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Invertebrate Systematics

Supplementary Material

Molecular diversity of black corals from the Saudi Arabian Red Sea: a first assessment

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Table S1: List of specimens analysed in this study (in bold) and used in phylogenetic analyses.

Family	Genus	Sample ID	*IgrW*	*IgrN*	*cox3-cox1*	Depth (m)	Locality	Latitude	Longitude	Reference
Antipathidae	*Allopathes*	**NTN0038-18**		OR339021		118.0	GoA, SA	29.26314	34.92806	This study
Antipathidae	*Allopathes*	**NTN0056-12**	OR339157	OR339017		93.6	N Red Sea, SA	27.89819	34.83222	This study
Antipathidae	*Allopathes*	**CHR0019-5B**	OR339169	OR339019		147.2	GoA, SA	29.2645	34.92749	This study
Antipathidae	*Allopathes*	**NTN0033-1**	OR339158	OR339015		143	N Red Sea	27.59406	35.30189	This study
Antipathidae	*Antipathes*	**CHR0043-12**	OR339145	OR339003		143.1	GoA, SA	28.45677	34.75782	This study
Antipathidae	*Antipathes*	**CHR0043-26**	OR339147	OR339004		155.2	GoA, SA	28.45756	34.75851	This study
Antipathidae	*Antipathes*	**NTN0039-17**	OR339144	OR338957		NA	NA	NA	NA	This study
Antipathidae	*Antipathes*	**NTN0060-15B**	OR339146			76.2	GoA, SA	29.03669	34.83712	This study
Antipathidae	*Antipathes*	**NTN0061-5C**	OR339148	OR339001		87.9	GoA, SA	28.01561	34.48252	This study
Antipathidae	*Antipathes*	**SA4575**	OR339083	OR338923		NA	GoA, SA	29.14598	34.8808	This study
Antipathidae	*Antipathes*	**CHR0043-22**	OR339088	OR338924		125.4	GoA, SA	28.45645	34.75806	This study
Antipathidae	*Antipathes*	**DIVE09/11-A4**	OR339086	OR338927		12.0	N Red Sea, SA	27.96483	34.66083	This study
Antipathidae	*Antipathes*	**SA4560**	OR339067	OR338970		22.3	GoA, SA	27.64351	35.30561	This study
Antipathidae	*Antipathes*	**CHR0045-2**	OR339121	OR338920		NA	NA	NA	NA	This study
Antipathidae	*Antipathes*	**DIVE10/11-1**	OR339113	OR338955		27.0	GoA, SA	28.00633	34.48450	This study
Antipathidae	*Antipathes*	**SA4624**		OR338960		NA	GoA, SA	NA	NA	This study
Antipathidae	*Antipathes*	**NTN0037-18A**	OR339119	OR338956		72.8	GoA, SA	29.26382	34.92952	This study
Antipathidae	*Antipathes*	**NTN0043-26**	OR339120	OR338937		79.7	N Red Sea, SA	27.70801	35.16837	This study
Antipathidae	*Antipathes*	**NTN0029-20**	OR339150	OR339005		54.5	N Red Sea, SA	27.59057	35.33282	This study
Antipathidae	*Antipathes*	**NTN0038-22A**	OR339149	OR339002		74.2	GoA, SA	29.26265	34.93059	This study
Antipathidae	*Antipathes*	**NTN0038-19B**	OR339151			83.6	GoA, SA	29,26254	34,93029	This study
Antipathidae	*Antipathes*	**SA4447**	OR339135	OR338959		4.0	N Red Sea, SA	27.64351	35.30561	This study
Antipathidae	*Antipathes*	**SA4511**	OR339152	OR339006		5.4	N Red Sea, SA	27.64351	35.30561	This study
Antipathidae	*Antipathes*	**DIVE23/10-1**	OR339138	OR338978		31.0	GoA, SA	28.60317	34.79417	This study
Antipathidae	*Antipathes*	**DIVE23/10-2**	OR339096	OR338997		30.0	GoA, SA	28.60317	34.79417	This study
Antipathidae	*Antipathes*	**SA4999**	OR339105	OR338950		12.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Antipathes*	**SA5000**	OR339076	OR338966		6.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Antipathes*	**SA5005**	OR339137	OR338935		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Antipathes*	**SA5034**		OR338939		24.0	C Red Sea, SA	22.29149	39.05185	This study
Antipathidae	*Antipathes*	**SA5035**	OR339118	OR338931		25.0	C Red Sea, SA	22.29149	39.05185	This study
Antipathidae	*Antipathes*	**SA5040**	OR339141	OR338979		20.0	C Red Sea, SA	22.26498	39.04495	This study
Antipathidae	*Cirrhipathes*	**CHR0034-4A**	OR339080	OR338977		92.8	N Red Sea, SA	27.90944	34.62738	This study
Antipathidae	*Cirrhipathes*	**CHR0043-24**	OR339103	OR338925		116.4	GoA, SA	28.45641	34.75808	This study
Antipathidae	*Cirrhipathes*	**DIVE23/10-3**	OR339068	OR338974		30.0	GoA, SA	28.60317	34.79417	This study
Antipathidae	*Cirrhipathes*	**NTN0034-20**		OR338988		71.3	GoA, SA	29.14403	34.87261	This study
Antipathidae	*Cirrhipathes*	**NTN0034-24**	OR339110	OR338946		56.8	GoA, SA	29.14356	34.87543	This study
Antipathidae	*Cirrhipathes*	**DIVE09/11-A3**	OR339116			0–30	NA	NA	NA	This study
Antipathidae	*Cirrhipathes*	**SA4992**	OR339066	OR338917		18.0	C Red Sea, SA	22.32010	38.85632	This study
Antipathidae	*Cirrhipathes*	**SA4993**	OR339074	OR338932		18.0	C Red Sea, SA	22.32010	38.85632	This study
Antipathidae	*Cirrhipathes*	**SA4994**	OR339075	OR338941		18.0	C Red Sea, SA	22.32010	38.85632	This study
Antipathidae	*Cirrhipathes*	**SA4995**	OR339133	OR338982		8.0	C Red Sea, SA	22.32668	38.85774	This study
Antipathidae	*Cirrhipathes*	**SA4996**	OR339070	OR338949		8.0	C Red Sea, SA	22.32668	38.85774	This study
Antipathidae	*Cirrhipathes*	**SA5001**	OR339122	OR338991		6.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5020**	OR339071	OR338973		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5021**	OR339072	OR338933		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5022**	OR339094	OR338954		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5023**	OR339107	OR338918		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5024**	OR339093	OR338942		8.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Cirrhipathes*	**SA5036**	OR339139	OR338971		23.0	C Red Sea, SA	22.29149	39.05185	This study
Antipathidae	*Cirrhipathes*	**SA5037**	OR339112	OR338938		23.0	C Red Sea, SA	22.29149	39.05185	This study
Antipathidae	*Cirrhipathes*	**SA5038**	OR339108	OR338940		23.0	C Red Sea, SA	22.29149	39.05185	This study

