

Supplementary Materials

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Supplementary Table S1. Taxa included in the phylogeny analyses, with voucher / strain, collection locality and / or date, GenBank accession numbers for *rbcL* and COI-5P, and references

Species	Herbarium voucher	Collection details	GenBank accession No.		Reference
			<i>rbcL</i>	COI-5P	
Outgroup					
<i>Cladostephus spongiosus</i> (Hudson) C. Agardh	FRA0420	Ile verte, Roscoff, Brittany, France; Jul 21, 2005	-	EU681396	Bittner et al. (2008)
<i>Cladostephus spongiosus</i> (Hudson) C. Agardh	SGAD-111 (66-10-2)	Oude Katse Veer, Oosterschelde, Zeeland, Netherlands	AJ287863	-	Draisma et al. (2001)
<i>Microzonia phinneyi</i> (E. C. Henry & D. G. Müller) Camacho & Fredericq	SGAD-204	Vancouver Island, B.C., Canada	AJ287868	-	Draisma et al. (2001)
Ingroup (Ralfsiales)					
Hapalospongiaceae					
<i>Hapalospongidion gelatinosum</i> De A. Saunders	FCME:PTM9657/VR6H	El Palmar, Guerrero, Mexico; Feb 4, 2013	KX610182	KX765489	León-Alvarez et al. (2017)
<i>Hapalospongidion</i> sp. 2MP	PG071356	Reis Magos, Madeira, Portugal; Jul 31, 2007	MH593209	MH593168	Parente and Saunders (2019)
<i>Basispora africana</i> D. M. John & G. W. Lawson	BM000770078/A1241	Komenda, Ghana	KY296819	-	Poong et al. (2017)
Mesosporaceae					
<i>Mesospora elongata</i> Poong, Lim & Phang	KU-d11206/FUS3	Fusaki, Ishigaki Island, Okinawa Prefecture, Japan	JQ620003	JQ620011	Poong et al. (2013)
<i>Mesospora indopacifica</i> Poong, Lim & Phang	PSM12212/LEN41	Lendang Luar, Lombok Island, Indonesia	KP689604	KP689621	Poong et al. (2017)
<i>Mesospora lombokensis</i> Poong, Lim & Phang	PSM12239/LAB74	Labuhan Pandan, Lombok Island, Indonesia	KP689614	KP689631	Poong et al. (2017)
<i>Mesospora negrosensis</i> J. West & H. Calumpong	PSM12326/CHD120	Terengganu, Pantai Chendering, Malaysia; Feb 16, 2012	KC847391	KC847370	Poong et al. (2014)
<i>Mesospora schmidtii</i> Weber Bosse	PSM12235/BAT43	Batukijok, Lombok Island, Indonesia	JQ620001	JQ620009	Poong et al. (2013)
Neoralfsiaceae					
<i>Neoralfsia expansa</i> (J. Agardh) Lim & Kawai	FCME:GM651	Veracruz, Morro de la Mancha, Mexico; Apr 29, 2010	KM032760	-	León-Álvarez et al. (2014)
<i>Neoralfsia expansa</i> (J. Agardh) Lim & Kawai	PSM12230/GIL70	Gili Getting, Lombok Island, Indonesia; Jun 10, 2010	KC847393	-	Poong et al. (2014)
<i>Neoralfsia expansa</i> (J. Agardh) Lim & Kawai	PSM12254/BSR40	Palau Besar, Melaka, Malaysia; Apr 11, 2010	KC847392	-	Poong et al. (2014)

