

Dynamic evolution and phylogenomic analysis of the chloroplast genome in Schisandraceae

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Table S1. Gene content of the *Kadsura coccinea* chloroplast genome.

Table S2. List of chloroplast genomes sequences used for phylogenetic analysis.

Figure S1. Phylogenetic tree reconstruction of 66 taxa using Bayesian inference
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Figure S2. Sliding window analysis of the whole chloroplast genome of three
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Table S1. Gene content of the *Kadsura coccinea* chloroplast genome.

Category for genes	Group of gene	Name of gene
Photosynthesis related genes	Rubisco	<i>rbcL</i>
	Photosystem I	<i>psaA,psaB,psaC,psaI,psaJ</i>
	Assembly/stability of photosystem I	<i>*ycf3,ycf4</i>
	Photosystem II	<i>psbA,psbB,psbC,psbD,psbE,psbF,psbH,psbI,psbJ,psbK,psbL,psbM,psbN,psbT,psbZ</i>
	ATP synthase	<i>atpA, atpB, atpE, *atpF, atpH, atpI</i>
	cytochrome b/f compelx	<i>petA, *petB, *petD, petG, petL, petN</i>
	cytochrome c synthesis	<i>ccsA</i>
Transcription and translation related genes	NADPH dehydrogenase	<i>*ndhA, *ndhB, ndhC, ndhD, ndhE, ndhF ,ndhG, ndhH, ndhI, ndhJ, ndhK</i>
	transcription	<i>rpoA, rpoB, *rpoC1, rpoC2</i>

	ribosomal proteins	<i>rps2, rps3, rps4, rps7, rps8, rps11, *rps12, rps14,rps15, *rps16, rps18, rps19,*rpl2, rpl14, *rpl16, rpl20, rpl22, rpl23, rpl32, rpl33,rpl36</i>
	translation initiation factor	<i>infA</i>
RNA genes	ribosomal RNA	<i>rrn5, rrn4.5, rrn16, rrn23</i> <i>*trnA_{UGC}, trnCGCA, trnDGUC, trnEUUC, trnFGAA,trnGGCC, *trnGUCC, trnHGUG, trnICAU, *trnIGAU,*trnKUUU, trnLCAA, *trnLUAA, trnLUAG, trnfMCAUI,trnMCAU, trnNGUU, trnPUGG, trnQUUG,trnRACG, trnRUCU, trnSGCU, trnSGGA, trnSUGA, trnTGGU,trnTUGU, trnVGAC, *trnVUAC, trnWCCA, trnYGUA</i>
	transfer RNA	
Other genes	RNA processing	<i>matK</i>
	carbon metabolism	<i>cemA</i>
	fatty acid synthesis	<i>accD</i>
	proteolysis	<i>*clpP</i>
Genes of unknown function	conserved reading frames	<i>ycf1, ycf2,</i>

Table S2. List of chloroplast genomes sequences used for phylogenetic analysis.

