

## Supporting information

**Table S1.** Geographical characteristics of the 37 samples of *M. officinalis* used in this study

Samples	Pop.	Locations	Latitude (N)	Longitude (E)
H1	Hue	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'38"	182°38'90"
H2		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'37"	182°38'90"
H3		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'33"	182°38'89"
H4		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'38"	182°38'81"
H5		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'38"	182°38'45"
H6		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'36"	182°38'47"
H7		Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'64"	182°39'14"

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H8	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'63"	182°39'22"
H9	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'66"	182°39'26"
H10	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'16"	182°38'05"
H11	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'11"	182°37'85"
H12	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°05'03"	182°37'87"
H13	Phong Xuan commune, Phong Dien district Hue province, Vietnam	75°04'88"	182°37'86"
H14	Phong Xuan commune, Phong Dien district Hue province, Vietnam	73°99'80"	181°60'86"
H15	Phong Xuan commune, Phong Dien district Hue province, Vietnam	74°00'58"	181°61'37"
H16	Phong Xuan commune, Phong Dien district Hue province, Vietnam	74°00'55"	181°61'36"

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H17		Phong Xuan commune, Phong Dien district Hue province, Vietnam	74°00'86"	181°61'57"
H18		Phong Xuan commune, Phong Dien district Hue province, Vietnam	74°01'11"	181°62'06"
QN1	Quang Nam	Phuoc Son district, Quang Nam province, Vietnam	50°97'65"	170°16'74"
QN2		Phuoc Son district, Quang Nam province, Vietnam	50°97'64"	170°16'79"
QN3		Phuoc Son district, Quang Nam province, Vietnam	50°97'82"	170°16'92"
QN4		Phuoc Son district, Quang Nam province, Vietnam	50°99'56"	170°15'06"
QN5		Phuoc Son district, Quang Nam province, Vietnam	50°97'82"	170°16'92"
QN6		Phuoc Son district, Quang Nam province, Vietnam	50°97'95"	170°16'72"
QN7		Phuoc Son district, Quang Nam province, Vietnam	50°97'95"	170°16'72"
QN8		Phuoc Son district, Quang Nam province, Vietnam	50°99'55"	170°15'00"
QN9		Phuoc Son district, Quang Nam province, Vietnam	50°99'56"	170°14'95"

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QN10		Phuoc Son district, Quang Nam province, Vietnam	50°99'55"	170°15'00"
QB1	Quang Binh	Minh Hoa district, Quang Binh Province, Vietnam	17°45'14.94	106° 4'6.04
QB2		Minh Hoa district, Quang Binh Province, Vietnam	17°45'9.23	106° 4'7.34
QB3		Minh Hoa district, Quang Binh Province, Vietnam	17°45'7.63	106°4'12.89
QB4		Minh Hoa district, Quang Binh Province, Vietnam	17°45'8.88	106° 4'16.14
QB5		Minh Hoa district, Quang Binh Province, Vietnam	17°45'5.60	106° 4'17.81
QB6		Minh Hoa district, Quang Binh Province, Vietnam	17°45'4.06	106° 4'20.23
QB7		Minh Hoa district, Quang Binh Province, Vietnam	17°45'4.49	106° 4'21.94
QB8		Minh Hoa district, Quang Binh Province, Vietnam	17°44'59.83	106° 4'30.69
QB9		Minh Hoa district, Quang Binh Province, Vietnam	17°44'57.64	106° 4'30.42

