

Online Supplement 2: Details of the results of comprehensive ML analyses

As in an earlier analysis based on *rbcL* data,¹ for the most nodes in the backbone were poorly supported: However, commonly accepted clades such as the eurosids 1, eurosids 2 (ROSID and EUDIS matrices), rosids, core eudicots, and Proteales (EUDIS) were present in the best-known ML trees, albeit with low support (see main text; Table S1). Phylogenetic signals that support these higher (or deeper) relationships may be weak in *rbcL* data but exist nonetheless.¹ They are found in the best-scoring ML trees (this study; see also the *rbcL* tree by Savolainen et al.¹) and receive *CA-BS* >>0, ranging between 20 and 50 (a detailed list is given as addendum in this Online Supplement). Accordingly, *rbcL* data has been used in all multigene analysis published to date, e.g.,¹⁻⁶ and is considered to be compatible with other genes in contrast to, for instance, the nuclear encoded 25S ribosomal DNA⁷ (see Wilkinson⁸ for a more general view on this topic).

Relationships supported by *rbcL* data can be generally incongruent to multigene analyses, or the multigene-based relationship is only one alternative based on the *rbcL* data. For instance, within the Cucurbitales the Anisophylleaceae are supported as sister to the Cucurbitaceae based on the ROSID and EUDIS matrices. This is in agreement with Savolainen et al.¹ but in contrast to the ML and BS analyses based on the EURO1 matrix and a recent multigene analysis.⁹ Vice versa, a *Begonia-Datisca*-Tetramelaceae clade, which received maximum support from the study of Zhang et al.,⁹ is not recognized based on the EURO1 matrix but found in the ML trees based on the two larger matrices (ROSID, EUDIS) with low, nevertheless stable support ($BS_{EURO2/ROSID/EUDIS} = 49/47/45$). Varying support can be found in other cases, e.g. a clade comprising the Celastrales, a monophyletic order according to APG II (2002), is better supported based on the EURO1 matrix than the ROSID and EUDIS matrices ($CA-BS_{EURO1} = 81$ vs. $CA-BS_{ROSID/EUDIS} = 68/69$), whereas support of the Malvales clade increases ($CA-BS_{EURO2/ROSID/EUDIS} = 81/86/92$) with matrix size and taxon coverage. Another interesting case is Betulaceae: In the ML trees based on matrices EURO1 and EUDIS they form a grade, but in the ROSID-based ML tree a clade. The respective phylogenetic split (Betulaceae|All other), however, receives moderate BS support from all three matrices ($CA-BS_{EURO1/ROSID/EUDIS} = 63/65/55$).

The following families that have been defined as family-level TUs are not supported (>50) by *CA-BS*.

1. Among basal eudicots (EUDIS matrix only): *Nelumbo* (Proteales: monogeneric Nelumbaceae, $GRTS-ML=100$), forming a grade in the best-known ML tree.
2. Among core eudicots other than rosids (EUDIS matrix only) Aizoaceae, Molluginaceae, Phytolaccaeae, and Portulacaceae (Caryophyllales), Cyrillaceae and Sladeniaceae (asterids: Ericales) as well as Hamamelidaceae (Saxifragales). These families neither formed clades in the ML tree (see Supplementary Material) nor were they supported by

GRTS-ML ≥ 50 , unlike the non-*CA-BS* supported Ternstroemiaceae (also Ericales; grade; *GRTS-ML* = 69) and Cornaceae (clade; *GRTS-ML* = 88), and Hydrangaceae (clade; *GRTS-ML*=64) of the Cornales (also asterids). [In the case of the Cornaceae the low *CA-BS* is due to *rbcL* accessions of *Mastixia*, placed as sister to Nyssaceae, the sister family of Cornaceae (“*Cornaceae* s.l.”; APG II, 2003; not supported by *rbcL*).]

3. Among eurosids I (matrices EUDIS, ROSID, EURO1) Celastraceae (Celastrales; grade; *GRTS-ML*_{EUDIS/ROSID}=63/59); Achariaceae (EUDIS clade; *GRTS-ML*_{EUDIS/ROSID/EURO1} = 72/68/61), Ochnaceae (clade or diphyletic; *GRTS-ML*_{EUDIS/ROSID/EURO1} = 60/60/50), Passifloraceae (s.str.; grade; *GRTS-ML*_{EUDIS/ROSID} = 61/54), Phyllanthaceae (Malpighiales; EUDIS clade; *GRTS-ML*_{EUDIS/ROSID/EURO1}=72/62/69); Oxalidaceae (Oxalidales; grade; *GRTS-ML*_{All matrices} < 20); Cannabaceae (clade; *GRTS-ML*_{EUDIS/ROSID} = 63/60) and Rhamnaceae (grade or diphyletic; *GRTS-ML*_{EUDIS/ROSID} = 61/54) of the Rosales;
4. Among eurosids II (matrices EUDIS, ROSID, EURO2): Salvadoraceae (Brassicales; grade, *GRTS-ML*_{All matrices}<50; a Batis–Salvadoraceae clade received *CA-BS*_{EURO1} of 100; Dipterocarpaceae (s.str.; grade, *GRTS-ML*_{EUDIS/ROSID/EURO1} = 100/77/78).

The following tables (Tables S1-S3) are summarizing *CA-BS*, *GRTS-BS*, and *GRTS-ML* support of important and commonly recognized clades, such as accepted orders (used as TUs in some *GRTS-BS* and *GRTS-ML* analyses). For comparison, Tables S1 and S2 also list support from selected literature; a detailed comprehensive list including all supported relationships and potential alternatives indicated by multigene analysis is given as addendum in this Online Supplement. Table S3 focuses on changing support induced by using different reduction factors in GRTS analysis (order-level TUs)

Table S1. CA-BS and GRTS-ML (family-level TU subsampling; reduction factor of 1/4) support values (2nd and 3rd column) of orders and order-level TU in comparison to published data. See Supplementary Material for more details.

		CA-BS _{EURO1,2} / CA-BS _{EUDIS} / CA-BS _{ROSID} ^a	GRTS _{EURO1,2} / GRTS _{ROSID} / GRTS _{EUDIS}	RbcL ^b , JP (taxa included)	3-gene ^c , JP/PP
Basal eudicots	Buxales	~/~/81	~/~/100	94	100/1.0
	Proteales	~/~/<20	~/~/<20	<50	84/1.0
	Ranunculales	~/~/88	~/~/72	51	98/1.0
	Sabiaceae	~/~/98	~/~/100	NA	100/1.0
	Trochodendraceae	~/~/100	~/~/100	100	100/1.0
Asterids	Cornales	~/~/54	~/~/46	52	98/1.0
	Ericales	~/~/71	~/~/60	<50	98/1.0
Eurosids I	Celastrales	81/68/69	74/91/83	99	62/1.0
	Cucurbitales	98/97/98	100/100/100	87	100/1.0
	Fabales	90/90/86	99/92/93	<50	100/1.0
	Fagales	91/91/92	58/64/67	94	100/1.0
	Huaceae	100/100/100	100/100/100	NA	Singleton
	Malpighiales	82/88/86	74/88/69	<50	99/1.0
	Oxalidales	81/91/89	<20/96/99	93	100/1.0
	Rosales	92/90/93	65/67/71	<50	100/1.0
	Zygophyllales	97/91/99	84/90/91	76	100/1.0
	Eurosids II	Brassicales	92/100/100	92/96/94	78
Huertales		81/44/50	100/71/73	NA	Singleton
Malvales		81/86/92	100/69/72	<50	100/1.0
Sapindales		98/100/87	100/70/64	<50	100/1.0
Other rosids	Crossosomatales	~/<20/29	~/<20/52	99	100/1.0
	Geraniales	~/<20/22	~/<20/22	NA	80/1.0
	Myrtales	~/98/100	~/75/72	90	100/1.0
	Picramminaceae	~/100/100	~/100/100	100	NA
Other eudicots	Berberidopsidales	~/~/70	~/~/100	NA	100/1.0
	Caryophyllales	~/~/93	~/~/100	84	100/1.0
	Dilleniaceae	~/~/99	~/~/92	96	100/1.0
	Gunnerales	~/~/88	~/~/100	57	75/1.0
	Santalales	~/~/64	~/~/100	<50	100/1.0
	Saxifragales	~/~/37	~/~/31	<50	98/1.0
	Vitaceae	~/~/100	~/~/100	86	100/1.0

^a Misplaced or controversial accessions not considered. ^b Savolainen et al.¹

^c Soltis et al.^{3,6}

Table S2. CA-BS and GRTS-ML (see Table 5) support values (2nd and 3rd column) of selected backbone nodes in comparison to published data. Abbreviations, first row: JP, parsimony Jackknife percentages; pBV, parsimony BV; PP, Bayesian posterior probabilities; subsequent rows: NA, not available; Cel., Celastrales; Huac., Huaceae; Mal., Malpighiales; Oxal., Oxalidales.

Clade (sensu APG II) defined by node	This study		<i>rbcL</i> JP ^a	Published data	
	CA-BS _{EURO1,2} / CA-BS _{ROSID} / CA-BS _{EUDIS}	GRTS _{EURO1,2} / GRTS _{ROSID} / GRTS _{EUDIS}		3-gene JP/PP ^b	Multigene ^c BV/pBV/PP
Core eudicots	~/~/<20	~/~/<20	<50	100/1.0	100/100/1.0
Rosids	~/~/32	~/~/46	<50	99/1.0	100/86/1.0
Eurosids I	~/37/47	~/63/48	<50	77/1.0	100/79/1.0
Cel.-Mal.-Huac.-Oxal.	54/23/32	60/92/76	<50	51/1.0	NA
Cel. sister to Mal.	<20/<20/<20	<20/87/75	No	<50/0.54	NA
Huac. sister to Oxal.	<20/<20/<20	<20/62/68	No	NA/0.68	NA
Nitrogen fixing clade	54/54/54	60/70/66	<50	68/1.0	100/99/1.0
Fabales sister to others	54/57/70	61/74/72	<50	<50/0.78	No
Eurosids II	~/49/43	~/35/27	<50	95/1.0	100/68/1.0
Malvales sister to Sapindales	77/33/35	100/61/37	No	51/1.0	No
Asterids	~/~/38	~/~/<20	<50	99/1.0	100/100/1.0

^a Savolainen et al.¹

^b Soltis et al.^{3,6}

^c Jansen et al.,¹⁰ not all TU (orders, ungrouped families and genera) represented.