Family	Genus	Sample ID	*IgrW*	*IgrN*	*cox3-cox1*	Depth (m)	Locality	Latitude	Longitude	Reference
Antipathidae	*Cirrhipathes*	**SA5039**		OR338972		23.0	C Red Sea, SA	22.29149	39.05185	This study
Antipathidae	*Cirrhipathes*	**SA5041**	OR339140	OR338948		20.0	C Red Sea, SA	22.26498	39.04495	This study
Antipathidae	*Pseudocirrhipathes*	**CHR0015-13**	OR339156	OR339008		165.3	GoA, SA	29.12776	34.86354	This study
Antipathidae	*Pseudocirrhipathes*	**NTN0043-25**	OR339165	OR339012		79.8	N Red Sea, SA	27.708	35.16836	This study
Antipathidae	*Pseudocirrhipathes*	**NTN0043-24**	OR339167			80.3	N Red Sea, SA	27.70795	35.16837	This study
Antipathidae	*Pseudocirrhipathes*	**CHR0043-25A**	OR339159	OR339009		155.3	GoA, SA	28.45756	34.75851	This study
Antipathidae	*Pseudocirrhipathes*	**CHR0043-25B**	OR339160	OR339013		155.3	GoA, SA	28.45756	34.75851	This study
Antipathidae	*Pseudocirrhipathes*	**CHR0043-25C**	OR339163	OR339011		155.3	GoA, SA	28.45756	34.75851	This study
Antipathidae	*Pseudocirrhipathes*	**NTN0037-15**	OR339164	OR339014		94.3	GoA, SA	29.26407	34.92863	This study
Antipathidae	*Pseudocirrhipathes*	**NTN0059-15**	OR339170	OR339010		126.5	GoA, SA	28.01891	34.47982	This study
Antipathidae	cf. *Pseudocirrhipathes*	**CHR0015-12**	OR339161	OR339007		162.0	GoA, SA	29.12777	34.86360	This study
Antipathidae	cf. *Pseudocirrhipathes*	**CHR0019-5A**	OR339168	OR339018		147.2	GoA, SA	29.26456	34.927495	This study
Antipathidae	*Stichopathes*	**CHR0034-3B**	OR339142	OR338980		92.8	N Red Sea, SA	27.90944	34.62738	This study
Antipathidae	*Stichopathes*	**CHR0034-4B**	OR339109	OR338975		92.8	N Red Sea, SA	27.90944	34.62738	This study
Antipathidae	*Stichopathes*	**CHR0043-14A**	OR339084	OR338936		132.6	GoA, SA	28.45657	34.7579	This study
Antipathidae	*Stichopathes*	**NTN0036-9**	OR339089	OR338929		186.1	GoA, SA	28.85837	34.83111	This study
Antipathidae	*Stichopathes*	**NTN0038-5**	OR339134	OR338985		335.5	GoA, SA	29.26474	34.91464	This study
Antipathidae	*Stichopathes*	**NTN0056-9**	OR339155	OR339000		182.6	N Red Sea, SA	27.89787	34.8333	This study
Antipathidae	*Stichopathes*	**NTN0059-24**	OR339143	OR338958		105.80	GoA, SA	28.01825	34.48197	This study
Antipathidae	*Stichopathes*	**CHR0043-28**	OR339153	OR338999		217.4	GoA, SA	28.45749	34.75717	This study
Antipathidae	*Stichopathes*	**NTN0030-2**	OR339154			164.3	N Red Sea, SA	27.58990	35.322524	This study
Antipathidae	*Stichopathes*	**DIVE09/11-A6**	OR339090	OR338962		11.0	N Red Sea, SA	27.96483	34.66083	This study
Antipathidae	*Stichopathes*	**DIVE09/11-B1**	OR339087	OR338945		8.0	N Red Sea, SA	27.92050	34.66833	This study
Antipathidae	*Stichopathes*	**SA4998**	OR339097	OR338961		30.0	C Red Sea, SA	22.30990	38.886679	This study
Antipathidae	*Stichopathes*	**SA5002**	OR339092	OR338967		6.0	C Red Sea, SA	22.30990	38.88667	This study
Antipathidae	*Stichopathes*	**NTN0029-7**	OR339125	OR338989		492.8	N Red Sea, SA	27.60018	35.33548	This study
Antipathidae	*Stichopathes*	**NTN0030-4**	OR339114	OR338965		87.9	N Red Sea, SA	27.58945	35.32361	This study
Antipathidae	*Stichopathes*	**NTN0037-6**	OR339126	OR338992		349.0	GoA, SA	29.26583	34.91360	This study
Antipathidae	*Stichopathes*	**CHR0034-2B**	OR339115	OR338969		95.4	N Red Sea, SA	27.90931	34.62771	This study
Antipathidae	*Stichopathes*	**CHR0044-2A**	OR339117	OR338944		101.6	GoA, SA	28.47947	34.76997	This study
Antipathidae	*Stichopathes*	**CHR0044-4B**	OR339085	OR338926		101.7	GoA, SA	28.47947	34.76997	This study
Antipathidae	*Stichopathes*	**CHR0045-4B**	OR339099	OR338981		NA	NA	NA	NA	This study
Antipathidae	*Stichopathes*	**CHR0045-4C**	OR339124	OR338993		NA	NA	NA	NA	This study
Antipathidae	*Stichopathes*	**NTN0034-16**		OR338983		165.9	GoA, SA	29.14478	34.86632	This study
Antipathidae	*Stichopathes*	**NTN0035-16A**	OR339104	OR338930		102.9	GoA, SA	28.83085	34.82388	This study
Antipathidae	*Stichopathes*	**NTN0035-16B**	OR339130	OR338984		102.9	GoA, SA	28.83085	34.82388	This study
Antipathidae	*Stichopathes*	**NTN0035-16D**	OR339106	OR338952		102.9	GoA, SA	28.83085	34.82388	This study
Antipathidae	*Stichopathes*	**NTN0036-11**	OR339100	OR338951		83.8	GoA, SA	28.85793	34.83301	This study
Antipathidae	*Stichopathes*	**NTN0037-16**	OR339077	OR338953		94.2	GoA, SA	29.26407	34.92862	This study
Antipathidae	*Stichopathes*	**NTN0037-19B**	OR339131	OR338996		71.3	GoA, SA	29.26391	34.92987	This study
Antipathidae	*Stichopathes*	**NTN0037-19C**	OR339136			71.3	GoA, SA	29.26391	34.92987	This study
Antipathidae	*Stichopathes*	**NTN0038-12B**	OR339128	OR338986		141.6	GoA, SA	29.26316	34.92715	This study
Antipathidae	*Stichopathes*	**NTN0038-12C**	OR339123	OR338987		141.6	GoA, SA	29.26316	34.92715	This study
Antipathidae	*Stichopathes*	**NTN0038-12D**	OR339127	OR338995		141.6	GoA, SA	29.26316	34.92715	This study
Antipathidae	*Stichopathes*	**NTN0038-15B**	OR339132	OR338990		134.4	GoA, SA	29.26316	34.92743	This study
Antipathidae	*Stichopathes*	**NTN0038-19A**	OR339101	OR338976		83.6	GoA, SA	29.26254	34.93029	This study
Antipathidae	*Stichopathes*	**NTN0057-6**	OR339102	OR338963		70.8	GoA, SA	28.00915	34.84092	This study
Antipathidae	*Stichopathes*	**NTN0059-21A**	OR339069	OR338947		105.80	GoA, SA	28.01825	34.48197	This study
Antipathidae	*Stichopathes*	**NTN0059-22**	OR339111	OR338921		105.8	GoA, SA	28.01825	34.48197	This study
Antipathidae	*Stichopathes*	**NTN0061-3B**	OR339091	OR338922		85.2	GoA, SA	28.01488	34.48176	This study
Antipathidae		**DIVE10/11-A3**		OR338919		13	N Red Sea, SA	27,96483	34,66083	This study
Antipathidae		**DIVE09/11-B3**	OR339079	OR338998		7	N Red Sea, SA	27,92050	34,66833	This study
Antipathidae		**DIVE11/1**	OR339078	OR338928		9	NA	NA	NA	This study
Antipathidae		**DIVE12/10**	OR339081	OR338964		21	N Red Sea, SA	27,62800	35,31900	This study