Order	Family	Species	GenBank accession number
-	Acoraceae	<i>Acorus gramineus</i>	KP099646
-	Araceae	<i>Colocasia esculenta</i>	JN105689
-	Arecaceae	<i>Areca vestiaria</i>	KT312940
-	Dasypogonaceae	<i>Dasypogon bromeliifolius</i>	JX088665
-	Hydrocharitaceae	<i>Elodea canadensis</i>	JQ310743
Amborellales	Amborellaceae	<i>Amborella trichopoda</i>	NC 005086
Aquifoliales	Helwingiaceae	<i>Helwingia himalaica</i>	KX434807
Asparagales	Orchidaceae	<i>Goodyera fumata</i>	KJ501999
Asterales	Asteraceae	<i>Aster spathulifolius</i>	KF279514
Austrobaileyales	Schisandraceae	<i>Illicium anisatum</i>	NC 034703
Austrobaileyales	Schisandraceae	<i>Illicium floridanum</i>	NC 034685
Austrobaileyales	Schisandraceae	<i>Illicium henryi</i>	NC 034699
Austrobaileyales	Schisandraceae	<i>Illicium oligandrum</i>	NC 009600
Austrobaileyales	Schisandraceae	<i>Illicium verum</i>	NC 034689
Austrobaileyales	Schisandraceae	<i>Schisandra chinensis</i>	NC 034908
Brassicales	Caricaceae	<i>Carica papaya</i>	EU431223
Buxales	Buxaceae	<i>Buxus microphylla</i>	EF380351
Canellales	Winteraceae	<i>Drimys granadensis</i>	NC 008456
Caryophyllales	Chenopodiaceae	<i>Haloxylon ammodendron</i>	KF534478
Caryophyllales	Polygonaceae	<i>Fagopyrum tataricum</i>	KX085498
Celastrales	Celastraceae	<i>Euonymus japonicus</i>	KP189362
Ceratophyllales	Ceratophyllaceae	<i>Ceratophyllum demersum</i>	AM712908
Commelinales	Hanguanaceae	<i>Hanguana malayana</i>	KT312930
Cornales	Cornaceae	<i>Cornus controversa</i>	KU852492
Cucurbitales	Cucurbitaceae	<i>Cucurbita argyrosperma</i>	KT898803
Dioscoreales	Nartheciaceae	<i>Metanartheceum luteoviride</i>	KT895904
Dipsacales	Caprifoliaceae	<i>Kolkwitzia amabilis</i>	KT966716
Ericales	Actinidiaceae	<i>Actinidia chinensis</i>	KP297242
Fabales	Fabaceae	<i>Cercis canadensis</i>	KF856619
Fagales	Fagaceae	<i>Quercus aliena</i>	KP301144
Gentianales	Gentianaceae	<i>Swertia mussotii</i>	KU641021
Geraniales	Francoaceae	<i>Melianthus villosus</i>	KF017614
Lamiales	Lamiaceae	<i>Scutellaria baicalensis</i>	KR233163
Lamiales	Scrophulariaceae	<i>Scrophularia takesimensis</i>	KM590983
Laurales	Calycanthaceae	<i>Calycanthus floridus</i> var. <i>glaucus</i>	NC 004993
Laurales	Lauraceae	<i>Laurus nobilis</i>	NC 034700

Liliales	Smilacaceae	<i>Smilax china</i>	HM536959
Magnoliales	Annonaceae	<i>Annona cherimola</i>	NC 030166
Magnoliales	Magnoliaceae	<i>Magnolia insignis</i>	NC 035657
Malpighiales	Chrysobalanaceae	<i>Kostermanthus robustus</i>	KX180073
Malvales	Malvaceae	<i>Theobroma cacao</i>	HQ244500
Myrtales	Myrtaceae	<i>Syzygium cumini</i>	GQ870669
Nymphaeales	Cabombaceae	<i>Brasenia schreberi</i>	NC 031343
Nymphaeales	Cabombaceae	<i>Cabomba caroliniana</i>	NC 031505
Nymphaeales	Hydatellaceae	<i>Trithuria inconspicua</i>	NC 020372
Nymphaeales	Nymphaeaceae	<i>Barclaya longifolia</i>	NC 035633
Nymphaeales	Nymphaeaceae	<i>Nuphar advena</i>	NC 008788
Nymphaeales	Nymphaeaceae	<i>Nymphaea alba</i>	NC 006050
Nymphaeales	Nymphaeaceae	<i>Victoria cruziana</i>	NC 035632
Oxalidales	Oxalidaceae	<i>Averrhoa carambola</i>	KU569488
Pandanales	Cyclanthaceae	<i>Carludovica palmata</i>	KP462882
Piperales	Aristolochiaceae	<i>Aristolochia contorta</i>	NC 036152
Piperales	Piperaceae	<i>Piper kadsura</i>	NC 027941
Poales	Bromeliaceae	<i>Ananas comosus</i>	AP014632
Proteales	Nelumbonaceae	<i>Nelumbo lutea</i>	FJ754269
Ranunculales	Berberidaceae	<i>Nandina domestica</i>	DQ923117
Rosales	Moraceae	<i>Ficus racemosa</i>	KT368151
Rosales	Rosaceae	<i>Prunus persica</i>	HQ336405
Sapindales	Simaroubaceae	<i>Leitneria floridana</i>	KT692940
Saxifragales	Paeoniaceae	<i>Paeonia obovata</i>	KJ206533
Solanales	Solanaceae	<i>Solanum tuberosum</i>	KM489056
Trochodendrales	Trochodendraceae	<i>Trochodendron aralioides</i>	KC608753
Vitales	Vitaceae	<i>Vitis aestivalis</i>	KT997470
Zingiberales	Marantaceae	<i>Maranta leuconeura</i>	KF601571
Zygophyllales	Zygophyllaceae	<i>Larrea tridentata</i>	KT272174