Table S3. Comparison between *GRTS-ML* and *GRTS-BS* (ROSID matrix, reduction factor of 1/16 and 1/64, *GRTS-BS* only, order-level TU)

	<i>GRTS-ML</i>	<i>GRTS-BS</i>	<i>GRTS-BS</i>	<i>CA-BS</i>
	1/16	1/16	1/64	
Eurosid I clade	62	67	55	37
Zygophyllales sister to rest	66	42	23	37
CHMO clade	85	40	<20	23
Celastrales grouped	57	69	~	68
Huaceae grouped	100	100	~	100
Malpighiales grouped	57	60	69	88
Oxidales grouped	100	98	~	91
Nitrogen-fixing clade	64	37	22	54
Fabales sister to rest	91	50	26	57
Fabales grouped	90	97	97	90
Cucurbitales sister to Fagales	61	36	22	36
Fagales sister to Rosales	<20	24	<20	21
Cucurbitales grouped	99	98	~	97
Fagales grouped	87	81	88	91
Rosales grouped	89	78	75	90
Eurosid II clade	<20	<20	<20	49
Malvales sister to Sapindales	44	26	37	33
Brassicales	84	85	~	100
Huerteales	39	42	~	44
Malvales	96	74	82	86
Sapindales	83	96	99	100

References

1. Savolainen V, Chase MW, Hoot SB, et al. (10 co-authors). Phylogenetics of flowering plants based on combined analysis of plastid *atpB* and *rbcL* gene sequences. *Syst. Biol.* **2000**; 49:306-362.
2. Qiu YL, Lee JH, Bernasconi-Quadroni F, et al. (10 co-authors). The earliest angiosperms: evidence from mitochondrial, plastid and nuclear genomes. *Nature.* 1999; 402:404-407.
3. Soltis DE, Soltis PS, Chase MW, et al. (16 co-authors). 2000. Angiosperm phylogeny inferred from 18S rDNA, *rbcL*, and *atpB* sequences. *Bot. J. Linn. Soc.* 133:381-461.
4. Soltis DE, Soltis PS, Zanis MJ. 2002. Phylogeny of seed plants based on evidence from eight genes. *Am. J. Bot.* **89**: 1670-1681.
5. Soltis DE, Senter AE, Zanis MJ, et al. (9 co-authors). Gunnerales are sister to other core eudicots: Implications for the evolution of pentamery. *Am. J. Bot.* **2003**; 90:461-470.
6. Soltis DE, Gitzendanner MA, Soltis PS. A 567-taxon data set for angiosperms: The challenges posed by Bayesian analyses of large data sets. *Int. J. Plant Sci.* 2007; 168:137-157.
7. Soltis PS, Soltis DE. The origin and diversification of angiosperms. *Am. J. Bot.* **2004**; 91:1614-1626.
8. Wilkinson M. 2007. How many genes should a systematist sample? Conflicting insights from a phylogenomic matrix characterized by replicated incongruence. *Syst. Biol.* 56:355-363.
9. Zhang L-B, Simmons MP, Kocyan A, Renner SS (2006) Phylogeny of the Cucurbitales based on DNA sequences of nine loci from three genomes: Implications for morphological and sexual system evolution. *Molecular Phylogenetics and Evolution* **39**, 305-322.
10. Jansen RK, Cai Z, Raubeson LA, et al. (16 co-authors). Analysis of 81 genes from 64 plastid genomes resolves relationships in angiosperms and identifies genome-scale evolutionary patterns. *Proc. Natl. Acad. Sci. USA.* 2007; 104:19369-19374.

Electronic Supplement, Stamatakis et al.

Maximum Likelihood Analyses of 3,490 rbcL Sequences: Scalability of Comprehensive Inference versus Group-Specific Taxon Sampling.

This electronic supplement includes a list of phylogenetic relationships, either based on the inferred comprehensive *rbcL* trees (best ML tree) or literature (as cited), and frequencies of according bipartitions in bootstrap replicates using all data (*CA-BS*) and replicates using the group-restricted taxon subsampling (*GRTS-ML*; reduction factor 1/4; family-level taxonomic units). Monotypic families are referred to by the comprised genus' name.

Order of phylogenetic splits is as follows:

Relationships within Eurosid I (Fabidae) orders,

within Eurosid II orders (Malvidae),

within eudicot orders other than rosids,

and finally, higher level (backbone) relationships.

TUs may have been abbreviated, eg. Anis'ceae instead of Anisophyllaceae. Or {BCT} instead of Betulaceae-*Casuarina-Ticodendron* clade.

Further abbreviations

JK Jackknife-based support in cited literature

ML-JK under ML

P-JK under parsimony as optimality criterion.

NA Not available. Either because according taxon was not included at all, relationship was not found or support was not quantified in the original literature.

PP Bayesian-inferred posterior probabilities in cited literature

TU Taxonomic unit. TUs (family-level) used for GRTS are underlined, as well as order-level TUs.

Disclaimer:

This list has been assembled manually. Although rechecked several times, **it still may contain wrong values**. Please, refer also to the cited literature and use the data files that are supplied as additional Electronic Supplement. In case a correction is required, the authors may be contacted.

Group (defined as TU) or relationship	Zhang et al., 2006; multigene, ML-JK	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Cucurbitales										
<i>Anisophylleaceae</i>	100	Clade	100	100	Clade	100	100	Clade	100	100
<i>Cucurbitaceae</i>	100	Clade	93	100	Clade	95	100	Clade	99	100
Anis'ceae sister to Cuc'ceae	Not found	No	33	70	Yes	31	42	Yes	38	40
<i>Begoniaceae</i>	100	Clade	99	100	Clade	100	100	Clade	100	100
<i>Datisca</i>	100	Clade	99	100	Clade	98	100	Clade	100	100
<i>Tetramelaceae</i>	100	Clade	100	100	Clade	100	100	Clade	100	100
Beg'ceae sister to <i>Datisca</i>	63	Yes	45	71	Yes	44	34	Yes	58	42
Beg'ceae sister to <i>Tetramelaceae</i>	Not found	No	34	<20	No	31	36	No	26	24
Beg.-Dat.-Tetr. clade	100	No	49	67	Yes	47	44	Yes	45	42
Cuc'ceae sister to BDT clade	78	No	<20	28	No	<20	40	No	<20	45
<i>Coriaria</i>	100	Clade	100	100	Clade	100	100	Clade	100	100
<i>Corynocarpus</i>	Not found	Clade	100	100	Clade	99	100	Clade	100	100
<i>Coriaria</i> sister to <i>Corynocarpus</i>	100	No	23	36	No	<20	24	No	<20	<20
<i>Coriaria</i> sister to Tetr'ceae	Not found	Yes	<20	<20	No	23	<20	No	32	<20
<i>Coriaria</i> -BDT clade	Not found	No	<20	41	Yes	<20	26	Yes	<20	32

	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Fabales									
<i>Papilionoideae</i>	Clade	96	99	Clade	96	96	Clade	93	93
<i>Mimosoideae</i>	Clade	85	100	Clade	88	100	Clade	85	100
<i>Caesalpinioideae</i> [§]	Grade	<20	<20	Grade	<20	<20	Grade	<20	25
Caes'deae-Mim'deae clade	No	<20	52	No	<20	54	No	<20	61
<i>Fabaceae</i>	Clade	90	99	Clade	88	98	Clade	77	93
<i>Quillaja</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Surinamaceae</i>	Clade	100	100	Clade	99	100	Clade	99	100
<i>Polygalaceae</i>	Clade	100	100	Clade	100	100	Clade	100	100
Polyg'ceae sister to Sur'ceae	Yes	58	94	Yes	50	72	Yes	48	74
Polyg'ceae sister to <i>Fabaceae</i>	No	29	<20	No	30	<20	No	24	<20

Misplaced *rbcL* accessions & taxa PapFb_AY904389 (misabeled) → Oxalidales: Connaraceae

[§] Forming a 'basal' grade to the other two *Fabaceae* subfamilies or other *Fabales* according to *rbcL* data (depending of the root placement)

[†] Missing root phenomenon (cf. analyses of EURO1, ROSID, and EUDIS matrices)

	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Fagales									
<i>Fagaceae</i>	Clade	91	100	Clade	96	100	Clade	91	100
<i>Nothofagus</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Betulaceae</i>	Grade	63	66	Clade	65	70	Grade	55	69
<i>Casuarinaceae</i>	Clade	100	100	Clade	100	100	Clade	100	100
Bet'ceae sister to Cas'ceae	Yes	47	81	No	37	86	Yes	48	74
<i>Ticodendron</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Ticod.</i> sister to Cas'ceae	No	26	<20	Yes	24	<20	No	24	<20
<i>Ticod.</i> -Bet.-Cas. clade	Yes	60	52	Yes	62	42	Yes	66	42
<i>Rhoiptelea</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Juglandaceae</i>	Clade	69	73	Clade	78	86	Clade	77	84
<i>Rhoiptelea</i> sister to Jugl'ceae	Yes	98	73	Yes	99	86	Yes	100	84
<i>Myricaceae</i>	Clade	91	76	Clade	88	77	Clade	88	82
Myr.-BCT clade	Unresolved	<20	35	Unresolved	<20	23	Unresolved	<20	23
Myr'ceae sister to { <i>Rhoipt.</i> -Jugl.}-{BCT}	Unresolved	<20	<20	Unresolved	24	<20	Unresolved	31	<20
"Core higher hamamelids"	Yes	62	44	Yes	67	44	Yes	72	46

Misplaced *rbcL* accessions & taxa MyrFa_L01934 (misabeled) → Rosales: Cannabaceae

JugFa_AY147094 (misabeled) → Eurosid II: Sapindales: Simaroubaceae

	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Rosales									
<i>Urticaceae</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Moraceae</i>	Clade	96	48	Clade	94	73	Clade	98	84
<i>Cannabaceae</i> [†]	Clade	22	44	Clade	21	60	Clade	29	63
Cann'ceae-Moraceae-Urt'ceae clade	Yes	44	27	Yes	46	46	Yes	53	56
<i>Ulmaceae</i>	Clade	81	85	Clade	78	95	Clade	67	94
Ulmaceae-CMU clade	Yes	94	35	Yes	92	51	Yes	95	63
<i>Barbeya</i> + <i>Dirachma</i>	No	27	56	Yes	32	38	Yes	34	53
<i>Elaeaginaceae</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Rhamnaceae</i> [†]	Grade	<20	32	Diphyletic	<20	54	Diphyletic	<20	61
Ela'ceae sister to <i>Dirachma</i>	Yes	25	29	No	22	44	No	<20	27
Ela'ceae sister to Rhamn'ceae	No	<20	28	Pro parte	<20	<20	Pro parte	<20	42
<i>Barbeya-Dirachma</i> -Ela.-Rhamn. clade	Yes	29	49	No	33	51	Yes	29	55
<i>Rosaceae</i>	Clade	99	76	Clade	100	85	Clade	100	92

Misplaced *rbcL* accessions & taxa CanRo_L12638 (misabeled) → Fagales: Myricaceae

CanRo_AF062004 (misabeled) → Eurosid 2: Sapindales: Simaroubaceae

CanRo_AY263941 (misabeled) → Ulmaceae

MorRo_L01933 (misabeled) → Rosaceae

MorRo_AJ390066 (misabeled) Among one of the *Rhamnaceae* subclades

[†] Cann'ceae form an unresolved polytomy in CA-BS, GRTS-ML based consensus trees, in which the *Moraceae* and *Urticaceae* clades are nested.

