Table S1 Chloroplast genomes of 32 species for phylogenetic analysis

Number	Latin name	Genbank number	genus
1	*Alcimandra cathcartii*	JX280390	*Alcimandra*
2	*Yulania amoena*	MN990623	*Yulania*
3	*Yulania biondii*	MN990596	*Yulania*
4	*Yulania cylindrica*	MN990617	*Yulania*
5	*Yulania denudata*	MN990618	*Yulania*
6	*Yulania liliiflora*	MN990588	*Yulania*
7	*Paramichelia baillonii*	MK782763	*Paramichelia*
8	*Tsoongiodendron odorum*	NC023239	*Tsoongiodendron*
9	*Liriodendron chinense*	KU170583	*Liriodendron*
10	*Liriodendron tulipifera*	MN990625	*Liriodendron*
11	*Manglietia aromatica*	MF990561	*Manglietia*
12	*Manglietia chevalieri*	MN990616	*Manglietia*
13	*Manglietia conifera*	MF990563	*Manglietia*
14	*Manglietia dandyi*	MF990567	*Manglietia*
15	*Manglietia duclouxii*	MF990564	*Manglietia*
16	*Manglietia glaucifolia*	MF990565	*Manglietia*
17	*Manglietia hainanensis*	MN306583	*Manglietia*
18	*Manglietia obovalifolia*	MZ597871	*Manglietia*
19	*Michelia lacei*	MW470924	*Michelia*
20	*Michelia maudiae*	MK631950	*Michelia*
21	*Pachylarnax sinica*	MN990584	*Pachylarnax*
22	*Parakmeria nitida*	MN990640	*Parakmeria*
23	*Parakmeria yunnanensis*	NC024545	*Parakmeria*
24	*Illicium henryi*	KY085910	*Illicium*
25	*Illicium verum*	KY085896	*Illicium*
26	*Kadsura heteroclita*	MN823698	*Kadsura*
27	*Kadsura longipedunculata*	MH535482	*Kadsura*
28	*Schisandra chinensis*	KU362793	*Schisandra*
29	*Schisandra sphenanthera*	KX638480	*Schisandra*
30	*Talauma hodgsonii*	MZ597871	*Talauma*
31	*Woonyoungia septentrionalis*	HM775382	*Woonyoungia*
32	*Arabidopsis thaliana*	JX280392	*Arabidopsis*

Table S2 Chloroplast genome-encoded gene types and functional classification for six species of the family Magnoliaceae

Category	Group	Genes
Photosynthesis	Subunits of photosystem I	*psaA*, *psaB*, *psaC*, *pasI*, *pasJ*
	Subunits of photosystem II	*psbA*, *psbB*, *psbC*, *psbD*, *psbE*, *psbF*, *psbH*, *psbI*, *psbJ*, *psbK*, *psbL*, *psbM*, *psbN*, *psbT*, *psbZ*,
	Subunits of NADH dehydrogenase	*ndhA**, *ndhB(×2)**, *ndhC*, *ndhD*, *ndhE*, *ndhF*,*ndhG*,*ndhH*,*ndhI*,*ndhJ*, *ndhK*
	Subunits of cytochrome b/f complex	*petA*, *petB**, *petD*, *petG*, *petL*, *petN*
	Subunits of ATP synthase	*atpA*, *atpB*, *atpE*, *atpF**, *atpH*, *atpI*
	Large subunit of Rubisco	*rbcL*
Translation related genes	Large subunits of ribosome	*rpl2(×2)**, *rpl14*, *rpl16**, *rpl20*, *rpl23* (×2), *rpI32*, *rpl33*, *rpl36*
	Small subunits of ribosome	*rps2*, *rps3*, *rps4*, *rps7(×2)*, *rps8*, *rps 11*, *rps12(×2)***,*rps14*,*rps15*,*rps16*, *rps18*, *rps19*
	DNA-dependent RNA polymerase	*rpoA* ,*rpoB*, *rpoC1**, *rpoC2*,
	Ribosomal RNAs	*rrn4.5(×2)*,*rrn5(×2)*,*rrn16(×2)*,*rrn23(×2)*
	Transfer RNAs	*trnA-UGC(×2)*,*trnC-GCA*,*trnD-GUC*, *trnE-UUC*,*trnF-GAA*,*trnFM-CAU*, *trnG-GCC*, *trnG-UCC**,*trnH-GUG*, *trnI-CAU(×2)*,*trnI-GAU(×2)* ***,*trnK-UUU**,*trnL-CAA(×2)*,*rnL-UAA**, *trnL-UAG*,*trnM-CAU*,*trnN-GUU(×2)*, *trnP-UGG*,*trnQ-UUG*,*trnR-ACG(×2)*, *trnR-UCU*,trnS-GCU,trnS-GGA,*trnS-UGA*,*trnT-GGU*,*trnT-UGU*,*trnV-GAC* (×2),*trnV-UAC*,*trnW-CCA*,*trnY-GUA*
Other genes	Maturase	*matK*
	Protease	*clpP***
	Envelope membrane protein	*cemA*
	Acetyl-CoA_carboxylase	*accD*
	C-type_cytochrome_synthesis_gene	*ccsA*
	Pseudogene	*infA*
	Genes of unknown function	*ycf1*, *ycf2* (×2), *ycf3***, *ycf4*, *ycf15* (×2)

Note：(×2) indicates that the gene has two copies, * and ** indicate genes containing one/ two introns.

Table S3 Simple sequence repeats in the six chloroplast genomes of the family Magnoliaceae.

SSRs	M. crassipes	M. grandis	M. hookeri	M. Ventii	Y. praecocissima	Y. soulangeana
A/T	27	30	30	27	29	29
C/G	3	2	4	3	2	2
AG/CT	2	2	2	2	3	3
AT/AT	6	6	6	6	5	5
AAG/CTT	2	2	2	2	1	1
AAT/ATT	2	2	2	2	2	2
AATC/AATG	1	1	1	1	1	1
AAAT/ATTT	4	4	4	4	4	4
AATT/AATT	1	1	1	1	1	1
AATG/ATTC	2	2	2	2	1	1
ACAT/ATGT	1	1	1	1	1	1
AATACT/AGTATT	2	2	2	2	2	2
total	53	55	57	53	53	53