Family	Genus	Sample ID	*IgrW*	*IgrN*	*cox3-cox1*	Depth (m)	Locality	Latitude	Longitude	Reference
Antipathidae		**NTN0037-17**	OR339082	OR338968		NA	NA	NA	NA	This study
Antipathidae		**SA4465**	OR339073	OR338934		4.2	N Red Sea, SA	27.6396	35.30646	This study
Antipathidae		**SA4627**	OR339129	OR338994		16.8	GoA, SA	28.8167	34,83086	This study
Antipathidae		**SA4628**	OR339095	OR338943		NA	NA	NA	NA	This study
Aphanipathidae	*Acanthopathes*	**CHR0012-3**	OR339179	OR339022		328.7	N Red Sea, SA	27.59674	35.38019	This study
Aphanipathidae	*Acanthopathes*	**NTN0030-1**	OR339174	OR339025		163.6	N Red Sea, SA	27.58988	35.32251	This study
Aphanipathidae	*Acanthopathes*	**NTN0054-5**	OR339173	OR339029		306.5	N Red Sea, SA	27.94991	34.89364	This study
Aphanipathidae	*Acanthopathes*	**CHR0037-1**	OR339171	OR339023		95.0	N Red Sea, SA	27.95638	34.8817	This study
Aphanipathidae	*Acanthopathes*	**CHR0044-1**	OR339172	OR339024		118.1	GoA, SA	28.48006	34.76985	This study
Aphanipathidae	*Acanthopathes*	**NTN0059-14A**	OR339177	OR339026		126.3	GoA, SA	28.01891	34.47980	This study
Aphanipathidae	*Acanthopathes*	**NTN0059-14B**	OR339175	OR339027		126.3	GoA, SA	28.01891	34.47980	This study
Aphanipathidae	*Acanthopathes*	**NTN0059-16E**	OR339178			118.30	GoA, SA	28.01870	34.47997	This study
Aphanipathidae	*Acanthopathes*	**NTN0059-16F**	OR339176	OR339028		118.3	GoA, SA	28.01870	34.47997	This study
Aphanipathidae	*Asteriopathes*	**NTN0041-2**	OR339183		OR339238	193.9	GoA, SA	28.45727	34.75748	This study
Aphanipathidae	*Asteriopathes*	**NTN0059-10**	OR339184	OR339034		171.4	GoA, SA	28.01966	34.47941	This study
Aphanipathidae	*Asteriopathes*	**NTN0030-7**	OR339180	OR339030		163.6	N Red Sea, SA	27.58988	35.32251	This study
Aphanipathidae	*Aphanipathes*	**NTN0034-22**	OR339162	OR339016		68.3	GoA, SA	29.14393	34.87331	This study
Aphanipathidae	*Aphanipathes*	**NTN0039-13**	OR339166	OR339020		76.6	GoA, SA	28.3655	34.71874	This study
Aphanipathidae	*Aphanipathes*	**CHR0043-13**				143.5	GoA, SA	28.45677	34.75783	This study
Aphanipathidae	*Tetrapathes*	**NTN0057-8**	OR339185	OR339031		94.6	GoA, SA	28.00901	34.84597	This study
Aphanipathidae	cf. *Tetrapathes*	**NTN0039-19**	OR339181	OR339033	OR339237	96.4	GoA, SA	29.14489	34.86895	This study
Aphanipathidae	cf. *Tetrapathes*	**NTN0050-11A**	OR339182	OR339032		110.7	N Red Sea, SA	27.94447	34.49855	This study
Myriopathidae	*Myriopathes*	**CHR0019-16A**	OR339196	OR339047	OR339228	NA	NA	NA	NA	This study
Myriopathidae	*Myriopathes*	**CHR0019-16B**	OR339203	OR339063	OR339218	NA	NA	NA	NA	This study
Myriopathidae	*Myriopathes*	**CHR0044-5E**	OR339193	OR339037	OR339216	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	*Myriopathes*	**CHR0047-1**	OR339214	OR339064		153.7	GoA, SA	28.10514	34.56539	This study
Myriopathidae	*Myriopathes*	**CHR0015-10**	OR339192	OR339049	OR339226	235.9	GoA, SA	29.12699	34.86189	This study
Myriopathidae	*Myriopathes*	**NTN0034**	OR339189	OR339046		NA	NA	NA	NA	This study
Myriopathidae	*Myriopathes*	**SA4449**	OR339212	OR339059		NA	N Red Sea, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**SA4504**	OR339198	OR339061	OR339231	NA	N Red Sea, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**SA4506**	OR339191	OR339045	OR339223	5.4	N Red Sea, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**NTN0038-26**	OR339215	OR339065		74.2	GoA, SA	29.26410	34.93019	This study
Myriopathidae	*Myriopathes*	**NTN0046-1**	OR339194	OR339057		95.2	N Red Sea, SA	27.73025	35.24343	This study
Myriopathidae	*Myriopathes*	**NTN0048-14E**	OR339199	OR339054		57.0	N Red Sea, SA	27.71481	35.29291	This study
Myriopathidae	*Myriopathes*	**SA4450**	OR339188	OR339060		4.4	N Red Sea, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**SA4561**	OR339200	OR339053	OR339232	NA	GoA, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**SA4573**	OR339208	OR339062	OR339230	17.4	GoA, SA	29.14598	34.8808	This study
Myriopathidae	*Myriopathes*	**SA4574**	OR339195	OR339048	OR339225	17.6	GoA, SA	29.14598	34.8808	This study
Myriopathidae	*Myriopathes*	**SA5003**	OR339186	OR339035		20.0	C Red Sea, SA	22.30990	38.88667	This study
Myriopathidae	*Myriopathes*	**DIVE10/11-2**	OR339210	OR339041	OR339221	28.0	N Red Sea, SA	28.00633	34.48450	This study
Myriopathidae	*Myriopathes*	**NTN0037-13**	OR339211	OR339042		257.5	GoA, SA	29.26505	34.92201	This study
Myriopathidae	*Myriopathes*	**SA4502**		OR339056	OR339222	4.7	GoA, SA	27.64351	35.30561	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-5F**	OR339204	OR339038	OR339217	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-5G**	OR339201	OR339050	OR339233	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-5H**	OR339206	OR339039	OR339234	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-6C**	OR339205	OR339040	OR339219	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-6D**	OR339202	OR339051	OR339220	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**CHR0044-6E**	OR339207	OR339052	OR339224	135.0	GoA, SA	28.47934	34.76943	This study
Myriopathidae	cf. *Myriopathes*	**SA4505**	OR339209	OR339043	OR339235	5.4	N Red Sea, SA	27.64351	35.30561	This study
Myriopathidae	*Myriopathes*	**DIVE09/11-A9**	OR339197	OR339058	OR339236	10.0	N Red Sea, SA	27.96483	34.66083	This study
Myriopathidae	*Myriopathes*	**NTN0049-5**	OR339213	OR339055		404.7	N Red Sea, SA	27.63175	35.31284	This study
Myriopathidae	*Myriopathes*	**CHR0011-7**	OR339187	OR339036	OR339227	412.6	N Red Sea, SA	27.56451	35.29074	This study
Myriopathidae	*Myriopathes*	**NTN0031-12**	OR339190	OR339044	OR339229	411.8	N Red Sea, SA	27.56426	35.29088	This study
Schizopathidae	*Bathypathes*	MUZAC-6666	ON759276	ON759272	ON759281	627.2	N Red Sea, SA	27.56232	35.28331	Chimienti *et al*. 2022