[‡] Family falls into two or more subclades (CA-BS_{subset}=85 and 27; GRTS-ML_{subset}=100 and 52; 4 clades, ROSID matrix) based on *rbcL* data

	Savolainen et al., 2000; <i>rbcL</i> , P-JK	Soltis & al., 2000, 2007; 3 genes incl. <i>rbcL</i> , P-BS/PP	Soltis & al., 2003; 4 genes incl. <i>rbcL</i>	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Celastrales												
<i>Celastraceae</i>	>50	99/1.0	90	Grade	<20	44	Grade	<20	59	Grade	<20	63
<i>Lepuropetalon</i>	NA	—	NA	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Parnassia</i>	Singleton	—	—	Clade	59	100	Clade	54	99	Clade	56	100
<i>Parnassiaceae</i> (s.l.; cf. APG II)	NA	100/1.0	NA	Clade	100	100	Clade	100	100	Clade	100	100
Cel'ceae-Parn'ceae clade	99%	100/1.0	NA	Yes	65	69	Yes	71	90	Yes	72	83
<i>Lepidobotryaceae</i>	NA	NA	NA	Clade	100	100	Clade	100	100	Clade	100	100

Misplaced *rbcL* accessions & taxa CelCe_AY935722; CelCe_AY935723 (*Bhesa*) → Malpighiales: Unplaced (see *Malpighiales* below)

CelCe_AY935740 (misabeled)

Low supported affinity to Celastrales p.p. (EUDIS matrix only); placing CelCe_AY935740 as sister to OnaMy_AY841634 (misabeled) outside rosids received CA-BS_{ROSID/EUDIS}=999/22

	Savolainen et al., 2000; <i>rbcl</i> , P-JK	Soltis & al., 2000, 2007; 3 genes incl. <i>rbcl</i> , P-BS/PP	Soltis & al., 2003; 4 genes incl. <i>rbcl</i>	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Oxalidales												
<u>Brunelliaceae</u>	NA	NA	NA	Clade	100	100	Clade	100	100	Clade	100	100
<u>Cephalotus</u>	NA	NA	NA	Singleton	—	—	Singleton	—	—	Singleton	—	—
<u>Cunoniaceae</u>	Singleton	100/1.0	—	Clade	70	97	Clade	80	99	Clade	86	100
<u>Elaeocarpaceae</u> (CA-BS incl./excl. <i>Sloanea</i>) [§]	<50	76/1.0	100	Clade	<20/73 [§]	57	Clade	22/67 [§]	91	Grade	26/72 [§]	84
Elaeoc'ceae sister to <i>Cephalotus</i>	NA	NA	NA	Yes [§]	<20/35 [§]	21	Yes [§]	25/35 [§]	49	(Yes) [§]	37	42
<i>Cephal.</i> -Cun.-Elaeoc. clade [§]	94	99/1.0	98	No	<20/<20 [§]	37	No	<20/<20 [§]	67	Unresolved	<20/<20 [§]	71
Brun'ceae-CCE clade [§]	NA	NA	NA	Yes	54/52 [§]	66	Yes	65/38 [§]	97	Yes	66/36 [§]	98
<u>Connaraceae</u>	Singleton	NA	NA	Clade	100	99	Clade	100	97	Clade	100	99
<u>Oxalidaceae</u>	Singleton	100/1.0	100	Grade	<20	<20	Grade	<20	<20	Grade	<20	<20
Conn'ceae-Oxal'ceae clade	99	NA	NA	Yes	90	23	Yes	91	96	Yes	92	99

[§] EicOx_AF022131 (*Sloanea*) placed aside the Elaeoc'ceae clade, either as sister of Oxalidales subclades or sister to all other Oxalidales (CA-BS_{EURO1/ROSID/EUDIS}=41/29/29)

	Soltis & al., 2000, 2007; 3 genes incl. <i>rbcl</i> , P-BS/PP	Davis & al., 2005; 4 genes, P-BS/PP	Best ML tree, EURO1 matrix	CA-BS _{EURO1}	GRTS-ML _{EURO1}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Malpighiales											
<u>Balanops</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
<u>Dichapetalaceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	99	100
<u>Trigonaceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
Dich'ceae + Trig'ceae	98/1.0	NA	Yes	45	99	Yes	51	100	Yes	56	98
<u>Chrysobalanaceae</u>	100/1.0	NA	Clade	100	100	Clade	100	100	Clade	100	100
<u>Euphronia</u>	NA	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
Chrys'ceae + <i>Euphronia</i>	NA	NA	Yes	99	100	Yes	98	100	Yes	95	100
Chrys'ceae s.l. (cf. APG II)	99/?	NA	Clade	77	100	Clade	78	100	Clade	80	99
<i>Balanops</i> sister to Chrys'ceae s.l.	99/1.0	100/1.0	Yes	90	100	Yes	87	100	Yes	94	100
<u>Picrodendraceae</u>	100/1.0	NA	Clade	100	100	Clade	100	100	Clade	100	100
Picr'ceae sister to (<i>Balanops</i> + Chrys'ceae)	<50/0.95	Not found	No	<20	89	No	21	92	Yes	<20	87
<u>Medusagyna</u>	Singleton	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
<u>Ochnaceae</u>	Singleton	NA	Clade	<20	55	Clade	<20	60	Diphyletic	27	60
<u>Quinaceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	99	100
Ochnaceae s.l. (cf. APG II)	100/1.0	NA	Clade	99	100	Clade	99	100	Clade	100	100
<u>Linaceae</u>	100/1.0	NA	Clade	100	100	Clade	100	100	Clade	100	100
Linaceae sister to Picr.-Balan.-Chrys. clade	Not found	Not found	No	<20	53	No	<20	25	Yes	<20	26
Linaceae sister to Ochnaceae s.l.	Not found	Not found	Yes	<20	22	Yes	<20	25	No	<20	22
<i>Bonnetia</i> (Bonnetiaceae) ^{†§}	NA	Singleton [†]	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Ploiarium</i> (Bonn'ceae, outgroup <i>rbcl</i>)	NA	NA	Outtaxon	—	—	Outtaxon	—	—	Outtaxon	—	—
<u>Clusiaceae</u>	Singleton	Singleton	Clade	53	95	Clade	55	96	Clade	21	82
<u>Podostemaceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
<u>Hypericaceae</u>	Singleton	NA	Clade	75	95	Clade	75	89	Clade	80	91
Hyp'ceae sister to Pod'ceae	100/1.0	100/1.0	Yes	99	100	Yes	97	100	Yes	98	99
Clus.-Hyp.-Pod. clade	99/1.0	Not found	Yes	97	100	Yes	95	100	Yes	29	84
<i>Bonnetia</i> -Clu.-Hyp.-Pod. clade [†]	NA	80/1.0 [‡]	Yes	84	100	Yes	84	100	Yes	95	84
<u>Elatinaceae</u>	NA	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
<u>Euphorbiaceae</u>	Singleton	NA	Clade	50	99	Clade	51	99	Clade	51	100
Elat'ceae sister to Euph'ceae	NA	Not found	No	26	78	No	27	61	No	27	77
{Euph.+Elat.} sister to Bon.-CHP clade	Not found	Not found	No	<20	43	No	<20	58	No	<20	27
<u>Pandaceae</u>	NA	NA	Clade	100	100	Clade	100	100	Clade	100	100
Pandaceae sister to Bon.-CHP clade	NA	Not found	Yes	<20	37	Yes	<20	<20	Yes	<20	<20
<u>Achariaceae</u>	99/1.0	NA	Clade	31	61	Clade	33	68	Clade	38	72
<u>Goupia</u>	Singleton	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
<u>Violaceae</u>	Singleton	NA	Clade	100	100	Clade	100	100	Clade	100	100
<i>Goupia</i> sister to Violaceae	Not found	Not found	Yes	31	80	Yes	36	67	Yes	35	67
<u>Lacistemataceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
<u>Malesherbiaceae</u>	Singleton	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
<u>Passifloraceae</u>	93/1.0	NA	Grade	30	<20	Grade	29	54	Grade	28	61
<u>Turneraceae</u>	Singleton	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
Pass'ceae -Turn'ceae clade	Not found	NA	Yes	69	100	Yes	64	99	Yes	63	98
Pass'ceae s.l. (cf. APG II)	100/1.0	NA	Clade	100	100	Yes	100	100	Clade	100	100
<u>Salicaceae</u>	99/1.0	NA	Clade	80	97	Clade	82	96	Clade	75	96
Sal'ceae sister to Lac'ceae	<50/0.99	61/1.0	Yes	26	25	Yes	29	23	Yes	37	24
Sal'ceae sister to Pass'ceae s.l.	Not found	Not found	No	25	70	No	22	62	No	21	54
Ach.-GV-LPS clade [#]	<50/1.0	59/1.0	Yes	21	86	Yes	25	73	Yes	27	83
<u>Caryocaraceae</u>	Singleton	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Centropogon</i> sister to <i>Centropogon</i>	NA	<50/0.66	Yes	24	62	Yes	24	50	Yes	<20	57
<i>Bhesa</i> sister to <i>Ctenol.</i> + <i>Centropog.</i>	NA	NA	Yes	<20	NA	No	<20	NA	Yes	<20	NA
<u>Erythroxylaceae</u>	Singleton	Singleton	Clade	100	100	Clade	100	100	Clade	100	100
<u>Rhizophoraceae</u>	100/1.0	NA	Clade	86	100	Clade	87	100	Clade	86	100
Rhiz'ceae s.l. (cf. APG II)	99/1.0	NA	Clade	98	100	Clade	97	100	Clade	98	100
<u>Irvingiaceae</u>	Singleton	NA	Clade	100	100	Clade	100	100	Clade	100	100
<u>Putranjivaceae</u>	Singleton	NA	Clade	100	100	Clade	100	100	Clade	100	100
<u>Ixonanthaceae</u>	NA	NA	Clade	100	100	Clade	100	100	Clade	100	100
<i>Bhesa</i> sister to Ixonanthaceae	NA	NA	No	<20	NA	Yes	<20	NA	No	<20	NA
<u>Malpighiaceae</u> [§]	100/1.0	NA	Clade	100	100	Clade	100	100	Clade	80	97
<u>Humiriaceae</u>	Singleton	NA	Clade	100	100	Clade	100	100	Clade	88	100
<u>Lophopyxis</u>	NA	Singleton	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Lophopyxis</i> sister to Hum'ceae	NA	Not found	Yes	27	80	Yes	26	68	Yes	<20	57
<i>Lophopyxis</i> sister to Putr'ceae	NA	100/1.0	No	<20	<20	No	22	<20	No	28	29
<u>Phyllanthaceae</u> [†]	NA	<50	Clade	47	69	Clade	39	62	Clade	41	72

