

Supplementary Materials

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Supplementary Table S1. List of the organisms belonging to the family Delesseriaceae whose sequences are included in the phylogenetic analyses based on the *rbcl* gene

Subfamily / Tribe	Species	Collection site	Accession No.	Reference
Subfamily Phycodryoidae				
Tribe Schizoserideae				
	<i>Schizoseris condensata</i>	Falkland Islands	AF257444	Lin et al. (2001)
	<i>Schizoseris multinervis</i>	Falkland Islands	AF257451	Lin et al. (2001)
	<i>Schizoseris</i> sp.	Three Kings Is., New Zealand	AF257452	Lin et al. (2001)
	<i>Neuroglossum binderianum</i>	Grossbucht, Luderitz, Namibia	AF257394	Lin et al. (2001)
	<i>Neuroglossum binderianum</i>	South Africa	AF257395	-
	<i>Abroteia orbicularis</i>	Kaikoura, New Zealand	AF254149	Lin et al. (2001)
	<i>Abroteia</i> sp.	Kaikoura, New Zealand	AF254150	Lin et al. (2001)
	<i>Drachiella spectabilis</i>	Martin's Haven, Wales, UK	AF254183	Lin et al. (2001)
Tribe Myriogrammeae				
	<i>Haraldiophyllum mirabile</i>	San Juan Islands, Washington, USA	AF254185	Lin et al. (2001)
	<i>Haraldiophyllum bonnemaisonii</i>	Near Fanad Head, Co. Donegal, UK	AF312311	Lin et al. (2001)
	<i>Myriogramme livida</i>	Sealion Island, Falkland Islands	AF257391	Lin et al. (2001)
	<i>Myriogramme smithii</i>	-	AF257393	-
Tribe Cryptopleureae				
	<i>Cryptopleura lobulifera</i>	Punta Santo Tomas, Baja California, Mexico	AF254176	Lin et al. (2001)
	<i>Cryptopleura ramosa</i>	West Angle Bay, Pembrokeshire, Wales, UK	AF254175	Lin et al. (2001)
	<i>Botryoglossum platycarpum</i>	Yzerfontein, South Africa	AF254160	Lin et al. (2001)
	<i>Acrosorium venulosum</i>	Martin's Haven, Wales, UK	AF254156	Lin et al. (2001)
	<i>Acrosorium decumbens</i>	Ringaringa, Stewart Island, New Zealand	AF254151	Lin et al. (2001)
Tribe Phycodryeae				
	<i>Phycodrys quercifolia</i>	Rookery Bay, Stanley, Falkland Islands	AF257424	Lin et al. (2001)
	<i>Phycodrys ovifolia</i>	Isla Mancerra, Bahia coral, Valdivia, Chile	AF257423	Lin et al. (2001)
	<i>Polyneura latissima</i>	Seal Rock, Oregon, USA	AF257438	Lin et al. (2001)
Subfamily Delesserioidae				
Tribe Hemineureae				
	<i>Hemineura frondosa</i>	W. Port MacDonnell, Victoria, Australia	AF254189	Lin et al. (2001)
	<i>Laingia hookeri</i>	Aramoana, Otago, New Zealand	AF257371	Lin et al. (2001)
	<i>Pseudophycodrys phyllophora</i>	Rookery Bay, Stanley, Falkland Islands	AF257441	Lin et al. (2001)
Tribe Membranoptereae				
	<i>Membranoptera tenuis</i>	Auke Bay, Alaska, USA	AF257383	Lin et al. (2001)
	<i>Membranoptera weeksiae</i>	Boiler Bay, Oregon, USA	AF257384	Lin et al. (2001)
Tribe Hypoglosseae				
	<i>Hypoglossum hypoglossoides</i>	Wemeldinge, Zeeland, The Netherlands	AF257368	Lin et al. (2001)
	<i>Hypoglossum</i> sp.	West Angle Bay, Pembrokeshire, Wales, UK	AF257369	Lin et al. (2001)
	<i>Branchioglossum woodii</i>	Mexico	AF254161	Lin et al. (2001)
Subfamily Sarcomenioideae				
Tribe Sarcomenieae				