Family	Genus	Sample ID	*IgrW*	*IgrN*	*cox3-cox1*	Depth (m)	Locality	Latitude	Longitude	Reference
Schizopathidae	*Bathypathes*	MNHN-IK-2016-45	ON759278	ON759275	ON759283	303.2	N Red Sea, SA	27.64380	35.45550	Chimienti *et al*. 2022
Schizopathidae	*Bathypathes*	KAUSTNTN0037-8	ON759277	ON759273	ON759280	278.3	GoA, SA	29.26479	34.92044	Chimienti *et al*. 2022
Schizopathidae	*Bathypathes*	MUZAC-6665	ON759279	ON759274	ON759282	305.7	GoA, SA	28.31497	34.68936	Chimienti *et al*. 2022
Antipathidae	*Antipathes*	D_O1	KF054536	KF054672	KF054438	51.2		20.87891	-156.74721	Brugler *et al*. 2013
Antipathidae	*Antipathes*	TKH_1	GU296490	KF054683	KF054450	63 max		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	KONAS_10	KF054550	KF054674		60		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	S-O2	KF054542			32		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM1015453	GU296491	KF054690	GU296502	6		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM 1015452	KF054547			6		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM1122627	GU296492	KF054679	GU296503	60		17.6204	-63.2608	Brugler *et al*. 2013
Antipathidae	*Antipathes*	NIWA 16050			KF054453	175–200		37.469833-37.472166	177.22-177.215666	Brugler *et al*. 2013
Antipathidae	*Antipathes*	PUL06-29-05-3		KF054694		68.9		24.71666	-83.70000	Brugler *et al*. 2013
Antipathidae	*Antipathes*	PUL06_29_05_1	KF054553	KF054692		68.9		24.71666	-83.70000	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM1086313	KF054554	KF054695		65.8		27.85256	-93.83659	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM1116474	HM060609	KF054696	HM060615	60		27.94067	-93.61132	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM 99750		KF054686		1–15		-0.2644	-91.3819	Brugler *et al*. 2013
Antipathidae	*Antipathes*	P4-200-02-7	KF054541		KF054447	NA		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	P4-200-02-12	KF054537		KF054439	NA		NA	NA	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM 1116476		KF054697	FJ381652	106		27.82485	-93.67341	Brugler *et al*. 2013
Antipathidae	*Antipathes*	USNM1019236	KF054527	KF054721		176		33.95921	-119.4761	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	TMKO_113	KF054548	KF054688	FJ381662	36–67		NA	NA	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	TMKO_114	KF054549	KF054689		36–67		NA	NA	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	TMKO_111	HM060611	KF054685	HM060614	36–67		NA	NA	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	P4_226_9	KF054546	KF054684	KF054443	332		21.8167	-160.0712	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	TW-22			AB441272	NA		NA	NA	Brugler *et al*. 2013
Antipathidae	*Cirrhipathes*	TW-24			AB441273	NA		NA	NA	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	SED804_2	KF054539	KF054675	KF054441	61.3		30.02725	-80.27881	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	IITS622_1	KF054538	KF054673		61		31.53739	-79.73415	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	LYM106_5	KF054571	KF054702	FJ381660	1485		35.12716	-48.1155	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	MIL104_1	KF054573	KF054704		1605		34.81517	-50.50617	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	TMKO-132			KF054451	36–67		NA	NA	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	TMNI0707-22		KF054681	KF054452	NA		NA	NA	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	SED804-5	KF054540	KF054680		61		30.02725	-80.27881	Brugler *et al*. 2013
Antipathidae	*Stichopathes*	USNM 1086309	HM060610		HM060613	92		27.83383	-93.84960	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P5-739-Bench	KF054558			102–127		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P4-206-12	KF054570			88–102		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P4_204_1			KF054457	88–102		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P4-205-7	HM060612			88–102		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P4_205_8	KF054562		KF054458	88–102		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	P4-205-11			KF054459	88–102		NA	NA	Brugler *et al*. 2013
Aphanipathidae	*Aphanipathes*	USNM1116472	KF054583	KF054700	KF054422	97		27.87065	-93.61724	Brugler *et al*. 2013
Aphanipathidae	*Acanthopathes*	P4_226_2	KF054574	KF054709	KF054423	263		21.8241	-160.0686	Brugler *et al*. 2013
Aphanipathidae	*Aphanostichopathes*	LYM105_1	KF054575	KF054705	FJ381659	1485		35.12716	-48.1155	Brugler *et al*. 2013
Aphanipathidae	*Aphanostichopathes*	REH202_2	KF054577	KF054706	KF054415	1681		37.56133	-59.80717	Brugler *et al*. 2013
Aphanipathidae	*Anozopathes*	USNM1010741	KF054578		KF054417	298		21.974	-157.36883	Brugler *et al*. 2013
Aphanipathidae	*Distichopathes*	USNM1517703	MT330297		MT319029	172		27.84340	-92.93840	Opresko *et al*. 2020
Aphanipathidae	*Distichopathes*	USNM 1548274	MT330296		MT319028	172		27.84330	-92.93860	Opresko *et al*. 2020
Aphanipathidae	*Elatopathes*	USNM1116469	KF054587		FJ381653	99		27.87066	-93.61733	Brugler *et al*. 2013
Aphanipathidae	*Elatopathes*	USNM1116470	KF054588	KF054725	KF054437	102		27.8707	-93.61763	Brugler *et al*. 2013
Aphanipathidae	*Elatopathes*	USNM 1116458			KF054435	99.8		27.87134	-93.59956	Brugler *et al*. 2013
Aphanipathidae	*Elatopathes*	USNM 1116464	KF054586			94.8		27.87219	-93.61671	Brugler *et al*. 2013
Aphanipathidae	*Phanopathes*	USNM 1116477			FJ381655	106		27.82534	-93.67444	Brugler *et al*. 2013
Aphanipathidae	cf. *Phanopathes*	FEL604_47_5		KF054699	KF054421	211–221		24.58133	-83.624	Brugler *et al*. 2013

