Table S3. The primer for the amplification of DNA regions in various species of *Engelhardia.* The PCR mixtures for cpDNA amplification reactions were 2.5 μl of 10 × PCR reaction buffer (Takara, Japan), 1.5 μl of 25 mM $MgCl_2$, 1 μl of each primer (Shanghai Sangon, China) at 10 ng/μl, 1 μl of 2.5 mM dNTP solution in an equimolar ratio, 0.2 μl of Taq DNA-polymerase (5U/μl, Takara, Japan) and 2 μl of genomic DNA at 5 ng/μl and add ddH_2O until a total volume of 25 μl. ITS amplification reactions were 4 μl of HiFi 10 × PCR reaction buffer (Transgen, China), 0.2 μl of HiFi DNA-polymerase (5U/μl, Transgen, China),1 μl of GC Hance(Transgen, China),1 μl of each primer (Shanghai Sangon, China) at 10 ng/μl, 1 μl of 2.5 mM dNTP solution in an equimolar ratio, 1 μl of DMSO, 1 μl of BSA, and 2 μl of genomic DNA at 5 ng/μl and add ddH_2O until a total volume of 25 μl. The thermocycling conditions for PCR are given as follows: 94 °C, 2 min; 30 cycles (94 °C, 30 s; T_a, 60 s; 72 °C, 1 min); and 72 °C 10 min. The amplified products were purified using the QIAquick Gel Extraction Kit (Qiagen, Hilden, Germany). All sequences are deposited in GenBank, and the Accession nos are MN307497 - MN307736.

DNA region	Primer name	T_a (°C)	Primer sequence	Reference
*rps*16	*rps*16-F	58	GTGGTAGAAAGCAACGTGCGACTT	(Oxelman et al. 1997)
	*rps*16-R		TCGGGATCGAACATCAATTGCAAC	
*rpl*32–*trn*L	*trn*L	56	CTGCTTCCTAAGAGCAGCGT	(Shaw et al. , 2007)
	*rpl*32		CAGTTCCAAAAAAACGTACTTC	
*trn*S-*trn*G	*trn*G	60	GAACGAATCACACTTTTACCAC	(Hamilton, 1999)
	*trn*S		GCCGCTTTAGTCCACTCAGC	
*psb*A-*trn*H	*psb*A	58	GTTATGCATGAACGTAATGCTC	(Fazekas et al., 2010; Sang et al., 1997)
	*trn*H		CGCATGGTGGATTCACAATCC	
*trn*L–*trn*F	*trn*L2	58	CGAAATCGGTAGACGCTACG	(Taberlet et. al, 1991)
	*trn*F		ATTTGAACTGGTGACACGAG	
ITS	ITS-F	58	TCCTCCGCTTATTGATATGC	(Baldwin et al., 1995)
	ITS-R		GGAAGTAAAAGTCGTAACAAGG	

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