Misplaced *rbcl* accessions & taxa BonMa_AJ402990 (*Ploiarium*) [= Bon_0 in GRTS-based SalMa_AY757086 (*Gerrardina*)

→ Eurosid II: Malvales: Thymelaeaceae

Rbcl sequence of uncertain position (groups with *Petenaea*; CA-BS_{EUDIS}=71)

[§] *Whittonia* (coded PdsSf_AJ403018) is placed as sister taxon to the remaining Mal'ceae (CA-BS_{EUDIS}=78)

[†] Comprising two well supported subclades (CA-BS_{ROSID}=94 and 95)

[‡] TrsEr_AY380342 (*Archytaea*; included as Bonnetiaceae by Davis et al., 2004) is placed as sister taxon to *Bonnetia* (CA-BS_{EUDIS}=52) or sister to CHP clade (CA-BS_{EUDIS}=42)

[§] [= Bon_1 in GRTS-based analyses]

[#] Low support partly due to phylogenetic 'interference' with *Bhesa rbcl* accessions (sister to a Ach'ceae subclade received e.g. CA-BS_{EUDIS}=25)

Group (defined as TU) or relationship	Best ML tree, EURO2 matrix	CA-BS _{EURO2}	GRTS-ML _{EURO2}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Brassicales									
<i>Batis</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
Salvadoraceae	Grade	<20	30	Grade	<20	28	Grade	<20	30
<i>Batis</i> -Salv'ceae clade	Yes	100	100	Yes	100	100	Yes	100	100
<i>Koerberlinia</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Koerberlinia</i> sister to <i>Batis</i> -Salv. clade	Yes	62	97	Yes	65	100	Yes	74	100
Brassicaceae s.str.	Clade	90	92	Clade	84	96	Clade	88	100
Cleomaceae	Clade	98	100	Clade	98	100	Clade	98	100
Brass'ceae s.str. sister to Cleomaceae	Yes	94	92	Yes	97	96	Yes	95	94
Capparaceae	Clade	58	52	Clade	60	54	Clade	67	59
Brassicaceae (cf. APG II)	Clade	100	60	Clade	100	59	Clade	99	67
Gyrostemonaceae	Clade	100	100	Clade	100	100	Clade	100	100
Resedaceae	Clade	100	82	Clade	100	78	Clade	100	86
Gyr'ceae sister to Res'ceae	Yes	72	47	Yes	79	54	Yes	82	68
<i>Emblingia</i> (Chand.&Bay.2000) [§]	Singleton [§]	—	—	Singleton [§]	—	—	Singleton [§]	—	—
<i>Pentadiplandra</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Tovaria</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Tovaria</i> sister to <i>Emblingia</i> (Chand.&Bay.2000)	Yes	45	63	Yes	40	<20	No	46	21 [§]
Brass.-Gyr.-Res.-Pent.-Tov. clade	No	43	33	Yes	47	85	Yes	37	76
Brass.- <i>Emblingia</i> -Pent.-Tov. clade	Yes	24	24	Yes	<20	<20	No	23	<20
<i>Emblingia</i> -BGRPT clade	Yes	79	92	Yes	83	96	Yes	82	94 [§]
KBS clade sister to (<i>Emb.</i> -)BGRPT clade	Yes	74	92	Yes	75	96	Yes	85	94
Limnanthaceae	Clade	100	100	Clade	100	100	Clade	100	—
<i>Setchellanthus</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
Limn'ceae sister to KBS + (<i>Emb.</i> -)BGRPT	Yes	53	92	No	52	44	No	64	32
<i>Setchell.</i> sister to KBS + (<i>Emb.</i> -)BGRPT	No	<20	<20	Yes	25	52	Yes	23	61
Brassicales core clade	Yes	99	92	Yes	99	96	Yes	100	94
Caricaceae	Clade	100	100	Clade	100	100	Clade	100	100
<i>Moringa</i>	Clade	93	100	Clade	96	100	Clade	98	100
Car'ceae sister to <i>Moringa</i>	Yes	53	72	Yes	55	66	Yes	61	66
{Car'ceae + <i>Moringa</i> } sister to Br'ales core clade	Yes	75	90	Yes	76	81	Yes	68	86
Akaniaceae s.l. (<i>Akania</i> + <i>Bretschneidera</i>)	Yes	92	100	Yes	88	100	Yes	91	100
<i>Tropaeolum</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Tropaeolum</i> sister to Akan'ceae	Yes	100	100	Yes	100	100	Yes	100	100

Misplaced *rbcL* accessions & taxa BraBr_X73284 (*Sinapsis*)

CapBr_AY483279 (*Tirania*)

EmbBr_AJ402949 (misabeled, see footnote)
[:= Emb_0 in GRTS-based analyses]

→ Eurosids I: Fabales: Fabaceae: Papilionideae

→ Resedaceae

Groups with ComMy_AF281478 (CA-BS_{ROSID}=80), and BerRa_AF203487 (CA-BS_{EUDIS}=100); this 3-taxon clade is sister to Ericales (GRTS-

[§] Two *rbcL* accessions are available from this taxon, one (EmbBr_AJ402949, Savolainen et al. 2000, *Kew Bull.* [:= Emb_0]) is not a Brassicales *rbcL*, the other is (EmbBr_AF146014, Chandler & Bayer, 2000 [:= Emb_1 in GRTS replicates]).

Group (defined as TU) or relationship	Best ML tree, EURO2 matrix	CA-BS _{EURO2}	GRTS-ML _{EURO2}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Huertales									
<i>Dipentodon</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Perrottetia</i>	Clade	100	100	Clade	100	100	Clade	100	100
Tapisciaceae	Clade	88	100	Clade	76	100	Clade	84	100
<i>Dipentodon</i> sister to <i>Perrottetia</i>	Yes	55	99	Yes	66	100	Yes	71	100
<i>Perrottetia</i> sister to Tapisciaceae	No	30	0	No	30	0	No	26	0

Triangle case #1:
Imbalanced

Group (defined as TU) or relationship	Best ML tree, EURO2 matrix	CA-BS _{EURO2}	GRTS-ML _{EURO2}	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Malvales									
<i>Bixa</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Cochlospermum</i>	Clade	100	100	Clade	100	100	Clade	100	100
<i>Diegodendron</i>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Bixa</i> sister to <i>Diegodendron</i>	Yes	98	100	Yes	97	100	Yes	99	100
Bixaceae (s.l.; cf. APG II)	Clade	75	98	Clade	72	100	Clade	77	100
Sphaerosepalaceae	Clade	100	100	Clade	100	100	Clade	100	100
Sphaer'ceae sister to Bixaceae	Yes	45	98	Yes	46	75	Yes	47	81
Cistaceae	Clade	100	100	Clade	100	100	Clade	100	100
Dipterocarpaceae s.str. (APG II)	Grade	42	78	Grade	40	77	Grade	30	100
Sarcocaulaceae	Clade	99	100	Clade	99	100	Clade	99	100
Dipterocarpaceae sensu APW	Clade	98	100	Clade	97	100	Clade	90	100
Cistaceae sister to Dipt'ceae	Yes	100	100	Yes	100	100	Yes	100	100
Neuradaceae	Singleton	—	—	Singleton	—	—	Singleton	—	—
Neur'ceae sister to Cist'ceae-Dipt'ceae clade	Yes	45	46	Yes	45	23	Yes	62	47
Muntingiaceae	Clade	99	100	Clade	99	100	Clade	100	100
<i>Petenaea</i> [†]	Singleton	—	—	Singleton	—	—	Singleton	—	—
Muntingiaceae s.l.	Diphyletic	0	0	Diphyletic	0	0	Diphyletic	0	0
Muntingiaceae sister to CDN clade	Yes	49	46	Yes	45	22	Yes	55	47
Malvaceae	Clade	100	100	Clade	99	96	Clade	100	84
Thymelaeaceae	Clade	97	100	Clade	97	88	Clade	99	85
Thy'ceae sister to {Cist.+Dipt.} clade	Yes	21	52	No	22	77	No	<20	51
Thy'ceae-{Munt.'ceae+CDN} clade	No	<20	33	No	<20	27	Yes	<20	30

† The stored *rbcl* sequence of this taxon is not supportive for the inclusion of *Petenea* in the Malvales.