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Myriopathidae	*Myriopathes*	TMNI0707_35	KF054534			NA		NA	NA	Brugler *et al*. 2013
Myriopathidae	*Myriopathes*	TMOa0406L_6	KF054535			25.9		≈21.236	-157.765	Brugler *et al*. 2013
Myriopathidae	*Myriopathes*	P4-206-3			KF054426	NA		NA	NA	Brugler *et al*. 2013
Myriopathidae	*Plumapathes*	USNM1086297	KF054531	KF054715	KF054428	48		27.90301	-93.59069	Brugler *et al*. 2013
Myriopathidae	*Plumapathes*	USNM1086302	KF054532	KF054711		51.2		27.90342	-93.59047	Brugler *et al*. 2013
Myriopathidae	*Tanacetipathes*	SED804_7	KF054528	KF054714	KF054427	61		30.02725	-80.27881	Brugler *et al*. 2013
Myriopathidae	*Tanacetipathes*	FEL703-FH-1		KF054710		NA		NA	NA	Brugler *et al*. 2013
Myriopathidae	*Tanacetipathes*	USNM11116471	KF054530	KF054716		99.4		27.87166	-93.61644	Brugler *et al*. 2013
Myriopathidae	*Tanacetipathes*	USNM1116468	KF054529	KF054713		97.5		27.87183	-93.6176	Brugler *et al*. 2013
Myriopathidae	*Tanacetipathes*	USNM1116465	KF054533		FJ381650	99		27.87087	-93.61661	Brugler *et al*. 2013
Stylopathidae	*Stylopathes*	NIWA16047	KF054526	KF054719	KF054425	1174		36.958	177.36317	Brugler *et al*. 2013
Stylopathidae	*Stylopathes*	FEL604-47-2		KF054720	KF054424	211–221		24.58133	-83.624	Brugler *et al*. 2013
Schizopathidae	*Umbellapathes*	T427_A2	JX560742			2846		35.69311	-122.69056	Brugler *et al*. 2013
Schizopathidae	*Umbellapathes*	NAS102-1		GQ200634		2246		34.5828	-56.8433	Brugler *et al*. 2013
Schizopathidae	*Umbellapathes*	MIL110_1			KF054406	1329		34.81283	-50.50416	Brugler *et al*. 2013
Schizopathidae	*Umbellapathes*	MBM286410	MW285745		MW285727	1488		10.62722	140.09083	Lü *et al*. 2021
Schizopathidae	*Umbellapathes*	MBM286411			MW285726	1509		10.62722	140.09083	Lü *et al*. 2021
Schizopathidae	*Umbellapathes*	MBM286412	MW285743			1766		10.63555	140.06888	Lü *et al*. 2021
Schizopathidae	*Parantipathes*	KUK102_2	GQ200730	GQ200693	GQ200655	900		35.5083	-51.9592	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	J2102-6-3			KF054643	862		51.30985	-179.52698	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	J2095-2-7-4			KF054637	843		51.81155	-173.83275	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	KUK103_3	KF054509			899		35.5085	-51.95917	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	LYM308-1	KF054498			1534		35.37	-48.15967	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	J2095_2_7_6	KF054492	KF054645		843		51.81155	-173.83275	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	T875_A3	KF054494	KF054639	KF054390	2283		45.57749	-130.03883	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	J2106-7-1		KF054644		937		51.89248	-177.28623	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	MAN501_1	GQ200732	GQ200695		1391		38.2147	-60.5122	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	KUK103-4			GQ200656	899		35.5085	-51.95917	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	KUK102-3			KF054403	900		35.50833	-51.95917	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	LYM305-1			GQ200646	1537		35.371	-48.1617	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	REH210-1	KF054506			1514		37.55933	-59.8045	Brugler *et al*. 2013
Schizopathidae	*Parantipathes*	GOO116-4		GQ200680	GQ200643	1859		35.39717	-51.276	Brugler *et al*. 2013
Schizopathidae	*Lillipathes*	41_100_B1	JX560734	JX560745	JX560755	814		57.64083	-136.7295	Brugler *et al*. 2013
Schizopathidae	*Lillipathes*	USNM1071410	KF054495	KF054641		2264		54.9872	-140.3997	Brugler *et al*. 2013
Schizopathidae	*Lillipathes*	T426-A6			KF054633	1362.6		35.72337	-122.72536	Brugler *et al*. 2013
Schizopathidae	*Dendropathes*	USNM1024966	JX560743	JX560753		408		23.25944	-163.00028	Brugler *et al*. 2013
Schizopathidae	*Dendropathes*	P4_230_1	KF054497	KF054646	KF054405	374		21.7382	-160.1537	Brugler *et al*. 2013
Schizopathidae	*Dendrobathypathes*	J2095-2-5-1	JX560737		FJ381651	2162		51.7461	-173.82578	Brugler *et al*. 2013
Schizopathidae	*Dendrobathypathes*	J2097-2-1	KF054487		KF054381	1734		51.4619	-176.24093	Brugler *et al*. 2013
Schizopathidae	*Dendrobathypathes*	J2099-7-1	KF054488		KF054382	2019		51.4732	-177.04965	Brugler *et al*. 2013
Schizopathidae	*Saropathes*	NIWA4308	JX560741	JX560751	JX560758	328		37.4168	177.18346	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	REH103_2	GQ200697	GQ200659		1909		37.4607	-59.9513	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	BAL211_2	GQ200703	GQ200665	GQ200628	1689		39.4127	-65.408	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	41_99_2	KF054478			736		57.88166	-137.44233	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	GOO116-1		GQ200674	GQ200637	1859		35.3972	-51.276	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	41_100_A1	KF054476	KF054610		803		57.6175	-136.60917	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	41-101-B1	JX560735			846		57.21667	-136.34867	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	USNM 1070974	KF054479		KF054371	4664		53.1175	-161.2997	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	41-95B		KF054609	KF054369	719		59.04833	-141.56866	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	HAS-22			KF054407	428		19.6244	-156.0344	Brugler *et al*. 2013
Schizopathidae	*Bathypathes*	DE0409-21-2		GQ200661	GQ200624	1843–1888		39.9613	-67.4159	Brugler *et al*. 2013
Schizopathidae	*Telopathes*	REH103-1			GQ200626	1909		37.46066	-59.95133	Brugler *et al*. 2013
Schizopathidae	*Telopathes*	YPM_35975	GQ200696		GQ200621	1195–1402		39.88333	-67.46666	Brugler *et al*. 2013
Schizopathidae	*Telopathes*	BAL103-1			GQ200623	1865		39.35608	-65.35958	Brugler *et al*. 2013

