

1.2 Supplementary Tables

Supplementary Table S1. Information of chloroplast genomes used in Fabaceae

Species	NCBI accession number	Length (bp)	GC content (%)
<i>Glycyrrhiza uralensis</i>	PP119344	127862	34.3
<i>Glycyrrhiza glabra</i>	PP119342	126380	34.3
<i>Glycyrrhiza inflata</i>	PP119340	127840	34.3
<i>Glycyrrhiza pallidiflora</i>	PP119341	127458	34.1
<i>Glycyrrhiza squamulosa</i>	PP119343	127738	34.2
<i>Glycyrrhiza yunnanensis</i>	PP119345	129115	34.3
<i>Glycyrrhiza alaschanica</i>	NC065140	127990	34.3
<i>Glycyrrhiza korshinskyi</i>	NC065145	127894	34.3
<i>Glycyrrhiza gobica</i>	NC065142	127970	34.3
<i>Glycyrrhiza glandulifera</i>	MT120773	127982	34.3
<i>Glycyrrhiza laxissima</i>	MT120777	127885	34.3
<i>Glycyrrhiza zaissanica</i>	NC065144	127984	34.3
<i>Glycyrrhiza aspera</i>	NC048509	127831	34.3
<i>Glycyrrhiza echinata</i>	NC065141	127993	34.2
<i>Glycyrrhiza iconica</i>	MT120774	127906	34.3
<i>Glycyrrhiza foetida</i>	MT120764	127817	34.3
<i>Glycyrrhiza triphylla</i>	MT120803	127767	34.2
<i>Glycyrrhiza gontscharovii</i>	NC065143	127616	34.3
<i>Glycyrrhiza macedonica</i>	MT120782	127894	34.3
<i>Glycyrrhiza acanthocarpa</i>	MT120750	127694	34.3
<i>Glycyrrhiza astragalina</i>	MT120755	126903	34.5
<i>Glycyrrhiza lepidota</i>	MT120778	127331	34.4
<i>Glycyrrhiza asymmetrica</i>	MT120759	126611	34.2
<i>Cercis chinensis</i>	MZ128523	158999	36.2
<i>Bauhinia purpurea</i>	NC061218	156099	36.4
<i>Schotia afra</i>	NC047328	158997	36.4
<i>Goniorrhachis marginata</i>	NC047394	158362	36.5
<i>Colophospermum mopane</i>	NC047388	157971	35.9
<i>Saraca dives</i>	NC071827	159627	36.2
<i>Afzelia quanzensis</i>	NC047329	159275	36
<i>Amherstia nobilis</i>	NC047327	158553	36.5
<i>Duparquetia orchidacea</i>	NC047346	158773	36.7
<i>Dialium schlechteri</i>	NC047326	159190	36.2
<i>Ceratonia siliqua</i>	NC026678	156367	36.7
<i>Gleditsia japonica</i>	NC070139	170796	33.9
<i>Pterogyne nitens</i>	NC047350	157422	36.7
<i>Cassia fistula</i>	NC065246	161724	36.1
<i>Biancaea sappan</i>	NC049085	160192	36
<i>Tachigali costaricensis</i>	NC047339	169313	36.8
<i>Schizolobium parahyba</i>	NC047316	159973	36.3
<i>Moldenhawera blanchetiana</i>	NC047348	160196	36.5
<i>Erythrophleum suaveolens</i>	NC047374	160344	36.5
<i>Adenanthera microsperma</i>	NC034986	159389	36.4

