

**Key Nodes and Clades** with Astral Quartet Score (QS) values and pie charts, Local Posterior Probability (LPP), Polytoimy test, and Bootstrap (BP) support reported from the Maximum Likelihood (ML) RAxML concatenation analysis. Clades and nodes numbers correspond to Figs. 2, 3 a and b. Pie charts above branches are as described for Fig. 1a Color codes of each clade follow the quartet main topology (Q1) support value, with dark green  $\geq 0.75$ ; light green  $\geq 0.50$ ; and yellow  $< 0.50$ . For the polytoimy test, branches with  $p > 0.05$  are red Asterisked \*.

	Clade	Clade name	Alternative Quartet Topologies (Astral)				LPP (Astral)	Polytoimy Test (Astral)	Maximum Likelihood (ML; BP)
			q1	q2	q3	q1-q2-q3			
Myrtales	1	Myrtales	0.88	0.04	0.08		1.00	0.0000	100
	2	[Lythraceae + Onagraceae]	0.75	0.14	0.12		1.00	0.0000	100
	3	Onagraceae	0.84	0.09	0.07		1.00	0.0000	100
	3a	Onagroideae	0.93	0.02	0.05		1.00	0.0000	100
	3b	Onagreae + Epilobieae	0.81	0.08	0.11		1.00	0.0000	100
	3c	Epilobieae	0.76	0.12	0.11		1.00	0.0000	100
	3d	Onagreae	0.63	0.21	0.17		1.00	0.0000	100
	4	Lythraceae	0.89	0.05	0.06		1.00	0.0000	100
	4a	Lythraceae Subclade 1	0.71	0.14	0.16		1.00	0.0000	100
	4b	Lythraceae Subclade 2	0.45	0.23	0.32		1.00	0.0000	100
	5	Combretaceae & remaining Myrtales	0.39	0.31	0.30		0.93	0.1248	99
	6	Combretaceae	0.96	0.01	0.02		1.00	0.0000	100
	6a	Combretaceae (Subfamily)	0.73	0.11	0.16		1.00	0.0000	100
	6b	Tribe Laguncularieae	0.55	0.20	0.25		1.00	0.0000	100
	6c	Tribe Combretaceae	0.60	0.20	0.21		1.00	0.0000	100
	6d	Subtribe Terminalinae	0.56	0.21	0.23		1.00	0.0000	100
	6e	Subtribe Combretinae	0.64	0.19	0.18		1.00	0.0000	100
	6f	[ <i>Geonia</i> + <i>Guiera</i> ]	0.68	0.19	0.13		1.00	0.0000	100
	6g	[subgen. <i>Apathalanthum</i> + <i>Cacoucia</i> ]	0.35	0.32	0.33		0.51	0.8332	99
	6h	[subgen. <i>Combretum</i> + <i>C. mucronatum</i> (subgen. <i>Cacoucia</i> )]	0.36	0.32	0.32		0.57	0.7612	100
	7	Rest of Myrtales	0.63	0.22	0.15		1.00	0.0000	100
	8	[Vochysiaceae + Myrtaceae]	0.78	0.12	0.11		1.00	0.0000	100
	9	Vochysiaceae	0.93	0.03	0.04		1.00	0.0000	100
	9a	[ <i>Eriomadelpus</i> + <i>Korupodendron</i> ]	0.84	0.09	0.07		1.00	0.0000	100
	9b	<i>Erisma</i> & remaining Vochysiaceae	0.58	0.22	0.20		1.00	0.0000	100
	9c	[ <i>Sabertia</i> + <i>Vochysia</i> ] & remaining Vochysiaceae	0.38	0.30	0.32		0.84	0.2492	n.a.
	9d	[ <i>Callisthene</i> ( <i>Qualea</i> + <i>Ruizterania</i> )]	0.75	0.15	0.11		1.00	0.0000	100
	9e	[ <i>Qualea</i> + <i>Ruizterania</i> ]	0.77	0.10	0.13		1.00	0.0000	100
	10	Myrtaceae [Heteropyxidoideae + Myrtoideae]	0.92	0.05	0.03		1.00	0.0000	100
	11	Heteropyxidoideae [ <i>Heteropyxis</i> + <i>Psiloxylon</i> ]	0.94	0.02	0.04		1.00	0.0000	100
12	Myrtoideae (Myrtaceae excl. Heteropyxidoideae)	0.70	0.15	0.14		1.00	0.0000	100	
12a	[ <i>Xanthostemoneae</i> + <i>Lophostemoneae</i> ]	0.43	0.26	0.30		1.00	0.0010	100	
12b	<i>Xanthostemoneae</i>	0.79	0.10	0.11		1.00	0.0000	100	
12c	<i>Lophostemoneae</i>	0.50	0.26	0.24		1.00	0.0000	100	
12d	Remaining Myrtaceae	0.46	0.29	0.25		1.00	0.0000	96	
12e	Myrtaceae subclade 1.	0.36	0.30	0.34		0.57	0.4482	n.a.	
12f	<i>Leptospermeae</i> + <i>Chamelauceae</i>	0.79	0.11	0.10		0.58	0	100	
12g	<i>Leptospermeae</i>	0.89	0.05	0.06		1.00	0.0000	100	
12h	<i>Chamelauceae</i>	0.78	0.14	0.08		1.00	0.0000	80	
12i	<i>Syncarpeae</i> + <i>Syzygieae</i> + <i>Lindsayomyrteae</i> + <i>Eucalypteae</i>	0.42	0.26	0.32		1.00	0.0044	98	
12j	<i>Syzygieae</i> + <i>Lindsayomyrteae</i> + <i>Eucalypteae</i>	0.34	0.32	0.35		0.33	0.8456	94	
12k	<i>Syzygieae</i>	0.69	0.16	0.15		1.00	0.0000	100	
12l	<i>Lindsayomyrteae</i> + <i>Eucalypteae</i>	0.38	0.35	0.27		0.56	0.4889	100	
12m	<i>Eucalypteae</i>	0.58	0.26	0.16		1.00	0.0001	98	
12n	Myrtaceae subclade 2.	0.36	0.34	0.30		0.58	0.4611	n.a.	
12o	<i>Melaleucaeae</i>	0.89	0.05	0.06		1.00	0.0000	100	