Supplementary Table S1. Continued

Species	Herbarium voucher	Collection details	GenBank accession No.		Reference
			<i>rbcL</i>	COI-5P	
<i>Neoralfsia hancockii</i> (E. Y. Dawson) D. Leon-Alvarez & M. L. Nunez-Resendiz	FCME:PTM9165	Baja California, La Palmilla, Mexico; Sep 30, 2009	KF977828	-	León-Álvarez et al. (2014)
“ <i>Ralfsia</i> ” sp. RspD	RspD	Durban, South Africa	AB250076	-	Lim et al. (2007)
Pseudoralfsiaceae					
<i>Nuchella vesicularis</i> Parente, Fletcher & G. W. Saunders	PG071357	Reis Magos, Madeira, Portugal; Jul 31, 2007	MK972314	MK972258	Parente et al. (2021)
<i>Pseudoralfsia azorica</i> Parente, Fletcher & G. W. Saunders	MD0001334d	Caloura, Azores S. Miguel, Portugal; Oct 8, 2009	MK972325	MK972309	Parente et al. (2021)
<i>Pseudoralfsia verrucosa</i> (Areschoug) Parente, Fletcher & G. W. Saunders	NOR01	Marine Station, Norwegian west coast, Norway; Sep 16, 2010	MH593217	MH593177	Parente et al. (2021)
“ <i>Ralfsia</i> ” sp. RspB	RspB	Bergen, Norway	AB250074	-	Lim et al. (2007)
“ <i>Ralfsia</i> ” sp. JK6	JK6	Port St. Mary, Isle of Man, British Isles; Aug 3, 2009	GU014707	-	Kain et al. (2010)
“ <i>Ralfsia</i> ” sp. JK7	JK7	Port St. Mary, Isle of Man, British Isles; Aug 3, 2009	GU014708	-	Kain et al. (2010)
“ <i>Ralfsia</i> ” sp. RspB	RspB	Bergen, Norway	AB250074	-	Lim et al. (2007)
“ <i>Ralfsia</i> ” sp. RspC	RspC	Katiki Beach, New Zealand	AB250075	-	Lim et al. (2007)
<i>Pseudoralfsia</i> sp. 2MP	MPFL221	Mosteiros, Azores S. Miguel, Portugal; May 4, 2005	MK972317	MK972278	Parente et al. (2021)
<i>Pseudoralfsia</i> sp. 2MP	PG071346	Reis Magos, Madeira, Portugal; Jul 31, 2007	MK972323	MK972302	Parente et al. (2021)
<i>Pseudoralfsia</i> sp. 3MP	PG08158	Caloura, Azores S. Miguel, Portugal; Jan 25, 2008	MK972313	MK972256	Parente et al. (2021)
<i>Pseudoralfsia</i> sp. 4MP	MPMS135	Norfolk, England, United Kingdom; May 23, 2010	MK972315	MK972272	Parente et al. (2021)
<i>Pseudoralfsia</i> sp. 5MP	MS118	Swanage, Dorset, South West England, United Kingdom; Jan 30, 2010	MK972324	MK972308	Parente et al. (2021)
Ralfsiaceae					
<i>Analipus japonicus</i> (Harvey) M. J. Wynne	KU-MACC:KU-883	Oshoro, Hokkaido Pref., Japan	AB776777	AB776658	Kawai et al. (2015)
<i>Endoplura aurea</i> Hollenberg	KU-d2273/KU1465	Inubouzaki, Chiba Pref., Japan	AB264039	-	Lim et al. (2007)
<i>Endoplura jejuensis</i> A. O. Oteng’o, T. O. Cho & B. Y. Won	CUK19630A	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; May 1, 2019	MW627308	MW627316	Oteng’o et al. (2021)
<i>Endoplura koreana</i> A. O. Oteng’o, T. O. Cho & B. Y. Won	CUK18755B	Pado-ri, Sowon-myeon, Taean-gun, Chungcheongnam-do, South Korea; Mar 3, 2018	MW627310	MW627318	Oteng’o et al. (2021)
<i>Fissipedicella orientalis</i> A. O. Oteng’o, B. Y. Won & T. O. Cho	CUK18754	Pado-ri, Sowon-myeon, Taean-gun, Chungcheongnam-do, South Korea; Mar 3, 2018	OK031043	OK031055	This study
<i>Fissipedicella orientalis</i> A. O. Oteng’o, B. Y. Won & T. O. Cho	CUK18825	Jeongdo-ri, Wando-eup, Wando-gun, Jeollanam-do, South Korea; Apr 1, 2018	OK031044	-	This study
<i>Fissipedicella orientalis</i> A. O. Oteng’o, B. Y. Won & T. O. Cho	CUK19178A	Gijang, Ilgwang-myeon, Gijang-gun, Busan, South Korea; Oct 8, 2018	OK031045	OK031056	This study
<i>Fissipedicella orientalis</i> A. O. Oteng’o, B. Y. Won & T. O. Cho	CUK19219B	Pado-ri, Sowon-myeon, Taean-gun, Chungcheongnam-do, South Korea; Nov 3, 2018	OK031046	OK031057	This study
<i>Fissipedicella orientalis</i> A. O. Oteng’o, B. Y. Won & T. O. Cho	CUK19509C	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; Apr 19, 2019	OK031047	OK031058	This study