Sapindales

<u>Anacardiaceae</u>	Clade	68	81	Clade	63	79	Clade	69	79
<u>Burseraceae</u>	Clade	90	100	Clade	91	100	Clade	99	100
Anac'ceae sister to Burs'ceae	Yes	94	85	Yes	91	79	Yes	97	85
<u>Kirkiaceae</u>	Singleton	—	—	Singleton	—	—	Singleton	—	—
Kirk'ceae sister to Anac.-Burs. clade	Yes	55	72	Yes	60	70	Yes	71	71
<u>Meliaceae</u>	Clade	94	100	Clade	87	98	Clade	92	98
<u>Rutaceae</u> [§]	Clade	92	99	Clade	89	96	Clade	<20/63 [§]	92
<u>Simaroubaceae</u>	Clade	100	85	Clade	100	78	Clade	99	81
Sim'ceae sister to Mel'ceae	Yes	56	25	Yes	63	28	Yes	62	27
Sim'ceae sister to Rut'ceae	No	34	57	No	30	25	No	<20	35
Mel.-Rut.-Sim. clade [§]	Yes	97	84	Yes	98	53	Yes	26/74 [§]	58
ABK clade sister to MRS clade	Unresolved	<20	32	Unresolved	24	23	Unresolved	<20	22
<u>Sapindaceae</u>	Clade	97	99	Clade	98	92	Clade	100	94
Sap'ceae sister to MRS clade	Unresolved	<20	32	Unresolved	<20	23	Unresolved	<20	25
Sap'ceae-ABK-MRS clade [§]	Yes	42	97	Yes	41	63	Yes	<20/31 [§]	63
<u>Biebersteinia</u>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<i>Biebersteinia</i> sister to Sap.-ABK-MRS clade	No	<20	84	Yes	<20	59	Yes	<20	61
<u>Nitraria</u>	Clade	98	71	Clade	97	70	Clade	98	61
<u>Tetradiclis</u>	Singleton	—	—	Singleton	—	—	Singleton	—	—
<u>Peganum</u>	Clade	100	71	Clade	100	69	Clade	100	61
<i>Nitraria</i> sister to <i>Tetradiclis</i>	Yes	61	70	Yes	64	60	Yes	50	59
Nitrariaceae (cf. APG II)	Clade	99	100	Clade	100	92	Clade	100	91

† Including mislabeled EbeEr_AF421094; the alternative is to place this accession as sister to all Sapindales (CA-BS_{EUDIS}=24)

Misplaced accessions SapSp_AJ402931 (*Bottegoa*) → Rutaceae
 SimSp_AY510146 (mislabeled) → Anacardiaceae
 NitSp_DQ267159 (mislabeled) Nested among *Peganum* accessions

Now included in eurosids II (Wang & al., 2009):

	Soletis & al., 2000, 2007; P-BS/PP	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Crossosomatales							
<u>Aphloia</u>	Singleton	—	—	—	Singleton	—	—
<i>Ixerba</i> + <i>Strasburgeria</i>	NA	Yes	98	100	Yes	100	100
<i>Geissoloma</i> sister to <i>Ix.-Strasb.</i> clade	NA	Yes	52	100	Yes	65	100
<i>Aphloia</i> sister to <i>Geiss.-Ix.-Strasb.</i> clade	Not found	Yes	26	93	Yes	33	100
<u>Crossosomataceae</u>	Singleton	Clade	99	100	Clade	98	100
<u>Stachyurus</u> sister to Cross'ceae	96/1.0	Yes	47	89	Yes	52	85
<i>Guamatela</i> -Cross.- <i>Stachyurus</i> clade	NA	Yes	52	88	Yes	65	85
<u>Staphyleaceae</u>	Singleton	Clade	99	60	Clade	100	69
Staph'ceae sister to CGS clade	100/1.0	Yes	87	60	Yes	95	69

Misplaced *rbcl* accessions & taxa StaCs_AY646109 (*Huertea*) Sister to Huerteales (see Backbone)

Geraniales

<u>Geraniaceae</u>	100/1.0	Clade	100	100	Clade	100	100
<i>Hypseocharis</i>	NA	Clade	100	100	Clade	100	100
Ger'ceae s.l. (cf. APG II; Ger'ales 1)	NA	Clade	100	100	Clade	100	100
<u>Ledocarpaceae</u>	NA	Singleton	—	—	Singleton	—	—
<u>Vivianiaceae</u>	Singleton	Singleton	—	—	Singleton	—	—
Led'ceae sister to Viv'ceae	NA	Yes	96	100	Yes	99	100
<u>Melanthaceae</u> (incl. <i>Greyia</i> , <i>Francoa</i>)	Singleton	Singleton	—	—	Singleton	—	—
Melia'ceae sister to Led.-Viv. clade (Ger'ales 2)	<50/0.97	Yes	44	63	Yes	57	99

	Best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Myrtales						
<u>Alzatea</u>	Singleton	—	—	Singleton	—	—
<u>Olinia</u>	Clade	92	100	Clade	96	100
<u>Penaeaceae</u>	Clade	93	100	Clade	94	100
<i>Olinia</i> sister to Penaeaceae	Yes	45	90	Yes	54	85
<u>Rhynchochalyx</u>	Clade	81	100	Clade	88	100
<i>Olinia</i> -Pen'ceae- <i>Rhynch.</i> clade	Yes	60	90	Yes	64	85
<i>Alzatea</i> -OPR clade	Yes	76	100	Yes	82	100
<u>Crypteroniaceae</u>	Clade	100	100	Clade	99	100
Crypt'ceae sister to <i>Alzatea</i> -OPR clade	Yes	93	100	Yes	93	100
<u>Melastomataceae</u>	Clade	94	100	Clade	94	100
<u>Memecylaceae</u>	Clade	100	100	Clade	100	100
Mel'ceae s.l. (APG II)	Clade	100	100	Clade	100	100
Mel'ceae sister to Cry.-Alz.-OPR clade	Yes	99	100	Yes	99	100
<i>Heteropyxis</i> + <i>Psiloxylum</i>	Yes	60	96	Yes	62	97
<u>Myrtaceae</u> s.str. (APG II)	Clade	41	91	Clade	43	93
Myrtaceae (sensu APW)	Clade	44	68	Clade	54	65
<u>Vochysiaceae</u>	Clade	98	100	Clade	100	100
Myrtaceae s.l.-Voch'ceae clade	Yes	79	98	Yes	69	100
MCA{OPR} clade sister to Myrt.-Voch. clade	Yes	73	95	Yes	65	98
<u>Combretaceae</u>	Clade	95	81	Clade	98	78
<u>Lythraceae</u>	Clade	50	63	Clade	52	69
<u>Onagraceae</u>	Clade	96	89	Clade	95	92
Lythraceae-Onagraceae clade	Yes	96	89	Yes	99	93
Comb'r'ceae sister to Lyth.-Onag. clade	Yes	69	73	Yes	80	70

Misplaced *rbcl* accessions & taxa ComMy_AF281477 (*Conocarpus*) → Eurosids II: Malvales: Malvaceae
 ComMy_AF281478 (*Calycopteris*) Groups with BerRa_AF203487 and EmbBr_AJ402949
 OnaMy_AY841634 (*Mkilua*) See CelCe_AY935740 (*Eurosid I orders*); alternative placements are as sister

TU (order/family/unplaced taxon) or relationship	Cuénoud et al., 2002, <i>rbcl</i> only	Cuénoud et al., 2002 [Cameron et al., 2002]	Soltis & al., 2000, 2007; 3 genes incl. <i>rbcl</i> , P-BS/PP	Hilu et al., 2003; <i>matK</i>	Best ML tree EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Caryophyllales							
<i>Ancistrocladus</i>	Singleton	Singleton	NA	Singleton	Clade	100	100
<i>Dioncophyllaceae</i>	Singleton	Singleton	Singleton	Singleton	Singleton	—	—
<i>Ancistrocladus</i> sister to Dion'ceae	56	100	NA	100	Yes	89	100
<i>Drosophyllum</i>	NA	[Singleton]	NA	Singleton	Singleton	—	—
<i>Drosoph.</i> sister to Anc.-Dion. clade [APW]	NA	[99]	NA	99	No	37	63
<i>Drosoph.</i> sister to <i>Droseraceae</i>	NA	[Not found]	NA	Not found	Yes	38	37
<i>Nepenthes</i>	Singleton	Singleton	Singleton	Singleton	Singleton	—	—
<i>Nepenthes</i> sister to { <i>Ancistr.</i> +Dion.} clade	NA	Not found	NA	Unresolved	Yes	<20	36
<i>Nepenthes</i> -ADD clade [APW]	<50	[81]	91/1.0	Unresolved	No	<20	23
<i>Droseraceae</i>	Singleton	Singleton	Singleton	Singleton	Clade	100	100
<i>Nepenthes</i> sister to <i>Droseraceae</i>	<50	59	Not found	Unresolved	No	<20	39
Car'ales clade A	<50	72	Not found	96	Clade	44	95
<i>Frankenia</i>	Singleton	Singleton	NA	Singleton	Singleton	—	—
<i>Tamaricaceae</i>	Singleton	Singleton	Singleton	Singleton	Singleton	—	—
<i>Frankenia</i> sister to Tam'ceae	96	100	NA	100	Yes	99	100
<i>Plumbaginaceae</i>	100	100	Singleton	100	Clade	100	90
<i>Polygonaceae</i>	98	100	Singleton	100	Clade	100	90
Plum'ceae sister to Polyg'ceae	92	100	100/1.0	100	Yes	99	100
Car'ales clade B	<50	61	Not found	90	Grade	<20	<20
{ <i>Frankenia</i> + Tam'ceae} sister to clade A	NA	Not found	Not found	Not found	Yes	21	85
{Tam'ceae + Dros'ceae} sister to Plum.-Polyg. clade	Not found	Not found	<50/n.f.	Not found	No	<20	<20
A-B clade ("non-core Car'ales")	<50	95	85/1.0	74	Yes	43	95
<i>Rhabdodendron</i>	Singleton	Singleton	NA	Singleton	Singleton	—	—
<i>Asteropeia</i>	Singleton	Singleton	Singleton	Singleton	Clade	100	100
<i>Physena</i>	NA	NA	NA	NA	Singleton	—	—
<i>Asteropeia</i> sister to <i>Physena</i> (clade C)	NA	NA	NA	NA	Clade	100	100
<i>Achatocarpaceae</i>	NA	NA	NA	100	Clade	100	100
<i>Amaranthaceae</i>	91	99	99/1.0	100	Clade	96	100
Achat'ceae sister to Amar'ceae	NA	NA	NA	84	Yes	86	91
<i>Caryophyllaceae</i>	Singleton	Singleton	Singleton	Singleton	Clade	90	98
Car'ales clade D	<50	96	99/1.0	Not found	Clade	75	99
<i>Aizoaceae</i> *	Not found	93	Singleton	Singleton	Grade	<20	25
<i>Nyctaginaceae</i>	99	100	100/1.0	96	Clade	89	100
<i>Phytolaccaceae</i>	89	77	Not found	65	Grade	<20	21
<i>Gisekiaceae</i>	NA	NA	NA	Singleton	Singleton	—	—
<i>Phytolaccaceae</i> sensu APW	NA	NA	NA	Not found	Grade	<20	<20
<i>Sarcobatus</i>	NA	NA	NA	Singleton	Clade	100	100
Nyct'ceae-Phyt'ceae- <i>Sarcobatus</i> clade	(85)	(65)	(99/1.0)	Not found	Yes	71	87
<i>Barbeuiaceae</i> (no <i>rbcl</i> data available)	NA	NA	NA	Singleton	NA	NA	NA
Car'ales clade E ("higher core I", sensu Hilu et al., 2003)	98	100	NA	91	Clade	49	85
<i>Basellaceae</i>	NA	NA	NA	100	Clade	100	100
<i>Cactaceae</i>	Singleton	Singleton	Singleton	100	Clade	81	100
<i>Portulacaceae</i> (sensu APG II)	Singleton	Singleton	Singleton	Not found	Grade	<20	<20
Cact.-Port. clade	94	100	100/1.0	Not found	Pro parte	<20	59
<i>Didiereaceae</i>	NA	NA	NA	100	Singleton	—	—
Did'ceae sister to Cact.-Port. clade	NA	NA	NA	Not found	No	<20	48
<i>Halophytum</i>	NA	NA	NA	Singleton	Singleton	—	—
<i>Halophytum</i> sister to Did.-Cact.-Port. clade	NA	NA	NA	<50	No	<20	42
'succulent' clade F ("higher core II")	NA	NA	NA	100	Clade	40	40
<i>Molluginaceae</i> †	NA	Not found	Singleton	NA	Diphyletic	<20	36
Moll.-E-F clade	<50	85	100/1.0	NA	Yes	66	100
<i>Stegnosperma</i>	NA	NA	NA	NA	Singleton	—	—
<i>Stegnosperma</i> sister to Moll.-E-F clade	NA	NA	NA	NA	Yes	97	100
core Caryophyllales (APW)	94	100	100/1.0	NA	Clade	98	100
clade C sister to core Car'ales	99	98	100	Not found	Yes	92	100
<i>Simmondsia</i>	Singleton	Singleton	NA	Singleton	Singleton	—	—
<i>Simmondsia</i> sister to {clade C + core Car'ales}	<50	73	NA	Unresolved	Yes	65	100
Misplaced <i>rbcl</i> accession & taxa	AizCa_AJ235778 (<i>Delosperma</i>)			Nested within Nyct.-Phyt.- <i>Sarcobatus</i> clade			
	PgnCa_M77702 (misabeled)			→ <i>Plumbaginaceae</i> (database error; see PImCa_M77701)			
	PImCa_M77701 (misabeled)			→ <i>Polygonaceae</i> (database error; see PgnCa_M77702)			