<i>Cylicodiscus gabunensis</i>	MZ274089	161494	36.2
<i>Prosopis cineraria</i>	NC049133	163677	35.9
<i>Neltuma pallida</i>	OR178743	162381	36
<i>Leucaena trichandra</i>	NC028733	164692	35.6
<i>Parkia javanica</i>	NC034989	161681	35.9
<i>Stryphnodendron adstringens</i>	NC044627	162169	35.9
<i>Mimosa bimucronata</i>	NC061740	167340	35
<i>Acacia dealbata</i>	NC034985	174217	35.4
<i>Angylocalyx braunii</i>	NC047392	162989	35.6
<i>Dipteryx alata</i>	NC067513	162568	34.2
<i>Amburana cearensis</i>	NC067514	161700	35.4
<i>Swartzia bahiensis</i>	MW628941	160100	35.7
<i>Cladrastis yungchunii</i>	NC058316	163205	36.9
<i>Exostyles venusta</i>	MW628960	155942	36.1
<i>Vatairea guianensis</i>	NC047363	155637	35.8
<i>Andira humilis</i>	NC067518	158920	36.1
<i>Dermatophyllum secundiflorum</i>	NC047349	159674	36.4
<i>Ormosia elliptica</i>	NC081487	169797	36.1
<i>Poecilanthe parviflora</i>	NC047393	160576	35.5
<i>Leptolobium dasycarpum</i>	MW628950	162998	35.8
<i>Camoensia scandens</i>	ON009081	127811	35.5
<i>Sophora tonkinensis</i>	NC042688	155640	36.4
<i>Podalyria calyptrata</i>	NC057458	152992	36.6
<i>Crotalaria albida</i>	NC061361	152743	36.6
<i>Genista tinctoria</i>	NC047375	152222	36.8
<i>Amorpha fruticosa</i>	NC047310	158245	36
<i>Dalbergia oligophylla</i>	NC072935	159310	36.4
<i>Baphia racemosa</i>	NC047397	156237	35.7
<i>Goodia macrocarpa</i>	NC047331	154333	35.9
<i>Indigofera hirsuta</i>	NC079834	159873	35.6
<i>Aganope dinghuensis</i>	NC054355	143690	35.3
<i>Clitoria mariana</i>	NC067531	152364	34
<i>Austrosteenisia blackii</i>	NC057276	152551	35
<i>Millettia dura</i>	NC057456	152714	34.9
<i>Phaseolus lunatus</i>	NC060403	150902	35.5
<i>Sesbania cannabina</i>	NC057145	153978	35.6
<i>Lotus japonicus</i>	NC002694	150519	36
<i>Robinia pseudoacacia</i>	NC026684	154835	35.8
<i>Adinobotrys atropurpureus</i>	NC068230	134267	34
<i>Wisteria brachybotrys</i>	NC060810	131179	34.3
<i>Hedysarum taipeicum</i>	MK426698	126699	35.1
<i>Caragana leucophloea</i>	NC077533	134240	34.7
<i>Astragalus galactites</i>	NC058825	126117	34
<i>Vicia costata</i>	NC057995	134184	34.9

Supplementary Table S2. Numbers of genes annotated by different tools

Species	Gene type	CPGAVAS2	PGA	Geseq
<i>G. uralensis</i>	protein-coding gene	75	76	76
	tRNA	29	30	30
	rRNA	4	4	4
	total	108	110	110
<i>G. glabra</i>	protein-coding gene	75	76	76
	tRNA	28	29	29
	rRNA	4	0	4
	total	107	105	109
<i>G. inflata</i>	protein-coding gene	74	75	76
	tRNA	29	30	30
	rRNA	4	4	4
	total	107	109	110
<i>G. pallidiflora</i>	protein-coding gene	75	76	76
	tRNA	28	29	30
	rRNA	4	0	4
	total	107	105	110
<i>G. squamulosa</i>	protein-coding gene	75	76	76
	tRNA	29	30	30
	rRNA	4	0	4
	total	108	106	110
<i>G. yunnanensis</i>	protein-coding gene	75	76	76
	tRNA	29	30	30
	rRNA	4	0	4
	total	108	106	110

Supplementary Table S3. Basic characteristics of the chloroplast genomes of *Glycyrrhiza*

Species	NCBI accession number	Length (bp)	GC content (%)	Number of genes		
				protein-coding genes	tRNAs	rRNAs
<i>Glycyrrhiza uralensis</i>	PP119344	127862	34.3	76	30	4
<i>Glycyrrhiza glabra</i>	PP119342	126380	34.3	76	29	4
<i>Glycyrrhiza inflata</i>	PP119340	127840	34.3	76	30	4
<i>Glycyrrhiza pallidiflora</i>	PP119341	127458	34.1	76	30	4
<i>Glycyrrhiza squamulosa</i>	PP119343	127738	34.2	76	30	4
<i>Glycyrrhiza yunnanensis</i>	PP119345	129115	34.3	76	30	4
<i>Glycyrrhiza alaschanica</i>	NC065140	127990	34.3	76	30	4
<i>Glycyrrhiza korshinskyi</i>	NC065145	127894	34.3	76	30	4
<i>Glycyrrhiza gobica</i>	NC065142	127970	34.3	76	30	4
<i>Glycyrrhiza glandulifera</i>	MT120773	127982	34.3	76	30	4
<i>Glycyrrhiza laxissima</i>	MT120777	127885	34.3	76	30	4
<i>Glycyrrhiza zaissanica</i>	NC065144	127984	34.3	76	30	4
<i>Glycyrrhiza aspera</i>	NC048509	127831	34.3	76	30	4
<i>Glycyrrhiza echinata</i>	NC065141	127993	34.2	76	30	4
<i>Glycyrrhiza iconica</i>	MT120774	127906	34.3	76	30	4
<i>Glycyrrhiza foetida</i>	MT120764	127817	34.3	76	30	4
<i>Glycyrrhiza triphylla</i>	MT120803	127767	34.2	76	30	4
<i>Glycyrrhiza gontscharovii</i>	NC065143	127616	34.3	76	30	4
<i>Glycyrrhiza macedonica</i>	MT120782	127894	34.3	76	30	4
<i>Glycyrrhiza acanthocarpa</i>	MT120750	127694	34.3	76	30	4
<i>Glycyrrhiza astragalina</i>	MT120755	126903	34.5	76	30	4
<i>Glycyrrhiza lepidota</i>	MT120778	127331	34.4	76	30	4
<i>Glycyrrhiza asymmetrica</i>	MT120759	126611	34.2	76	28	4