Supplementary Table S1. Continued

Species	Herbarium voucher	Collection details	GenBank accession No.		Reference
			<i>rbcL</i>	COI-5P	
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK19606C	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; May 1, 2019	OK031048	OK031059	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK19707B	Yeraehae-ro, Seogwipo-si, Jeju-do, South Korea; Jun 6, 2019	OK031049	OK031060	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK19606C	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; May 1, 2019	OK031048	OK031059	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK19707B	Yeraehae-ro, Seogwipo-si, Jeju-do, South Korea; Jun 6, 2019	OK031049	OK031060	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK20041D	Bomok Port, Bomok-dong, Seogwipo-si, Jeju-do, South Korea; Oct 26, 2019	OK031050	OK031061	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK20066A	Hwasam-ri, Yongnam-myeon, Tongyeong-si, Gyeongsangnam-do, South Korea; Oct 28, 2019	OK031051	OK031062	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK20332	Jeongdo-ri, Wando-eup, Wando-gun, Jeollanam-do, South Korea; May 8, 2020	OK031052	OK031063	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK20760A	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; Aug 17, 2020	OK031053	OK031064	This study
<i>Fissipedicella orientalis</i> A. O. Oteng'o, B. Y. Won & T. O. Cho	CUK20771	Dolsan Port, Dolsan-eup, Yeosu-si, Jeollanam-do, South Korea; Oct 17, 2020	OK031054	OK031065	This study
<i>Heteroralfsia saxicola</i> (Okamura & Yamada) Kawai	KU-882	Ohma, Aomori Pref., Japan	AB250070	-	Lim et al. (2007)
<i>Ralfsia fungiformis</i> (Gunnerus) Setchell & N. L. Gardner	LLG0038/LBC75	Cap du Bon Désir, Québec, Canada; Sep 21, 2004	EU579936	EU681419	Bittner et al. (2008)
<i>Ralfsia robertii</i> Parente & Saunders	GWS017821	Right side, Folly Cove, Gloucester, Massachusetts, USA; Apr 13, 2010	MH593186	HM915088	Parente and Saunders (2019)
<i>Ralfia</i> sp. 1HG	GWS035115	Haida Gwaii, Fairbairn Bank, British Columbia, Canada; Aug 13, 2013	MH593199	-	Parente and Saunders (2019)
<i>Ralfia</i> sp. RspA	RspA	Ako, Hyogo, Japan	AB250073	-	Lim et al. (2007)
<i>Ralfsia tenebris</i> Parente & Saunders	GWS019661	Opening of Grappler Inlet, Bamfield, British Columbia, Canada; Jun 3, 2010	MH593212	HQ919317	Parente and Saunders (2019)
<i>Ralfsia unimaculata</i> Parente & Saunders	GWS021014	NW of Masset, Haida Gwaii, Between Wiah Point & Cape Edensaw (#2), British Columbia, Canada; Jun 8, 2010	MH593202	HQ990670	Parente and Saunders (2019)
Sungminiaceae					
<i>Sungminia asiatica</i> Oteng'o, Won & T. O. Cho	CUK20874	Daecheon Port, Sinheuk-dong, Boryeong-si, Chungcheongnamdo, South Korea; Nov 28, 2020	MW820821	MW826261	Oteng'o et al. (2022)
<i>Sungminia gladiata</i> Oteng'o, Won & T. O. Cho	CUK19619B	Seongsan Ilchul Peak, Seongsan-eup, Seogwipo-si, Jeju-do, South Korea; May 1, 2019	MW820822	MW826262	Oteng'o et al. (2022)
<i>Sungminia pyriformis</i> Oteng'o, Won & T. O. Cho		Saegdaldong, Seogwipo-si, Jeju-do, South Korea; Jun 6, 2019	MW820825	MW826264	Oteng'o et al. (2022)

Supplementary Table S1. Continued

Species	Herbarium voucher	Collection details	GenBank accession No.		Reference
			<i>rbcL</i>	COI-5P	
Incertae sedis					
Endopluralean sp. 1GWS	GW019915	Gwaii Haana, Koga Islet, British Columbia, Canada; Jun 12, 2010	MH593201	-	Parente and Saunders (2019)
Endopluralean sp. 1GWS	GW019253	Wizard I., Bamfield, British Columbia, Canada; May 28, 2010	-	MH593174	Parente and Saunders (2019)
<i>“Ralfsia longicellularis”</i>	CUK20024	Ulitsa Leytenanta Shmidta, Vladivostok, Russia; Oct 10, 2019	MT000914	-	Oteng’o and Won (2020)
Ralfsiacean GWS3 sp. 1MP	PG071347	Reis Magos, Madeira, Portugal; Jul 31, 2007	MH593208	MH593166	Parente and Saunders (2019)
Ralfsiacean GWS4 sp. 1GWS	GWS028311	Gwaii Haanas, Hoskins Islets, British Columbia, Canada; Jul 8, 2011	MH593200	-	Parente and Saunders (2019)
Ralfsiacean GWS4 sp. 1GWS	GWS028311	Gwaii Haanas, Hoskins Islets, British Columbia, Canada; Jul 8, 2011	-	KM254572	Saunders (2014)

Accession numbers in boldface font show newly added sequences from the present study.
COI-5P, 5’ region of cytochrome c oxidase subunit I.

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