry of Education, Nanchang University, Nanchang, 330047, P R. China.

Table S1. Distribution of endophytic fungi in different tissues of *T. chinensis*.

Tissues	Number of endophytic fungi strain	Percentage (%)
Barks	7	18.42
Leaves	9	23.68
Stems	5	13.16
Roots	17	44.74

Table S2. CDW, crude lipid yield, and TLC results of lipid extracts after fermentation for 7 days at 28 °C with shaking speed of 120 rpm.

Tissues	Code	CDW (g/L)	Crude lipid yield (g/L)	TLC results of lipids		
				TAG	1,3-DAG	1,2-DAG
Barks	MLP1N1	9.06	1.40	*****	**	**
	MLP12	4.82	1.69	*****	**	**
	MLP21	7.39	0.79	*****	***	***
	MLP22	2.75	0.88	*****	*	***
	MLP31	4.30	1.70	*****	-	***
	MLP32	8.09	1.27	*****	**	***
	MLP41	5.09	1.94	*****	*****	*****
Leaves	MLY11	10.92	0.88	*****	*	***
	MLY23	9.88	1.45	*****	*****	*****
	MLY32	7.23	0.890	*****	*****	*
	MLY33	5.07	0.28	*****	****	-
	MLY41	2.26	0.12	*****	-	-
	MLY42	6.47	0.49	*****	****	-
	MLY43	7.11	0.60	*****	**	-
	MLY12W	15.29	1.53	*****	***	-
	MLY31W	9.57	1.43	*****	*****	*****
Stems	MLJ11	6.90	0.58	*****	**	*
	MLJ12	12.33	3.34	*****	-	***
	MLJ21	11.62	0.98	*****	**	*_
	MLJ31	8.67	0.45	*****	***	*****
	MLJ33	6.12	0.40	*****	***	*****
Roots	MLG32W	3.08	0.15	*****	*	*****

	MLG32Y	4.14	0.13	*****	*	****
	MLG11	0.87	0.07	*****	*	-
	MLG12	3.85	0.21	*****	*	**
	MLG21	0.93	0.10	*****	*	-
	MLG23	6.86	0.90	*****	****	*****
	MLG31	11.67	0.64	*****	-	****
	MLG32	8.44	0.83	*****	****	**
	MLG42	6.97	0.17	*****	*	*****
	MLGP11	6.56	1.41	*****	*****	*****
	MLGP12	3.65	0.79	*****	-	-
	MLGP13	2.30	1.12	*****	-	**
	MLGP23	7.07	1.44	*****	**	**
	MLGP31	3.62	0.43	*****	**	****
	MLGP33	3.38	0.64	*****	**	**
	MLGP41	0.39	0.12	*****	-	-
	MLGP42	1.79	0.23	*****	*	-

Note: “-” meaning that no TAG band or DAG band was observed; “*” meaning that there was TAG band or DAG band observed, and there was more TAG or DAG was produced with the increase of number of “*”.