Supplementary Table S4-1. Information of genes with introns in the chloroplast genome of *Glycyrrhiza uralensis*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	70509 – 70622	97417 – 97686	
<i>rpoC1</i>	(+)	39536 – 39965	40660 – 42284	
<i>atpF</i>	(+)	50380 – 50523	51189 – 51599	
<i>petB</i>	(+)	74737 – 74742	75551 – 76192	
<i>petD</i>	(+)	76434 – 76441	77149 – 77623	
<i>rpl16</i>	(-)	83077 – 83085	81586 – 81984	
<i>rpl2</i>	(-)	85787 – 86183	84643 – 85076	
<i>ndhB</i>	(-)	95813 – 96535	94372 – 95127	
<i>ndhA</i>	(+)	115833 – 116383	117594 – 118134	
<i>trnK-UUU</i>	(-)	4331 – 4367	1765 – 1799	
<i>trnV-UAC</i>	(+)	9924 – 9962	10535 – 10571	
<i>trnL-UAA</i>	(-)	14429 – 14465	13883 – 13932	
<i>trnG-UCC</i>	(-)	54611 – 54633	53876 – 53926	
<i>trnI-GAU</i>	(+)	101504 – 101545	102324 – 102358	
<i>trnA-UGC</i>	(+)	102427 – 102464	103275 – 103311	
<i>ycf3</i>	(+)	17613 – 17736	18450 – 18677	19412 – 19566

Supplementary Table S4-2. Information of genes with introns in the chloroplast genome of *Glycyrrhiza glabra*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	69077 - 69190	95962 - 96231	
<i>rpoC1</i>	(+)	37993 - 38422	39117 - 40741	
<i>atpF</i>	(+)	48820 - 48986	49627 - 50038	
<i>petB</i>	(+)	73301 - 73306	74116 - 74757	
<i>petD</i>	(+)	74999 - 75006	75714 - 76188	
<i>rpl16</i>	(-)	81648 - 81656	80157 - 80555	
<i>rpl2</i>	(-)	84358 - 84754	83214 - 83647	
<i>ndhB</i>	(-)	94358 - 95080	92917 - 93672	
<i>ndhA</i>	(+)	114353 - 114903	116114 - 116654	
<i>trnK-UUU</i>	(-)	4331 - 4367	1765 - 1799	
<i>trnV-UAC</i>	(+)	9932 - 9970	10543 - 10579	
<i>trnG-UCC</i>	(-)	53053 - 53075	52318 - 52368	
<i>trnI-GAU</i>	(+)	100048 - 100089	100868 - 100902	
<i>trnA-UGC</i>	(+)	100971 - 101008	101819 - 101855	
<i>ycf3</i>	(+)	16024 - 16147	16863 - 17090	17825 - 17979

Supplementary Table S4-3. Information of genes with introns in the chloroplast genome of *Glycyrrhiza inflata*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	70516 – 70629	97402 – 97671	
<i>rpoC1</i>	(+)	39459 – 39888	40583 – 42207	
<i>atpF</i>	(+)	50298 – 50464	51105 – 51516	
<i>petB</i>	(+)	74740 – 74745	75555 – 76196	
<i>petD</i>	(+)	76438 – 76445	77153 – 77627	
<i>rpl16</i>	(-)	83088 – 83096	81597 – 81995	
<i>rpl2</i>	(-)	85798 – 86194	84654 – 85087	
<i>ndhB</i>	(-)	95798 – 96520	94357 – 95112	
<i>ndhA</i>	(+)	115808 – 116358	117569 – 118109	
<i>trnK-UUU</i>	(-)	4325 – 4361	1765 – 1799	
<i>trnV-UAC</i>	(+)	9927 – 9965	10538 – 10574	
<i>trnL-UAA</i>	(-)	14431 – 14467	13885 – 13934	
<i>trnG-UCC</i>	(-)	54525 – 54547	53790 – 53840	
<i>trnI-GAU</i>	(+)	101488 – 101529	102308 – 102342	
<i>trnA-UGC</i>	(+)	102411 – 102448	103259 – 103295	
<i>ycf3</i>	(+)	17584 – 17707	18422 – 18649	19390 – 19544