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Schizopathidae	*Telopathes*	MBM286480	MW285741			944		10.0775	140.20194	Lü *et al*. 2021
Schizopathidae	*Telopathes*	MBM286481	MW285742			945		10.0775	140.20194	Lü *et al*. 2021
Schizopathidae	*Telopathes*	MBM286482	MW285740		MW285730	937		10.0775	140.20194	Lü *et al*. 2021
Schizopathidae	*Telopathes*	YPM-35498			GQ200627	1983		39.80965	-66.24922	Brugler *et al*. 2013
Schizopathidae	*Telopathes*	MIL112-1		GQ200662		1310		34.8123	-50.5038	Brugler *et al*. 2013
Schizopathidae	*Stauropathes*	KEL110_1	JX560738	JX560749	FJ381657	1816		38.78745	-64.12775	Brugler *et al*. 2013
Schizopathidae	*Schizopathes*	NIWA 4290		JX560750		4744		35.552	159.09133	Brugler *et al*. 2013
Schizopathidae	*Stauropathes*	VER206_1	KF054485	KF054620		1941		34.53633	-49.79367	Brugler *et al*. 2013
Schizopathidae	*Stauropathes*	KEL201-3	KF054480		KF054372	2172		38.86	-63.91417	Brugler *et al*. 2013
Schizopathidae	*Stauropathes*	KEL203-4		KF054615	KF054373	2047		38.86	-63.91417	Brugler *et al*. 2013
Schizopathidae	*Stauropathes*	MBM286474			MW285733	1087		10.07833	140.20305	Lü *et al*. 2021
Schizopathidae	*Stauropathes*	MBM286475	MW285737		MW285734	942		10.07750	140.20194	Lü *et al*. 2021
Schizopathidae	*Stauropathes*	MBM286476			MW285735	1353		10.05527	150.17916	Lü *et al*. 2021
Schizopathidae	*Alternatipathes*	PIC106-2		GQ200673		1945		39.6541	-65.9487	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	MAN201-1			GQ200631	2335		35.1918	-47.672	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	NAS102-1			GQ200634	2246		34.5828	-56.8433	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	NAS208-2		KF054614	KF054379	2232		34.476	-56.733	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	MAN204_1	JX560739			1340		38.2188	-60.51252	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	T427-A2			JX560759	2846		35.69311	-122.69056	Brugler *et al*. 2013
Schizopathidae	*Alternatipathes*	P4-228-12	KF054486			1327		22.7395	-161.1724	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41-99-7	KF054516			736		57.88166	-137.44233	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41_99_6	JX560733	JX560744	JX560754	736		57.88166	-137.44233	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41_03_1	KF054519			753		58.89333	-141.05	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41-100-B3		KF054650		814		57.64083	-136.7295	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41-107-2		KF054654		800		54.9925	-134.40217	Brugler *et al*. 2013
Cladopathidae	*Chrysopathes*	41-1A-3		KF054647		731		58.82167	-141.01883	Brugler *et al*. 2013
Cladopathidae	*Heteropathes*	T886-A8	KF054524		KF054410	3030		42.66267	-126.7908	Brugler *et al*. 2013
Cladopathidae	*Trissopathes*	J2095_2_1_3	KF054523		KF054409	2827		51.72185	-73.78131	Brugler *et al*. 2013
Cladopathidae	*Trissopathes*	USNM98848	JX560736	JX560747	FJ381656	432		19.6244	-156.0344	Brugler *et al*. 2013
Cladopathidae	*Trissopathes*	2329-AB1	KF054522			640		32.4	-127.8	Brugler *et al*. 2013
Cladopathidae	*Sibopathes*	KEL405_1			GQ200639	2310		38.77923	-63.96292	Brugler *et al*. 2013
Cladopathidae	*Sibopathes*	LYM205_2			GQ200641	2263		35.1925	-47.6737	Brugler *et al*. 2013
Cladopathidae	*Sibopathes*	RET104-5		GQ200679	GQ200642	2045		39.80723	-66.23339	Brugler *et al*. 2013
Cladopathidae	*Sibopathes*	USNM 1071919		KF054621		525		27.5981	-91.8264	Brugler *et al*. 2013
Cladopathidae	*Sibopathes*	GOO105-2		GQ200675	GQ200638	2117		35.3935	-51.26567	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	IITS1522_1	KF054597			475–518		31.72367	-78.8123	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	MAN206_1	KF054598			1342		38.2632	-60.55017	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	P4_227_2	KF054599	KF054665	KF054466	382		21.8226	-160.1104	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	USNM 1070976		KF054663	KF054467	403		21.4061	-157.6425	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	JSL4870-1		KF054661	KF054465	331		29.09665	-88.38483	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	GR101-1			FJ381663	1076		38.953	-61.0232	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	SED804-3		KF054662		778		31.39787	-77.85832	Brugler *et al*. 2013
Leiopathidae	*Leiopathes*	BEA504-1	KF054595			1643		39.88417	-67.47183	Brugler *et al*. 2013