**Table S2.** The primers used for PCR and sequencing in this study

SSR loci	Forward sequences	Reverse sequences	Repeat motif	Expected allele size (bp)	Annealing temperature (°C)	Genbank accession no.	Ref.
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	GATTAACGCCACCGGATACG	(CCG)				
MO02	TGTTG	GAGGAGGT TA	5...(CC G)6	204	50	MF496207
MO04	TCTCTTGCCTC TGGTAGTT	ACCCTCAAT GGAGAACA AC	(GCC) 6...(T GC)5	164	51	MF496208
MO05	TAACTAATGG CGTACTTGG	GCTCATCTA CCACTACTG AA	(GAA) 7(AGA )5	214	50	MF496209
MO12	TTGGCTGTGT GCTTCTTT	ATTCCTTCC TTCCTCCTA ATC	GT)9	135	50	MF496210
MO19	TCTCGCATTC AGGCAAAG	TCTCGCATTA GGCAAAG	(GA)8	111	51	MF496211
MO26	TAGTTGAGCC GCTTGAGT	GGTTCCATT CCATTCAGA GG	(CT)7	193	51	MF496212
MO30	CATGAGTTGC AGATGGAAT	AGAGACAGA GATTAGACG AA	(AT)7	158	51	MF496213 [16]
MO38	AAAGTGGGTG AGGGTTAGA	CAGAGTGGT GGACGAATA G	(AG)6	206	52	MF496216
MO39	TAGACCATAG GCTGGAGTT	TTGCTAAGG AATCAGGAG TT	(TG)6	182	51	MF496217
MO41	CACACTATAC TCAAGCACAT C	GTTGGGCTG ACCTTTCCT T	(TA)6	141	50	MF496218
MO43	CTCTCCTTCTC CTTATCTCTG	GGAAGTGGC AATGGACTT	(CT)6	261	50	MF496219
MO47	CTGCGGAGTG CATAAGAA	TAGCCAATCGT AGAGAATAG	(GA)6	173	50	MF496220
MO53	TCCACAGGCT AAGATTACAC	CCAGCATAG TCTTCCTCTA	(CT)6	116	50	MF496221

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MO57	GCATCATTAG AGCTACTAGA C	TGTTGTCACT (CAG) GTACTTCATC 8	172	50	MF496222	
MO60	TGAATTGGGT GAAGAACCA	CTTAAGTCA (CAA) CTGATCTGT 8 CTG	154	50	MF496223	
MO61	TCAAGGACAG TATTGTGGAA	CATCATCAT (TAA) TGCTGCTCT 8 TA	189	50	MF496224	
MO63	ACATTGCCGA ATACCATCT	CCAGAGTTG (GTG) TTGTCAAGT 7 T	134	50	MF496225	
MO88	TCCGACTTGC TTCATTGG	TTGGGCTCA (TTG) ACCTTCTCA 6	197	51	MF496226	
MO89	AGCCGATACT AAACTGTCAA	AACCATCAC (ATC) TCAATGTTCC 6 A	240	51	MF496227	
MO90	TTACAACTGT GGCAGAACT	ATCCAGCAC (GTG) TACCAATCC 6	170	50	MF496228	
MO94	ACTAAGCCGA GTGAATTACA	TTCCAACCT (TGC) GCCTATCCA 6	201	50	MF496229	
MO96	AGGTAACTTCA GTCAACAC	TGGGAATGT (CAA) CAACAGAAA 6 TC	122	50	MF496230	

**Table S3.** The samples were deposited in the GenBank and their accession numbers

No.	Samples	Primer	Population	Accession
1	H01	ITS1	TTH	<a href="#">ON819584.1</a>
2	H02	ITS1	TTH	<a href="#">ON819586.1</a>
3	H03	ITS1	TTH	<a href="#">ON819588.1</a>
4	QN01	ITS1	QN	<a href="#">ON819590.1</a>
5	QN02	ITS1	QN	<a href="#">ON819591.1</a>
6	QN03	ITS1	QN	<a href="#">ON819592.1</a>
7	QB01	ITS1	QB	<a href="#">ON819596.1</a>

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8	QB02	ITS1	QB	ON819597.1
9	QB03	ITS1	QB	ON819598.1
10	H01	ITS2	TTH	ON819585.1
11	H02	ITS2	TTH	ON819587.1
12	H03	ITS2	TTH	ON819589.1
13	QN01	ITS2	QN	ON819593.1
14	QN02	ITS2	QN	ON819594.1
15	QN03	ITS2	QN	ON819595.1
16	QB01	ITS2	QB	ON819599.1
17	QB02	ITS2	QB	ON819600.1
18	QB03	ITS2	QB	ON819601.1
19	H01	MatK	TTH	ON926564.1
20	QN01	MatK	QN	ON926565.1
21	QN02	MatK	QN	ON926566.1
22	QN03	MatK	QN	ON926567.1
23	H01	rbcL	TTH	ON926568.1
24	H02	rbcL	TTH	ON926569.1
25	QN01	rbcL	QN	ON926570.1
26	QN03	rbcL	QN	ON926571.1
27	QB02	rbcL	QB	ON926572.1

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