* Including accession of *Corbichonia* (sister to *Lophiocarpus*, no *rbcl* data; *Lophiocarpaceae* [APW])

† Including accession of *Limeum* (monogeneric *Limeaceae* [APW])

Asterids: Cornales

	Savolainen et al., 2000, <i>rbcl</i>	Hilu & al., 2003; <i>matK</i>	Sollis & al., 2000, 2007; 3 genes incl. <i>rbcl</i> , <i>P-BS/PP</i>	Sollis & al., 2003; 4 genes incl. <i>rbcl</i>	Best ML tree EUDIS matrix	CA-BS ^{EUDIS}	GRTS-ML ^{EUDIS}
Cornaceae [excl. <i>Mastixia</i> accessions]	59	Singleton	93/1.0	100	Clade	<20[72]	88
Nyssaceae	Singleton	Singleton	99/1.0	NA	Clade	84	45
Cornaceae s.l. (APG II)	<50	Not found	Not found	NA	Clade	<20	<20
Hydrangeaceae	95	87	Not found	Singleton	Grade	<20	64
Hydrostachys	NA	NA	Singleton	NA	Clade	100	100
Loasaceae	NA	99	98/1.0	Singleton	Clade	98	100
Hydran'ceae- <i>Hydrost.</i> -Loasaceae clade	NA	100	91/1.0	(94)	Yes	86	95
Corn. s.l.-{Hydran.- <i>Hydrost.</i> -Loas.} clade	NA	NA	NA	(100)	No	26	38
Curtisia	NA	NA	NA	NA	Singleton	—	—
Grubbia	NA	NA	NA	NA	Singleton	—	—

Misplaced *rbcl* accession & taxa CrnCo_AF384109 & CrnCo_AF384107 (*Mastixia*) Placed as sister to Nyssaceae (CA-BS=66)
 NysCo_AF119178 (mislabelled) Unknown affinity; best supported bipartion NysCo_AF119178 + OnaMy_AY841634 (ambiguous *rbcl*) | all others

Asterids: Ericales

	Hilu et al. 2003, fig. 11; <i>matK</i>	Schönenberger et al., 2006; multigene	Best ML tree EUDIS matrix	CA-BS ^{EUDIS}	GRTS-ML ^{EUDIS}
Actinidiaceae	Singleton	Singleton	Clade	99	100
Roridula	NA	Singleton	Singleton	—	—
Sarraceniaceae	Singleton	100/1.0	Clade	68	95
<i>Roridula</i> sister to Actin'ceae (as in APW)	NA	100/1.0	Yes	21	<50
<i>Roridula</i> sister to Sarr'ceae	NA	Not found	No	70	73
Act'ceae- <i>Rorid.</i> -Sarr'ceae clade	Not found	76/1.0	Yes	34	24
Clethraceae	NA	Singleton	Clade	96	100
Cyrtillaceae	NA	Singleton	Grade	<20	41
Ericaceae	100	98/1.0	Clade	85	98
Cyr'ceae sister to Ericaceae	NA	98/1.0	No	<20	<20
Clethr.-Cyr.-Ericaceae clade	NA	98/1.0	No	<20	<20
ARS-CCE clade	Not found	100/1.0	Yes	27	57
Diapensiaceae	99	100/1.0	Clade	92	100
Styracaceae	76	99/1.0	Clade	81	92
Diap'ceae sister to Styr'ceae	58	98/1.0	Yes	34	50
Symplocos	NA	100/1.0	Clade	100	100
<i>Symplocos</i> sister to Diap.-Styr. clade	NA	100/1.0	No	<20	<20
Mitrastemona	NA	NA	NA	NA	NA
Theaceae	Singleton	100/1.0	Clade	94	100
Ericales clade A	Not found	NA/1.0	No	<20	<20
Ebenaceae	Singleton	100/1.0	Clade	86	69
Maesa	NA	Singleton	Clade	100	100
Myrsinaceae	NA	100/1.0	Clade	94	93
Primulaceae	100	Singleton	Clade	77	97
Myrs'ceae sister to Prim'ceae	NA	100/1.0	Yes	99	92
<i>Maesa</i> sister to Myrs.-Prim. clade [§]	NA	Not found	Yes	50	60
Theophrastaceae	NA	90/1.0	Clade	77	98
Theoph'ceae sister to Myrs.-Prim. clade	NA	100/1.0	No	43	31
Theoph'ceae-MMP clade	NA	100/1.0	Yes	100	93
Ebenaceae sister to MMPT clade	Not found	90/1.0	Yes	27	93
Sapotaceae	NA	100/1.0	Clade	82	98
Ericales clade B	Not found	NA/1.0	No	<20	<20
Pentaphylacaceae †	NA	Singleton	Singleton	—	—
Sladeniaceae	NA	NA	Diphyletic	<20	33
Ternstroemiaceae	NA	100/1.0	Grade	30	69
Pent'ceae sister to Slad'ceae	NA	Not found	No	29	29
Pent'ceae sister to Tern'ceae	NA	100/1.0	Clade	<20	<20
Pentaphylacaceae [APG]	NA	65/1.0	No	<20	<20
core Ericales	Not found	NA/1.0	No	<20	<20
Lecythidaceae	NA	100/1.0	Clade	97	100
Polemoniaceae	100	100/1.0	Clade	100	96
Fouquieria	Singleton	100/1.0	Clade	100	100
<i>Fouquieria</i> sister to Pol'ceae	<50	100/1.0	No	<20	<20
Expanded core Ericales incl. Lecy'ceae, Polem'ceae, <i>Fouquieria</i>	Not found	100/1.0	Yes	40	60
Balsaminaceae	Singleton	Singleton	Clade	100	100
Marcgraviaceae	NA	99/1.0	Clade	92	100
Pelliciera	NA	Singleton	Clade	100	100
Tetrameristaceae	NA	100/1.0	Clade	92	100
Tetrameristaceae sensu APW	NA	100/1.0	Clade	93	100
Bals'ceae sister to Marc'ceae (following APG II)	NA	NA	Yes	63	50 !!!
Marc'ceae sister to { <i>Pell.</i> -Tetr'ceae} (following APW)	NA	NA	No	21	50 !!!
Bals'ceae-Marc'ceae-Tetr'ceae clade	Not found	100/1.0	Yes	100	100

Triangle case #2: Balanced

Misplaced *rbcl* accession & taxa EbeEr_AJ402968 → Eurosid II: Sapindales: Rutaceae
 MsnEr_L12598 (mislabelled) → Ericaceae
 PplEr_AJ402986, Savolainen et al. 2000, Ambiguous; as sister to all asterids (incl. misplaced rosids; CA-BS=28) or sister to misplaced OnaMy_AY841634 (CA-BS=21) etc.
 PplEr_AJ428891 Bremer et al., 2002 [= Ppl_0 in GRTS replicates] Exact duplicate of PplEr_AJ428893 (same authors)
 TstEr_AY380342 (*Archytaea*) Sister to Malpighiales: *Bonnetia* (CA-BS=53)

[§] APW sees Theoph'ceae as sister to Myrs.-Prim. clade
[†] PplEr_AF419239, And.&al. 2002 [= Ppl_1 in GRTS replicates]