	12p	Lysicarpus/Sphaerantia & BKMMT	0.36	0.34	0.30		1.00	0.0046	100
	12q	<i>Lysicarpus</i> + <i>Sphaerantia</i> , etc.	0.54	0.27	0.19		1.00	0.0000	100
	12r	BKMMT	0.35	0.33	0.32		0.46	0.7638	n.a.
	12s	BKMT (excluding Myrteae)	0.37	0.31	0.32		0.78	0.4110	99
	12t	Tristanieae	0.48	0.25	0.27		1.00	0.0000	99
	12u	Backhousieae incl. [Kanieae + Metrosideae]	0.35	0.35	0.30		0.41	0.5801	80
	12v	Kanieae + Metrosideae	0.49	0.24	0.27		1.00	0.0000	100
	12w	Metrosideae	0.76	0.14	0.10		1.00	0.0000	100
	12x	Myrteae	0.63	0.31	0.06		1.00	0.0000	100
	13	[CAP + Melastomataceae]	0.89	0.06	0.05		1.00	0.0000	100
CAP	14	Crypteroniaceae incl. [Alzateaceae + Pennaeaceae]	0.83	0.09	0.08		1.00	0.0000	100
	14a	[Alzateaceae + Pennaeaceae]	0.76	0.11	0.13		1.00	0.0000	100
	14b	Pennaeaceae	0.58	0.22	0.20		1.00	0.0000	100
Melastomataceae	15	Melastomataceae	0.92	0.04	0.04		1.00	0.0000	100
	15a	Kibessieae (Melastomatoideae)	0.96	0.01	0.03		1.00	0.0000	100
	15b	Olisbeoideae & remaining Melastomataceae	0.37	0.23	0.39		0.18	0.0008	n.a.
	15c	Olisbeoideae (Melastomatoideae)	0.92	0.04	0.04		1.00	0.0000	100
	15d	[Henrietteae + Astronieae] & remaining Melastomataceae	0.91	0.04	0.06		1.00	0.0000	100
	15e	Henrietteae + Astronieae	0.54	0.24	0.23		1.00	0.0000	100
	15f	Lithobieae & remaining Melastomataceae	0.47	0.36	0.17		0.99	0.0001	95
	15g	Blakeae & remaining Melastomataceae	0.40	0.30	0.30		0.86	0.2613	n.a.
	15h	Blakeae	0.75	0.12	0.13		1.00	0.0000	100
	15i	[Merianieae + Eriocnemeae + Miconieae] & remaining Melastomataceae	0.36	0.38	0.26		0.17	0.0243	100
	15j	[Merianieae + Eriocnemeae + Miconieae]	0.65	0.17	0.17		1.00	0.0000	100
	15k	[Sonerileae + Bertolonieae] & remaining Melastomataceae	0.37	0.36	0.27		0.57	0.0474	85
	15l	[Sonerileae + Bertolonieae]	0.41	0.30	0.29		0.99	0.0231	100
	15m	[Cyphostyleae + Trioleneae] & remaining Melastomataceae	0.42	0.31	0.26		1.00	0.0034	100
	15n	[Cyphostyleae + Trioleneae]	0.58	0.22	0.20		1.00	0.0000	100
	15o	[Dissochaetae + Cambessedesieae] & Podoconnective clade	0.52	0.20	0.28		1.00	0.0000	100
	15p	[Dissochaetae + Cambessedesieae]	0.42	0.30	0.28		1.00	0.0060	100
15q	Podoconnective clade, incl. [Rhexieae + Microliceae + Marcetieae + Melastomatoideae]	0.71	0.14	0.15		1.00	0.0000	100	