Table S3. The sequencing and splicing results of the five endophytic fungi

Code	Sequencing and splicing results
MLP41	1 ctgcggaggg atcattaccg agtttacaac tcccaaacc ctgtgaacat accaattgtt 61 gctcggcgg atcagccgc tcccggtaaa acgggacggc ccgccagagg acccctaacc 121 tctgttcta tatgtaact ctgagtaaaa ccataataa atcaaaact tcaacaacgg 181 atctcttgg tctggcatcg atgaagaacg cagcaaatg cgataagtaa tgtgaattgc 241 agaattcagt gaatcatcga atcttgaac gcacattgcg ccgccagta ttctggcggg 301 catgcctgtt cgagcgtcat ttcaaccctc aagccctcgg gtttggtgtt ggggatcggc 361 gagcccttgc ggcaagcgg ccccgaaatc tagtggcggg ctgcctgcag cttccattgc 421 gtagtagtaa aaccctcgca actggtacgc ggcgcggcca agccgtaaa ccccaactt 481 ctgaatgtg acctcggatc aggtaggaat acccgctgaa ctaagcata t
MLG23	1 gaggatcat taccgagttt acaactcca aaccaatgt gaaccatacc aaactgttgc 61 ctgcgggggg tcacgccccg ggtgcgtcgc agccccgga ccaggcgccc gccggaggga 121 ccaacaaaac tctttctgta gtccctcgc ggacgttatt tttacagct ctgagcaaaa 181 attcaaatg aatcaaaact ttcaacaacg gatctcttgg ttctggcatc gatgaagaac 241 gcagcgaaat gcgataagta atgtgaattg cagaattcag tgaatcatc aatctttgaa 301 cgcacattgc gcccgccagt attctggcgg gcatgcctgt ccgagcgtca ttcaaccct 361 cgaaccctc cgggggggtcg gcgttgggga tcgggaacce ctaagacggg atccccggcc 421 cgaaatacag tggcggctc gccgcagcct ctctgcgca gtagtttga caactcgac 481 cgggagcgcg gcgcgtccac gtccgtaaaa caccaactt tctgaatgt tgacctcgga 541 ttaggtagga ataccgctg aacttaagca ta
MLY23	1 tgcggaggga tcattactga gtttacgctc tataaccctt tgtgaacata cctataactg 61 ttgcttcggc gggtagggtc tccgcgacct tcccgctc ccgcctcgg gcgggtcggc

	121 gccgcgaggga ggataaccaa actctgattt aacgacgttt ctctgagtg gtacaagcaa 181 ataataaaaa ctttaacaa cggatctctt ggttctggca tcgatgaaga acgcagcgaa 241 atgcgataag taatgtgaat tgcagaattc agtgaatcat cgaatctttg aacgcacatt 301 gcgcccccca gcattctggc gggcatgcct gtccgagcgt catttcaacc ctcaagctct 361 gcttggtgtt ggggccctac agctgatgta ggccctcaaa ggtagtggcg gaccctcccg 421 gagctcctt tgcgtagtaa ctttacgtct cgcactggga tccggaggga ctcttgccgt 481 aaaaccccc aattttcaa aggttgacct cggatcaggt aggaataccc gctga
MLY31W	1 tgcggaggga tcattataga gttttctaaa ctcccaacct atgtgaactt accattgttg 61 cctcggcaga agctacctgg ttaccttacc ttggaacggc ctacctgta gcgccttacc 121 ctggaacggc ctacctgta acggctgccg gtggactacc aaactctgt tattatattg 181 taatctgagc gtctatttt aataagtc aaacttcaac aacggatctc ttggttctgg 241 catcgatgaa gaacgcagcg aatgcgata agtaatgtga attgcagaat tcagtgaatc 301 atcgaatctt tgaacgcaca ttgcgccc atgtattcta gtgggcatgc ctgttcgagc 361 gtcatttcaa ccttaagcc tagcttagtg ttgggagcct actgctttg ctacggtag 421 ctctgaaat acaacggcgg atctgcgata tctctgagc gtagtaattt ttatctcgt 481 ttgactgga gttgcagcgt ctttagccgc taaaccccc aattttaat ggttgacctc 541 ggatcaggta ggaatacccg ctgaacttaa gcata
MLGP11	1 cttccgtag gtgaacctgc ggaaggatca ttaccgagtg agggccctct ggtccaacc 61 tcccaccgt gtttattcta cttgtgtgt tcggcgggccc cgcctcaccg ccgccggggg 121 gcaccgccc ccggggccgc gcccgcgaa gacaccattg aactctgtct gaagattgca 181 gtctgagcag attagctaaa tcagttaaaa ctttaacaa cggatctctt ggttccggca 241 tcgatgaaga acgcagcgaa atgcgataag taatgtgaat tgcagaattc agtgaatcat 301 cgagtctttg aacgcacatt gcgccccctg gtattccggg gggcatgcct gtccgagcgt 361 cattgtgcc ctcaagcacg gcttgtgtgt tgggcttcgc cccccggctc ccggggggcg 421 ggcccgaag gcagcggcgg caccgcgtcc ggtcctcgag cgtatggggc ttctcacc 481 gctctgtagg cccggccggc gcccgcggc gacccaatc aatctttca ggttgacctc 541 ggatcaggta gggatacccg c