	Savolainen et al., 2000; <i>rbcl</i>	Hilu & al., 2003; <i>matK</i>	Soltis & al., 2000, 2007; 3 genes, P-BS/PP	Soltis & al., 2003; 4 genes	Best ML tree EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Ranunculales							
<i>Berberidaceae</i>	96	Yes	100/1.0	100	Clade	98	73
<i>Ranunculaceae</i>	90	Yes	90/1.0	100	Clade	93	92
Berb'ceae sister to Ranun'ceae	52	Yes	92/1.0	87	Yes	82	69
<i>Menispermaceae</i>	Singleton	Yes	100/1.0	100	Clade	98	80
Menisp'ceae sister to Berb.-Ranun. clade	56	Yes	70/0.93	96	No	32	49
<i>Circaeaster</i> + <i>Kingdonia</i> (<i>Circaeasteraceae</i>)	NA	NA	100/1.0	100	Yes	99	100
<i>Lardizabalaceae</i>	Singleton	Singleton	100/1.0	100	Clade	100	100
Circ'ceae sister to Lard'ceae	NA	NA	<50/0.75	71	No	41	66
Core Ranunculales	<50	Yes	99/1.0	97	Clade	56	86
<i>Euptelea</i> sister to core Ran'ales	Not found	No	53/0.95	78	Yes	70	100
<i>Fumariaceae</i>	NA	NA	Singleton	Singleton	Clade	67	92
<i>Papaveraceae</i>	Singleton	NA	Singleton	Singleton	Clade	37	56
<i>Pteridophyllum</i>	NA	NA	Singleton	Singleton	Singleton	—	—
<i>Papaveraceae s.l.</i> (APG II, APW)	NA	Singleton	100/1.0	100	Clade	78	80

Misplaced *rbcl* accession & taxa BerRa_AF203487 (misplaced) → Ambiguous; groups with mislabeled EmbBr_AJ402949 and ComMy_AF281478
 MspRa_D85696 (misplaced) → Ran'ceae
 PpvRa_AY328195 (*Hainania*) → Eurosids II: Malvales: Malvaceae
 PpvRa_AF523842 (*Oceanopapaver*) → Eurosids II: Malvales: Malvaceae
 RanRa_AF093729 (*Placospermum*) → Proteales: Proteaceae
 RanRa_DQ006121 (misplaced) → Eurosids I: Rosales: Rosaceae

	Savolainen et al., 2000	Hilu & al., 2003	Soltis & al., 2000, 2007	Soltis & al., 2003	Best ML tree EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Santalales							
<i>Loranthaceae</i>	NA	NA	NA	NA	Clade	100	100
<i>Misodendron</i> + <i>Schoepfia</i>	NA	NA	Singleton	Singleton	Yes	80	100
Lor'ceae-Misod.- <i>Schoepfia</i> clade	NA	NA	NA	NA	Yes	64	99
<i>Opiliaceae</i>	Singleton	Singleton	Singleton	Singleton	Singleton	—	—
<i>Santalaceae</i> (incl./excl. SanSI_AJ235797) [§]	<50	100	99/1.0	93	Clade [§]	<20/50	64
<i>Olacaceae</i>	Singleton	Not found	NA	NA	Singleton	—	—
Olacaceae sister to other Santalales	92	100	NA	NA	Yes	99	100

[§] SanSI_AJ235797 (*Thesium*) stays with *Opilia*, either in a *Opilia*-Sant'ceae p.p. clade (CA-BS=33) or *Opilia*-LMS clade (CA-BS=31), or placed as sister to Lor'ceae

	Savolainen et al., 2000; <i>rbcl</i>	Soltis & al., 2000, 2007	Best ML tree EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}
Saxifragales					
<i>Aphanopetalum</i>	NA	NA	Singleton	—	—
<i>Haloragaceae</i>	87	100/1.0	Clade	100	100
<i>Penthoraceae</i>	Singleton	Singleton	Clade	100	100
Hal'ceae sister to Penth'ceae	<50	97/1.0	Yes	92	100
<i>Tetracarpaeaceae</i>	NA	Singleton	Singleton	—	—
<i>Haloragaceae s.l.</i> (APG II)	NA	100/1.0	Clade	94	100
<i>Aphanopetalum</i> sister to Hal'ceae <i>s.l.</i>	NA	NA	Yes	92	100
<i>Crassulaceae</i>	100	100/1.0	Clade	100	100
Aph.-Hal.-Crass. clade	55	99/1.0	Yes	84	90
<i>Paeoniaceae</i>	Singleton	Singleton	Clade	100	100
Paeoniaceae sister to (A)HC clade	Not found	Not found	No	<20	<20
<i>Ribes</i> (<i>Grossulariaceae</i>) [†]	Singleton	Singleton	Singleton	—	—
<i>Iteaceae</i>	Singleton	Singleton	Clade	94	100
<i>Pterostemonaceae</i>	Singleton	Singleton	Singleton	—	—
<i>Iteaceae s.l.</i> (APG II)	96	100/1.0	Clade	92	100
<i>Saxifragaceae</i>	65	100/1.0	Clade	84	96
<i>Iteaceae s.l.</i> sister to Sax'ceae	<50	100/1.0	Yes	42	78
<i>Iteaceae s.l.</i> -Gross.-Sax. clade	Not found	<50/1.0	Yes	42	NA [†]
core Saxifragales	<50	64/0.6	Clade	<20	<20
<i>Cercidiphyllum</i>	Singleton	Singleton	Singleton	—	—
<i>Cercid.</i> sister to core Sax'ales	<50	<50/0.59	Yes	<20	<20
<i>Altingiaceae</i> (<i>Altingia</i> , <i>Liquidambar</i>)	100	100/1.0	Clade	100	94
Alt'ceae-Cercid.-core Sax'ales clade	Not found	<50/0.83	Yes	<20	<20
<i>Daphniphyllum</i>	Singleton	Singleton	Clade	100	100
<i>Hamamelidaceae</i>	79	58/0.99	Grade	<20	49
<i>Peridiscaceae</i> (2 different <i>rbcl</i> sequences)	NA	NA	No	<5	<5
<i>Peridiscus lucidus</i> (PdsSf_AY380356) sister to Daphn'ceae	NA	NA	Yes	39	96
<i>Peridiscus lucidus</i> (PdsSf_AY380356) sister to Ham'ceae	NA	NA	No	<20	<5
<i>Daphniph.</i> -Ham'ceae- <i>Peridiscus</i> clade	NA	Not found	No	<20	21

Misplaced *rbcl* accession & taxa GroSf_AF299092/GroSf_X87394 (*Quintinia*) → A subclade of "asterid clade"; misplaced in NCBI TaxTree (member of euasterid II)
 PdsSf_AJ403018 (*Whittonia*) → Sister to Malpighiaceae (Eurosids I: Malpighiales; GRTS-ML_{EUDIS}=77)
 SaxSf_AF206766 (*Fendlera*) → Asterids: Cornales: Hydrangeaceae

[†]Note: In our original data set (and analyses) *Ribes* and *Quintinia* were included in the Gross'ceae

Node description/ taxonomic unit	best ML tree, EURO1/EURO2 matrix	CA-BS _{EURO12}	GRTS-ML _{EURO12}	best ML tree, ROSID matrix	CA-BS _{ROSID}	GRTS-ML _{ROSID}	Wang & al., 2009; 36 genes incl. rbcL	best ML tree, EUDIS matrix	CA-BS _{EUDIS}	GRTS-ML _{EUDIS}	Savolainen et al., 2000; rbcL, P-JK	Hilu & al., 2003; matK, P-JK	Solits & al., 2000, 2007; 3 genes, P-JK/PP	Solits & al., 2003; 4 genes, P-JK
Ranunculales	NA	NA	NA	NA	NA	NA	NA	Clade	88	72	51	90	98/1.0	100
Sabiales: Sabiaceae	NA	NA	NA	NA	NA	NA	NA	Clade	98	100	Singleton	Singleton	^[2] 100/1.0	^[2] 100
Proteales	NA	NA	NA	NA	NA	NA	NA	Diphyletic [†]	<20	<20	<50	^[2] 64	84/1.0	73
<i>Nelumbo</i>	NA	NA	NA	NA	NA	NA	NA	Grade	23	100	Singleton	Singleton	Singleton	Singleton
<i>Platanus</i>	NA	NA	NA	NA	NA	NA	Singleton	Clade	100	66	Singleton	Singleton	Singleton	Singleton
Proteaceae	NA	NA	NA	NA	NA	NA	NA	Clade	93	96	^[3] 100	^[2] 100	^[2] 100/1.0	Singleton
<i>Platanus</i> sister to Proteaceae	NA	NA	NA	NA	NA	NA	NA	Yes	57	43 [#]	Not found	94	93/1.0	Not found
Trochodendraceae[§]	NA	NA	NA	NA	NA	NA	Singleton	Clade	100 [§]	(100) [§]	^[2] 100	^[2] 100	^[2] 100/1.0	^[2] 100
Buxales	NA	NA	NA	NA	NA	NA	NA	Clade	81	100	^[2] 94	^[3] 100	^[3] 100/1.0	^[3] 100
<i>Didymelea</i> sister to Buxaceae	NA	NA	NA	NA	NA	NA	NA	Yes	99	100	84	Not found	100/1.0	99
Core eudicots forming clade	NA	NA	NA	NA	NA	NA	100	Yes	23	<20	<50	99	100/1.0	100
Gunnerales: Gunneraceae	NA	NA	NA	NA	NA	NA	Singleton	Clade	88	100	57	^[2] 100	^[2] 75/1.0	85
Gunn'ales sister to core eudicots	NA	NA	NA	NA	NA	NA	100	Yes	<20	<20	<50	<50	<50/0.98	84
Berberidopsis sister to Aextoxiclon	NA	NA	NA	NA	NA	NA	NA	Yes	70	100	^[2] <50	^[2] 100	^[2] 100/1.0	100
Caryophyllales	NA	NA	NA	NA	NA	NA	^[2] 100	Clade	93	100	84	99	^[24] 100/1.0	100
<i>Rhabdodendron</i> sister to rem. Caryophyllales	NA	NA	NA	NA	NA	NA	NA	Yes	77	100	Not found	Not found	86/0.99	NA
Dilleniaceae	NA	NA	NA	NA	NA	NA	NA	Clade	99	92	^[3] 96	Singleton	^[2] 100/1.0	Singleton
Dill'ceae sister to Cary'ales	NA	NA	NA	NA	NA	NA	NA	No	<20	<20	<50	Not found	60/1.0	83
Santalales	NA	NA	NA	NA	NA	NA	NA	Clade	64	100	^[2] <50	^[5] 99	^[5] 100/1.0	^[5] 100
Olaaceae sister to other Santalales	NA	NA	NA	NA	NA	NA	NA	Yes	99	100	92	100	NA	NA
Saxifragales	NA	NA	NA	NA	NA	NA	^[4] 100	Clade	37	<20/31 [†]	<50	62	^[25] 98/1.0	100
<i>Daphniophyllum</i> sister to other Sax'ales	NA	NA	NA	NA	NA	NA	NA	No	<20	<20/ [†] <20	<50	Not found	<50/Not found	<50
Saxifragales sister to Vitales + rosids	NA	NA	NA	NA	NA	NA	100	No	<20	<20/ [†] <20	Not found	Not found	99/1.0	Not found
Vitales: Vitaceae	NA	NA	NA	Clade	100	100	^[2] 100	Clade	100	100	86	Singleton	^[2] 100/1.0	^[2] 100
Vitales sister to rosids [#]	NA	NA	NA	Yes	<20 [#]	34 [#]	72	Yes	<20	37	Not found	Not found	73/1.0	Not found

[§] The second sequence of this family (TrdT_L01958; *Trochodendron*) was filtered by the program as an exact duplicate of PlaPr_L01943, a mislabeled Proteales: *Platanus* sequence. Value is based on experiments using relabeled (subset of EUDIS) input matrices

[†] Including or excluding TU "Grossulariaceae" (=GroSf, comprising *Ribes*, *Grossularia*), which induce phylogenetic interference (two out of three sequences are not Saxifragales rbcL)

[‡] Under the assumption that the eudicot root is placed between Ranunculales and other groups.