	<i>Sarcomenia delesserioides</i>	Warrambool, Victoria, Australia	AF257443	Lin et al. (2001)
	<i>Malaconema</i> sp.	Queenscliff, Victoria, Australia	MK814687	Díaz-Tapia et al. (2019)
Tribe Apoglosseae				
	<i>Apoglossum ruscifolium</i>	Receira das Ilhas near Ericeira, Distr. Lisboa, Portugal	AF312310	Lin et al. (2001)
	<i>Apoglossum spathulatum</i>	George Town, Windmill Point, Tasmania, Australia	KY682904	-
Subfamily Nitophylloideae				
Tribe Nitophylleae				
	<i>Polyneuropsis stolonifera</i>	North Jenner Beach, Sonoma Co., California, USA	AF257439	Lin et al. (2001)
	<i>Polyneuropsis stolonifera</i>	Bradys Beach, Bamfield, British Columbia, Canada	KY682901	-
	<i>Radicilingua mediterranea</i> sp. nov.	Venice Lagoon, Italy	LR991382	This study
	<i>Radicilingua mediterranea</i> sp. nov.	Venice Lagoon, Italy	LR991383	This study
	<i>Radicilingua mediterranea</i> sp. nov.	Venice Lagoon, Italy	LR991384	This study
	<i>Radicilingua mediterranea</i> sp. nov.	Trieste, Italy	LR991385	This study
	<i>Radicilingua mediterranea</i> sp. nov.	Mar Piccolo of Taranto, Italy	LR991386	This study
	<i>Radicilingua thysanorhizans</i>	Duke Rock, Plymouth, UK	LR991380	This study
	<i>Radicilingua thysanorhizans</i>	Pembrokeshire, Wales, UK	LR991381	This study
	<i>Radicilingua media</i> comb. nov.	Texas, USA	AF254166	Lin et al. (2001)
	<i>Radicilingua media</i> comb. nov.	Radio Island, Bogue sound, North Carolina, USA	AF254167	Lin et al. (2001)
	<i>Augophyllum kentingii</i>	Sail Rock, Kenting National Park, Taiwan	AY680694	Lin et al. (2004a)
	<i>Augophyllum marginifracta</i>	Sodwana Bay, KwaZulu-Natal, South Africa	AY680695	Lin et al. (2004a)
	<i>Augophyllum delicatum</i>	Jervis Bay, New South Wales, Australia	AF257400	Lin et al. (2001)
	<i>Nitophyllum hommersandii</i>	Banana Bay, Kenting National Park, Taiwan	AY118270	Lin and Fredericq (2003)
	<i>Nitophyllum punctatum</i>	Asturias, Spain	AF257402	Lin et al. (2001)
	<i>Valeriemaya cruenta</i>	-	AF257454	-
	<i>Valeriemaya cruenta</i>	Vailavae, New Zealand	AF257453	Lin et al. (2001)
	<i>Valeriemaya</i> sp.	Tasmania, Australia	KY682900	-
Tribe Martensieae				
	<i>Martensia lewisiae</i>	Banana Bay, Kenting National Park, Taiwan	AY253661	Lin et al. (2004b)
	<i>Martensia pavonia</i>	Cayos Zapatilla, Bocas del Toro, Caribbean Sea, Panama	AF257379	Lin et al. (2001)
	<i>Martensia australis</i>	Little Santa Cruz Is., Zamboanga City, Philippines	AF257374	Lin et al. (2001)
	<i>Martensia elegans</i>	Palm Beach, Natal Province, South Africa	AF257375	Lin et al. (2001)
	<i>Martensia formosana</i>	Sail Rock, Kenting National Park, Taiwan	AY253663	Lin et al. (2004b)

For each organism, the current classification at the family / tribe levels, the species name, the collection site, the *rbcl* INSDC accession number and the literature reference where the organism was first reported are shown. Taxonomic classification is based on Lin and Fredericq (2003), Lin et al. (2001, 2004a, 2004b), Díaz-Tapia et al. (2019), and the present study.