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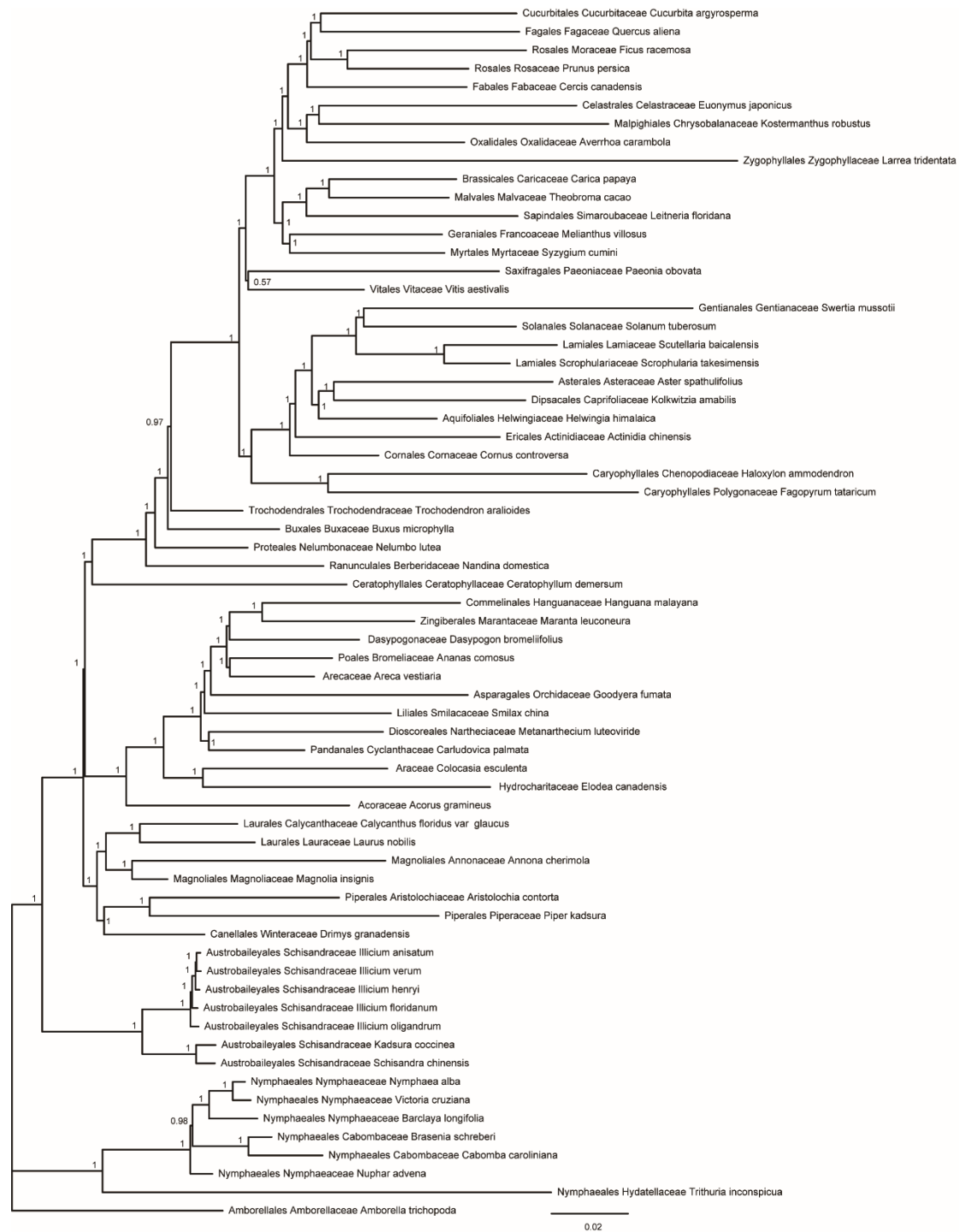


Figure S2. Sliding window analysis of the whole chloroplast genome of three Schisandraceae species (window length: 800bp, step size: 200bp).

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