For each specimen are indicated the code, family/genus-level identification, corresponding GenBank accession numbers per each marker, depth, sampling location, coordinates and the reference study. GoA, Gulf of Aqaba; N, northern; C, central; SA, Saudi Arabia, NA, not available.

Table S2: List of primers used for this study, the primer name, 5'–3' sequence, approximate predicted fragment size (bp), PCR cycle profiles, and reference studies previously using them are reported.

Region	Primer	Sequence (5'-3')	Aprox. Size (bp)	PCR cycle profiles	Reference
IgrN	ND5-5[1]anti10725F- ND1anti11217R	CAC ACT TGG TTG CCG GAT GCT ATG CCT AAA ACC TTN CGT TCR GCT AAA GTT	~550	94°C /15 min 35 cycles 94°C/30 s 61°C/60 s 72°C/60 s 72°C/10 min	Thoma *et al*. 2009
IgrW	TRPntiF- ND2anti1040R	GGA AGA CCG TTA GCC TTC CCA AAT AAG AAT AAG CCT GAA G	~700	94°C /15 min, 35 cycles 94°C/30 s 53°C/30 s 72°C/60 s 72°C/10 min	Thoma *et al*. 2009
Cox3-cox1	CO3gen3360F-CO1gen4600R	CTT TGT GGC AAC TGG GTT TCA TG CCA TAA ATA GTG GCC AAC CAA CTA	~1100	94°C /15 min 35 cycles 94°C/30 s 61°C/60 s 72°C/60 s 72°C/10 min	Thoma *et al*. 2009; Brugler *et al*. 2013

Morphological results

Based on macro- and micromorphological examination, the 161 Antipatharia colonies collected from the Saudi Arabian Red Sea were ascribed to 4 families (Antipathidae, Aphanipathidae, Myriopathidae and Schizopathidae) and 11 genera (Table S1).

Family **ANTIPATHIDAE** Ehrenberg, 1834

Genus ***Allopathes*** Opresko & Cairns, 1944

Type species: *Cirrhipathes desbonni* Duchassaing & Michelotti, 1864.

Type locality: Gulf of Mexico.

Remarks

According to Opresko (2004), we assigned to the genus *Allopathes* Opresko & Cairns, 1994 specimens characterised by a corallum with several stems or stem-like branches arising from near the base of one primary stem (Fig. S1a). Each stem unbranched, or with some branches from very close to the base. Spines conical with acute or rounded apex, organised in verticils all around the axis, the polypar spines generally larger than the abpolypar ones (Fig. S1c). Each stem with polyps arranged in a single row along the axis (Fig. S1b). **Distribution**

Gulf of Mexico, Cape Verde, Red Sea.

Genus ***Antipathes*** Pallas, 1766

Type species: *Antipathes dichotoma* Pallas, 1766.

Type locality: Mediterranean Sea.

Remarks

Specimens characterised by bushy to fan-shaped colonies, densely branched within several orders (Fig. S1d), spines triangular and smooth (Fig. S1f), tentacles of the polyps with a fine tip, and sagittal tentacles longer than the laterals (Fig. S1e) were identified as *Antipathes* Pallas, 1766 *sensu* Opresko (2001).

Distribution

Gulf of Mexico, Caribbean Sea, Northeast Atlantic Ocean, Mediterranean Sea, Red Sea, Madagascar, Central Indian Ocean, Central–West Indo-Pacific Ocean, Coral Sea, Southwest Pacific Ocean, Northwest Pacific Ocean, Hawaii, Southeast Pacific Ocean.