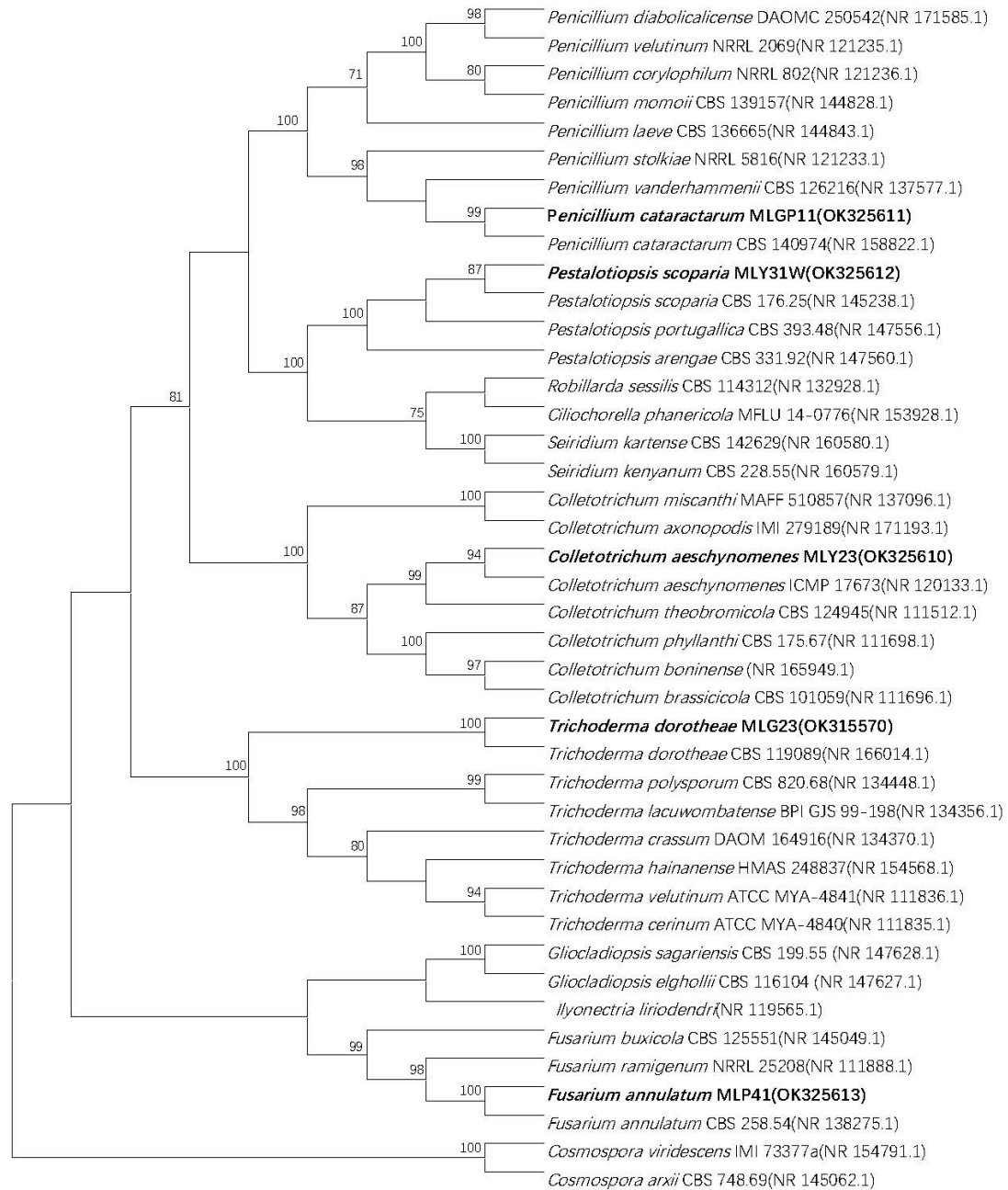


Figure S1. Phylogenetic tree of ITS sequences of endophytic fungi strains coded as MLP41, MLG23, MLY23, MLY31W, and MLGP11 (Gen Bank accession numbers of strains are in brackets).