[#] Assuming mislabeled *Emblingia* accession EmbBr_AJ402949 [= Emb_0 in GRTS replicates] and others represent non-rosid (outgroup) taxa/rbcL sequences.

Rosid clade (excluding Saxifragales) [‡]	NA	NA	NA	Yes	NA	NA	100	Yes	32 [‡]	46	<50	95	99/0.99	79
Fabidae (syn. Eurosids I) forming clade ^{††}	Yes ^{††}	NA	NA	Yes	37	63	100	Yes	47 [‡]	48	<50	52	77/1.0	<50
Celastrales[‡]	Yes	81	74	Yes	68	91	^[4] 100	Clade	32/69 [‡]	83	^[8] 99	^[3] 100	^[8] 62/1.0	^[5] 100
Huaceae (fam. inc. sedis)	Clade	100	100	Clade	100	100	Singleton	Clade	100	100	Singleton	NA	Singleton	Singleton
Malpighiales[†]	Yes	82	74	Yes	88	88	^[19] 100	Clade	86	69	^[19] <50	^[12] 71	^[14] 99/1.0	^[18] 95
Oxalidales	Yes	81	<20	Yes	91	96	^[6] 100	Clade	89	99	^[5] 93	^[2] 100	^[9] 100/1.0	^[5] 100
CHMO clade	Yes	54	60	Yes	23	92	100	Yes	32 [‡]	76	<50	60	51/1.0	<50
Celastrales sister to Malpighiales	No	<20	<20	No	<20	87	Not found	Yes	<20	75	Not found	<50	<50/0.54	Not found
Celastrales sister to Huaceae	No	<20	<20	No	<20	<20	<50	No	<20	<20	<50	NA	62/n.f.	Not found
Huaceae sister to Oxalidales	No	<20	<20	No	<20	62	Not found	Unresolved	<20	68	Not found	NA	N.f./0.68	Not found
Huaceae sister to Malpighiales	Yes	32	39	Yes	32	<20	Not found	No	29	<20	Not found	NA	Not found	Not found
Malpighiales sister to Oxalidales	No	<20	<20	No	<20	<20	<50	No	<20	<20	<50	Not found	Not found	<50
Nitrogen-fixing clade (cf. APG II)	Yes	54	60	Yes	54	70	100	Yes	54	66	<50	<50	68/1.0	(94)
Cucurbitales	Yes	98	100	Yes	97	100	^[5] 100	Clade	98	100	^[5] 87	^[6] 100	^[7] 100/1.0	^[3] 100
Anis'ceae sister to other Cuc'ales	Yes	29	29	No	27	32	61	No	38	43	NA	NA	NA	NA
Anis'ceae+Cuc'ceae sister to other Cuc'ales	No	33	56	Yes	<20	26	Not found	Yes	33	40	NA	NA	NA	NA
Fagales	Yes	91	58	Yes	91	64	^[4] 100	Clade	92	67	^[5] 94	^[6] 96	^[9] 100/1.0	^[4] 100
<i>Nothofagus</i> sister to rem. Fagales	Yes	86	58	Yes	88	64	NA	Yes	96	67	NA	NA	100	NA
Rosales	Yes	92	65	Yes	90	67	^[9] 100	Clade	93	71	^[9] <50	98	^[18] 100/1.0	^[8] 100
Rosaceae sister to rem. Rosales	Yes	67	40	No	74	54	100	Yes	73	58	59	88	/1.0	NA
Fagales sister to Cuc'ales	Yes	30	31	No	36	24	100	No	38	26	<50	Not found	60/0.74	85
Fagales sister to Rosales	No	28	<20	No	21	<20	Not found	No	<20	<20	Not found	Unresolved	Not found	Not found
Rosales sister to Cuc'ales	No	28	23	Yes	22	31	Not found	Yes	28	34	Not found	Not found	Not found	Not found
Fabales	Yes	90	99	Yes	90	92	^[9] 100	Clade	86	93	^[4] <50	NA	^[6] 98/1.0	NA
<i>Quillaja</i> sister to rem. Fabales	Yes	70	99	Yes	66	91	<50	Yes	86	87	NA	NA	NA	NA
Fabaceae forming clade	Yes	90	99	Yes	88	92	100	Yes	77	93	<50	^[4] 100	^[8] 80/1.0	NA
Fabales sister to rem. N fixing	Yes	54	61	Yes	57	74	99	Yes	70	72	<50	<50	<50/0.78	NA
Zygophyllales	Yes	97	84	Yes	91	90	^[3] 100	Clade	99	91	^[4] 76	Singleton	^[2] 100/1.0	Singleton
<i>Krameria</i> sister to Zygophyllaceae	Yes	90	84	Yes	97	92	100	Yes	87	91	81	NA	NA	NA
Zygophyllales sister to Celastrales	No	<20	<20	No	<20	<20	Not found	No	<20	<20	Not found	Not found	Unresolved	<50
Zygophyllales sister to {CHMO + nitrogen-fixing}	NA	NA	NA	Yes	37	68	100	Yes	<20/29 [‡]	53	Not found	Not found	Unresolved	Not found

[§] Cor'ceae sister to Coryn'ceae in the majrle/LE50 consensus tree

[†] *Platium* not included in Malpighiales (see *Eurosid II* orders)

^{††} Including/ excluding CelCe_AY935740 ("Stackhousia monogyna"). Bipartions Cel'ceae (p.p.) & allies and CelCe_AY935740 | all other taxa received CA-BS_{EUDIS}=24 to 29.

[#] The relatively low GRTS-ML value reflects a sampling bias: One out of four Platanaceae sequences is mislabeled.

^{†††} With respect to mislabeled/placed rbcL sequences (considered to represent not members of eurosids I (outtaxa)).

Geraniales monophyletic	NA	NA	NA	No	<20	<20	^[5] 100	No	22	22	NA	Singleton	^[7] 80/1.0	^[2] (100)
Ger'ceae s.l. (cf. APG II)	NA	NA	NA	Clade	100	100	100	Clade	100	100	NA	NA	^[14] NA	NA
Melia'ceae sister to Led.-Viv. clade ("Ger'ales 2")	NA	NA	NA	Yes	44	63	100	Yes	57	99	NA	NA	^[14] <50/0.97	^[2] NA
Myrtales	NA	NA	NA	Yes	98	75	^[9] 100	Clade	100	72	^[6] 90	^[2] 99	^[10] 100/1.0	^[3] 100
COL clade sister to other Myrtales	NA	NA	NA	Yes	73	95	100	Yes	65	98	60	NA	58/1.0	NA
Geraniales sister to Myrtales	NA	NA	NA	No	<20	<20	65	Partly	<20	<20	Not found	Not found	Not found	<50
Eurosids 2 forming clade ^{†††}	Yes ^{†††}	NA	NA	Yes	49	35	100	Yes	<20/43 [‡]	<20/27 [§]	<50	<50	95/1.0	88
Brassicales	Yes	92	92	Yes	100	96	^[7] 100	Clade	100	94	78	^[4] 100	^[14] 100/1.0	^[5] 100
Akan.-Trop. clade sister to other Br'ales	Yes	75	90	Yes	76	81	54	Yes	68	86	100	NA	<50/0.76	Not found
Huertales	Yes	81	100	Yes	44	71	Singleton	Clade	50	73	NA	NA	Singleton	Singleton
Huertales + StaCs_AY646109 [§] clade	NA	NA	NA	Yes	96	NA	NA	Yes	98	NA	NA	NA	NA	NA
Malvales	Yes	81	100	Yes	86	69	^[6] 100	Clade	92	72	<50	^[5] 100	^[16] 100/1.0	^[7] 100
Neuradaceae sister to remaining Malvales	No	<20	39	No	<20	<20	100	No	<20	<20	Not found	NA	67/1.0	Not found
Bix.-Sphaer. clade sister to rem. Malvales	No	27	45	Yes	26	64	Not found	Yes	41	54	Not found	NA	Not found	Not found
Sapindales	Yes	98	100	Yes	100	70	^[7] 100	Clade	87	64	<50	^[6] 100	^[13] 100/1.0	^[5] 100
<i>Biebersteinia</i> sister to other Sapindaceae	Yes	42	<20	No	40	<20	NA	No	24	<20	NA	NA	NA	NA
NPT clade sister to { <i>Bieberst.</i> +other Sap'ales}	No	<20	84	Yes	<20	59	NA	Yes	<20	61	NA	NA	NA	NA
Malvales sister to Sapindales	Yes	77	100	Yes	33	61	Not found	Yes	35	37	<50	Not found	51/1.0	76
Malvales sister to Brassicales	No	<20	<20	No	<20	<20	98	No	22	<20	Not found	89	Not found	Not found
Huertales sister to other eurosids II	Yes	61	74	Unresolved	<20	48	Not found	Yes	<20	30	NA	NA	Unresolved	<50
Huertales sister to {Brassicales + Sapindales}	No	<20												