Supplementary Table S4-4. Information of genes with introns in the chloroplast genome of *Glycyrrhiza pallidiflora*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	70160 - 70273	96757 - 97026	
<i>rpoC1</i>	(+)	39104 - 39533	40222 - 41846	
<i>atpF</i>	(+)	49927 - 50093	50735 - 51146	
<i>petB</i>	(+)	74331 - 74336	75137 - 75778	
<i>petD</i>	(+)	76020 - 76027	76734 - 77208	
<i>rpl16</i>	(-)	82522 - 82530	81067 - 81465	
<i>rpl2</i>	(-)	85224 - 85622	84087 - 84521	
<i>ndhB</i>	(-)	95135 - 95857	93694 - 94449	
<i>ndhA</i>	(+)	115355 - 115905	117115 - 117655	
<i>trnK-UUU</i>	(-)	4364 - 4400	1802 - 1836	
<i>trnV-UAC</i>	(+)	9890 - 9927	10501 - 10537	
<i>trnL-UAA</i>	(-)	14431 - 14467	13885 - 13934	
<i>trnG-UCC</i>	(-)	54125 - 54147	53391 - 53441	
<i>trnI-GAU</i>	(+)	101098 - 101139	101911 - 101945	
<i>trnA-UGC</i>	(+)	102014 - 102051	102847 - 102883	
<i>ycf3</i>	(+)	17665 - 17788	18505 - 18732	19470 - 19624

Supplementary Table S4-5. Information of genes with introns in the chloroplast genome of *Glycyrrhiza squamulosa*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	70661 - 70774	97404 - 97673	
<i>rpoC1</i>	(+)	39718 - 40147	40843 - 42467	
<i>atpF</i>	(+)	50453 - 50619	51265 - 51676	
<i>petB</i>	(+)	74864 - 74869	75669 - 76310	
<i>petD</i>	(+)	76548 - 76555	77263 - 77737	
<i>rpl16</i>	(-)	83096 - 83104	81666 - 82064	
<i>rpl2</i>	(-)	85802 - 86200	84666 - 85100	
<i>ndhB</i>	(-)	95798 - 96520	94365 - 95120	
<i>ndhA</i>	(+)	115689 - 116239	117439 - 117979	
<i>trnK-UUU</i>	(-)	4319 - 4355	1753 - 1787	
<i>trnV-UAC</i>	(+)	10013 - 10050	10624 - 10660	
<i>trnL-UAA</i>	(-)	14539 - 14575	13993 - 14042	
<i>trnG-UCC</i>	(-)	54723 - 54745	53972 - 54022	
<i>trnI-GAU</i>	(+)	101436 - 101477	102257 - 102291	
<i>trnA-UGC</i>	(+)	102360 - 102397	103201 - 103237	
<i>ycf3</i>	(+)	17818 - 17941	18659 - 18886	19626 - 19780

Supplementary Table S4-6. Information of genes with introns in the chloroplast genome of *Glycyrrhiza yunnanensis*

Genes	Direction	Start and stop sites of exons		
		Exon I	Exon II	Exon III
<i>rps12</i>	(-)	70853 - 70966	98776 - 99033	
<i>rpoC1</i>	(+)	39715 - 40144	40839 - 42463	
<i>atpF</i>	(+)	50529 - 50695	51336 - 51747	
<i>petB</i>	(+)	75086 - 75091	75891 - 76532	
<i>petD</i>	(+)	76774 - 76781	77489 - 77963	
<i>rpl16</i>	(-)	83463 - 83471	81968 - 82366	
<i>rpl2</i>	(-)	86171 - 86569	85034 - 85468	
<i>ndhB</i>	(-)	97168 - 97890	95727 - 96482	
<i>ndhA</i>	(+)	117077 - 117627	118834 - 119374	
<i>trnK-UUU</i>	(-)	4333 - 4369	1762 - 1796	
<i>trnV-UAC</i>	(+)	10010 - 10047	10621 - 10657	
<i>trnL-UAA</i>	(-)	14611 - 14647	14065 - 14114	
<i>trnG-UCC</i>	(-)	54778 - 54800	54043 - 54093	
<i>trnI-GAU</i>	(+)	102778 - 102819	103599 - 103633	
<i>trnA-UGC</i>	(+)	103702 - 103739	104543 - 104579	
<i>ycf3</i>	(+)	17796 - 17919	18634 - 18861	19598 - 19752