Supplementary Table S2. Percent identity matrix for the 5P-*rbcL* gene fragment (630 aligned positions) of the subfamily Nitophylloideae

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. AY118270 <i>Nitophyllum hommersandii</i>	100.00	92.86	89.68	89.68	89.68	90.16	90.00	90.79	90.95	90.79	90.79	90.79	90.79	90.79	90.48	90.48	92.54	92.54	91.59	84.92	85.71	85.56	85.87	85.40
2. AF257402 <i>Nitophyllum punctatum</i>	92.86	100.00	88.73	88.73	89.05	90.32	90.32	90.32	90.48	89.52	89.52	89.52	89.52	89.52	90.16	90.16	91.27	91.27	92.38	85.71	86.51	86.03	87.30	87.30
3. AF257439 <i>Polyneuropsis stolonifera</i>	89.68	88.73	100.00	100.00	92.06	91.43	91.75	92.22	92.38	92.06	92.06	92.06	92.06	92.06	91.75	91.75	90.79	90.79	90.16	85.71	86.19	86.51	85.56	86.67
4. KY682901 <i>Polyneuropsis stolonifera</i>	89.68	88.73	100.00	100.00	92.06	91.43	91.75	92.22	92.38	92.06	92.06	92.06	92.06	92.06	91.75	91.75	90.79	90.79	90.16	85.71	86.19	86.51	85.56	86.67
5. AY680694 <i>Augophyllum kentingii</i>	89.68	89.05	92.06	92.06	100.00	95.87	96.51	93.17	93.33	92.38	92.38	92.38	92.38	92.38	92.22	92.22	91.27	91.27	90.48	86.51	86.51	86.51	86.67	87.30
6. AY680695 <i>Augophyllum marginifracta</i>	90.16	90.32	91.43	91.43	95.87	100.00	97.78	92.54	92.70	92.06	92.06	92.06	92.06	92.06	91.90	91.90	91.43	91.43	91.59	87.46	86.98	86.98	86.83	87.30
7. AF257400 <i>Augophyllum delicatum</i>	90.00	90.32	91.75	91.75	96.51	97.78	100.00	92.70	92.86	91.90	91.90	91.90	91.90	91.90	91.75	91.75	91.43	91.43	91.27	86.83	87.14	86.83	86.67	87.14
8. AF254166 <i>Radicilingua media</i> comb. nov.	90.79	90.32	92.22	92.22	93.17	92.54	92.70	100.00	99.84	96.51	96.51	96.51	96.51	96.51	96.51	96.51	93.17	93.17	92.54	86.98	87.30	87.78	87.62	88.41
9. AF254167 <i>Radicilingua media</i> comb. nov.	90.95	90.48	92.38	92.38	93.33	92.70	92.86	99.84	100.00	96.35	96.35	96.35	96.35	96.35	96.67	96.67	93.33	93.33	92.70	87.14	87.14	87.62	87.78	88.57
10. <i>Radicilingua mediterranea</i> sp. nov.-Trieste	90.79	89.52	92.06	92.06	92.38	92.06	91.90	96.51	96.35	100.00	100.00	100.00	100.00	100.00	96.67	96.67	93.33	93.33	92.06	85.56	86.51	86.98	86.98	86.98
11. <i>Radicilingua mediterranea</i> sp. nov.-Venice_1	90.79	89.52	92.06	92.06	92.38	92.06	91.90	96.51	96.35	100.00	100.00	100.00	100.00	100.00	96.67	96.67	93.33	93.33	92.06	85.56	86.51	86.98	86.98	86.98
12. <i>Radicilingua mediterranea</i> sp. nov.-Venice_2	90.79	89.52	92.06	92.06	92.38	92.06	91.90	96.51	96.35	100.00	100.00	100.00	100.00	100.00	96.67	96.67	93.33	93.33	92.06	85.56	86.51	86.98	86.98	86.98