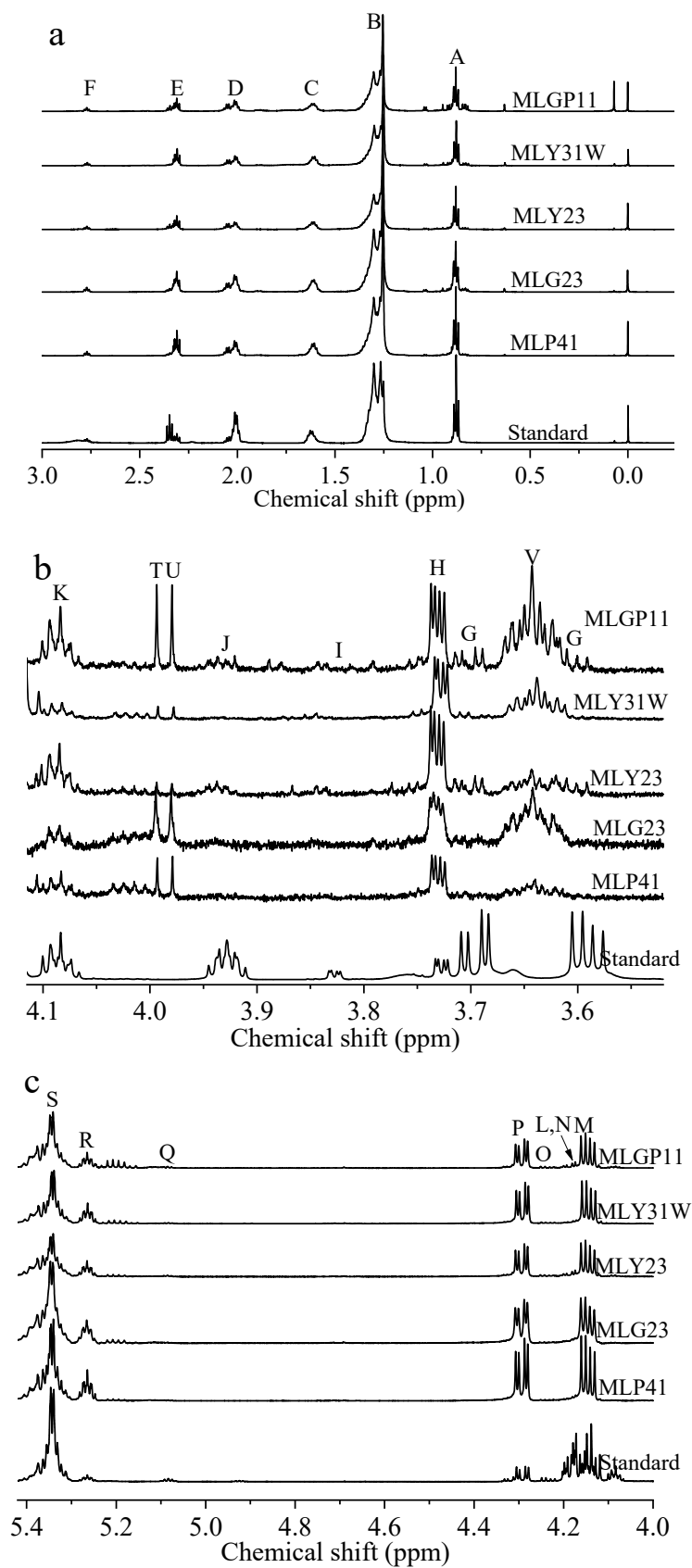


Figure S2. ^1H NMR spectra of standards (containing TAG, 1,2-DAG, 1,3-DAG, and MAG) and lipids from MLP41, MLG23, MLY23, MLY31W, and MLGP11. (Solvent CDCl_3).