13. <i>Radicilingua mediterranea</i> sp. nov.-Venice_3	90.79	89.52	92.06	92.06	92.38	92.06	91.90	96.51	96.35	100.00	100.00	100.00	100.00	100.00	96.67	96.67	93.33	93.33	92.06	85.56	86.51	86.98	86.98	86.98
14. <i>Radicilingua mediterranea</i> sp. nov.-Taranto	90.79	89.52	92.06	92.06	92.38	92.06	91.90	96.51	96.35	100.00	100.00	100.00	100.00	100.00	96.67	96.67	93.33	93.33	92.06	85.56	86.51	86.98	86.98	86.98
15. <i>Radicilingua thysanorhizans</i> -Plymouth	90.48	90.16	91.75	91.75	92.22	91.90	91.75	96.51	96.67	96.67	96.67	96.67	96.67	96.67	100.00	100.00	92.70	92.70	92.22	86.19	86.51	86.35	87.14	87.94
16. <i>Radicilingua thysanorhizans</i> -Wales	90.48	90.16	91.75	91.75	92.22	91.90	91.75	96.51	96.67	96.67	96.67	96.67	96.67	96.67	100.00	100.00	92.70	92.70	92.22	86.19	86.51	86.35	87.14	87.94
17. AF257454 <i>Valeriemaya cruenta</i>	92.54	91.27	90.79	90.79	91.27	91.43	91.43	93.17	93.33	93.33	93.33	93.33	93.33	93.33	92.70	92.70	100.00	100.00	96.03	84.60	85.71	85.87	85.24	85.71
18. AF257453 <i>Valeriemaya cruenta</i>	92.54	91.27	90.79	90.79	91.27	91.43	91.43	93.17	93.33	93.33	93.33	93.33	93.33	93.33	92.70	92.70	100.00	100.00	96.03	84.60	85.71	85.87	85.24	85.71
19. KY682900 <i>Valeriemaya</i> sp.	91.59	92.38	90.16	90.16	90.48	91.59	91.27	92.54	92.70	92.06	92.06	92.06	92.06	92.06	92.22	92.22	96.03	96.03	100.00	85.40	85.87	85.71	86.83	87.14
20. AF257374 <i>Martensia australis</i>	84.92	85.71	85.71	85.71	86.51	87.46	86.83	86.98	87.14	85.56	85.56	85.56	85.56	85.56	86.19	86.19	84.60	84.60	85.40	100.00	96.98	97.30	87.78	88.73
21. AF257375 <i>Martensia elegans</i>	85.71	86.51	86.19	86.19	86.51	86.98	87.14	87.30	87.14	86.51	86.51	86.51	86.51	86.51	86.51	86.51	85.71	85.71	85.87	96.98	100.00	98.41	88.73	89.52
22. AY253663 <i>Martensia formosana</i>	85.56	86.03	86.51	86.51	86.51	86.98	86.83	87.78	87.62	86.98	86.98	86.98	86.98	86.98	86.35	86.35	85.87	85.87	85.71	97.30	98.41	100.00	87.94	89.21
23. AY253661 <i>Martensia lewisiae</i>	85.87	87.30	85.56	85.56	86.67	86.83	86.67	87.62	87.78	86.98	86.98	86.98	86.98	86.98	87.14	87.14	85.24	85.24	86.83	87.78	88.73	87.94	100.00	96.51
24. AF257379 <i>Martensia pavonia</i>	85.40	87.30	86.67	86.67	87.30	87.30	87.14	88.41	88.57	86.98	86.98	86.98	86.98	86.98	87.94	87.94	85.71	85.71	87.14	88.73	89.52	89.21	96.51	100.00

The boxes highlight genus borders.

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