Genus ***Cirrhipathes*** de Blainville, 1834

Type species: *Gorgonia spiralis* Linnaeus, 1758.

Type locality: Indian Ocean.

Remarks

Specimens characterised by a corallum monopodial, unbranched, and unpinnulated (Fig. S1g), with polyps arranged in different rows around the axis (Fig. S1h) and spines mostly smooth (Fig. S1i) were assigned to the genus *Cirrhipathes* (Bo & Bavestrello, 2009) (Brook 1889; Bo *et al*. 2009; Wagner 2015*a*).

Distribution

Caribbean Sea, Red Sea, Madagascar, Central–West Indo-Pacific Ocean, Southwest Pacific Ocean, Hawaii.

Genus ***Stichopathes*** Brook, 1889

Type species: *Stichopathes pourtalesis* Brook, 1889.

Type locality: Barbados.

Remarks

Colonies showing a whip-like morphology (Fig. S1j), polyps arranged in a single row on one side of the corallum (Fig. S1k) and spines smooth or papillose (Fig. S1l), were assigned to the genus *Stichopathes* Brook, 1889 (Brook 1889; Wagner 2015*b*).

Distribution

Gulf of Mexico, Caribbean Sea, Northwest Atlantic Ocean, Central–Eastern Atlantic Ocean, Red Sea, Madagascar, Central Indian Ocean, Central–West Indo-Pacific Ocean, Southwest Pacific Ocean, Hawaii.

Genus ***Pseudocirrhipathes*** Bo & Bavestrello, 2009

Type species: *Pseudocirrhipathes mapia* Bo & Bavestrello, 2009.

Type locality: Indonesia.

Remarks

Specimens characterised by a monopodial, unbranched and unpinnulated corallum (Fig. S1m), with tuberculated spines arranged in verticils at the top of the colony (Fig. S1o), and polyps irregularly distributed along the stem (Fig. S1n), were assigned to the genus *Pseudocirrhipathes* Bo & Bavestrello, 2009.

Family **APHANIPATHIDAE** Opresko, 2004

Genus ***Tetrapathes*** Opresko, 2004

Type species: *Apahnipathes*? *alata* Brook, 1889

Type locality: Mauritius

Remarks

Specimens primarily characterised by a corallum sparsely branched (Fig. S2a), with branches with simple pinnules arranged in two rows per side (Fig. S2c) and spines conical, acute, and tuberculate (Fig. S2d), were assigned to the genus *Tetrapathes* Opresko, 2004.

Distribution

Red Sea, Mauritius.

Genus ***Asteriopathes*** Opresko, 2004

Type species: *Asteriopathes arachniformis* Opresko, 2004

Type locality: Palau

Remarks

Specimens assigned to the genus *Asteriopathes* Opresko, 2004, were characterised by a corallum with simple pinnules (Fig. S2e) arranged from three to five rows per side (Fig. S2g). Spines on the pinnules acicular, acute and tuberculated with abpolypar spines smaller than polypar ones (Fig. S2h).

Distribution

Red Sea, Central–West Indo-Pacific Ocean, Coral Sea.

Genus ***Aphanipathes*** Brook, 1889

Type species: *Aphanipathes sarothamnoides* Brook, 1889.

Type locality: Vanuatu**.**

Remarks

Specimens characterised by a corallum bushy or flabellate, with branches sparsely to densely arranged, and often uniserial (Fig. S2i-j) were assigned to the genus *Aphanipathes* Brook, 1889. They show small and rounded polyps arranged in a single row along the stem (Fig. S2k), which are penetrated by tall spines, characteristic of the genus (Fig. S2l).

Distribution

Gulf of Mexico, Caribbean Sea, Red Sea, Mauritius, Central–West Pacific Ocean, Coral Sea, Southwest Pacific Ocean, Hawaii.

Genus ***Acanthopathes*** Opresko, 2004

Type species: *Antipathes humilis* Pourtalès, 1867.

Type locality: Cuba.

Remarks: Specimens characterised by a corallum branched, fan-like, planar (Fig. S2m-p), with large and anisomorphic polypar spines (Fig. S2p) (Opresko 2004) are attributed to the genus *Acanthopathes* Opresko, 2004. In particular, they show circumpolypar spines larger than the interpolypar ones, with the hypostomal ones consistently reduced (Fig. S2p).

Distribution

Gulf of Mexico, Caribbean Sea, Red Sea, Central–West Indo-Pacific Ocean, Southwest Pacific Ocean, Hawaii.

Family **MYRIOPATHIDAE** Opresko, 2001

Genus ***Myriopathes*** Opresko, 2001

Type species: *Antipathes myriophylla* Pallas, 1766.

Type locality: Indonesia.

Remarks

We assigned to the genus *Myriopathes* Opresko, 2001 specimens characterised by a corallum flabellate or bushy (Fig. S3a-b), pinnulate, with branches and branchlets of at least two orders and pinnules arranged in two bilateral rows (Fig. S3b), bearing conical spines (Fig. S3d).

Distribution

Caribbean Sea, Red Sea, Madagascar, Central–West Indo-Pacific Ocean, Southwest Pacific Ocean, Hawaii.

Family **SCHIZOPATHIDAE** Brook, 1889

Genus ***Bathypathes*** Brook, 1889

Type species: *Bathypathes patula*, Brook, 1889.

Type locality: North-Central Pacific Ocean.

Remarks

Representatives of the family Schizopathidae detected in this study belong to the genus *Bathypathes* Brook, 1889, and correspond to the ones recently examined by Chimienti *et al*. (2022). The corallum is monopodial, unbranched and pinnulate (Fig. S4a-b), the spines are generally simple, triangular (Fig. S4d) and compressed, and the polyps are elongated in tranverse diameter (Fig. S4c).

Distribution

Gulf of Mexico, Caribbean Sea, Northwest Atlantic Ocean, Northeast Atlantic Ocean, Red Sea, Madagascar, Central–West Indo-Pacific Ocean, Coral Sea, Southwest Pacific Ocean, Central Pacific Ocean, Hawaii, Northeast Pacific Ocean, Gulf of Alaska.

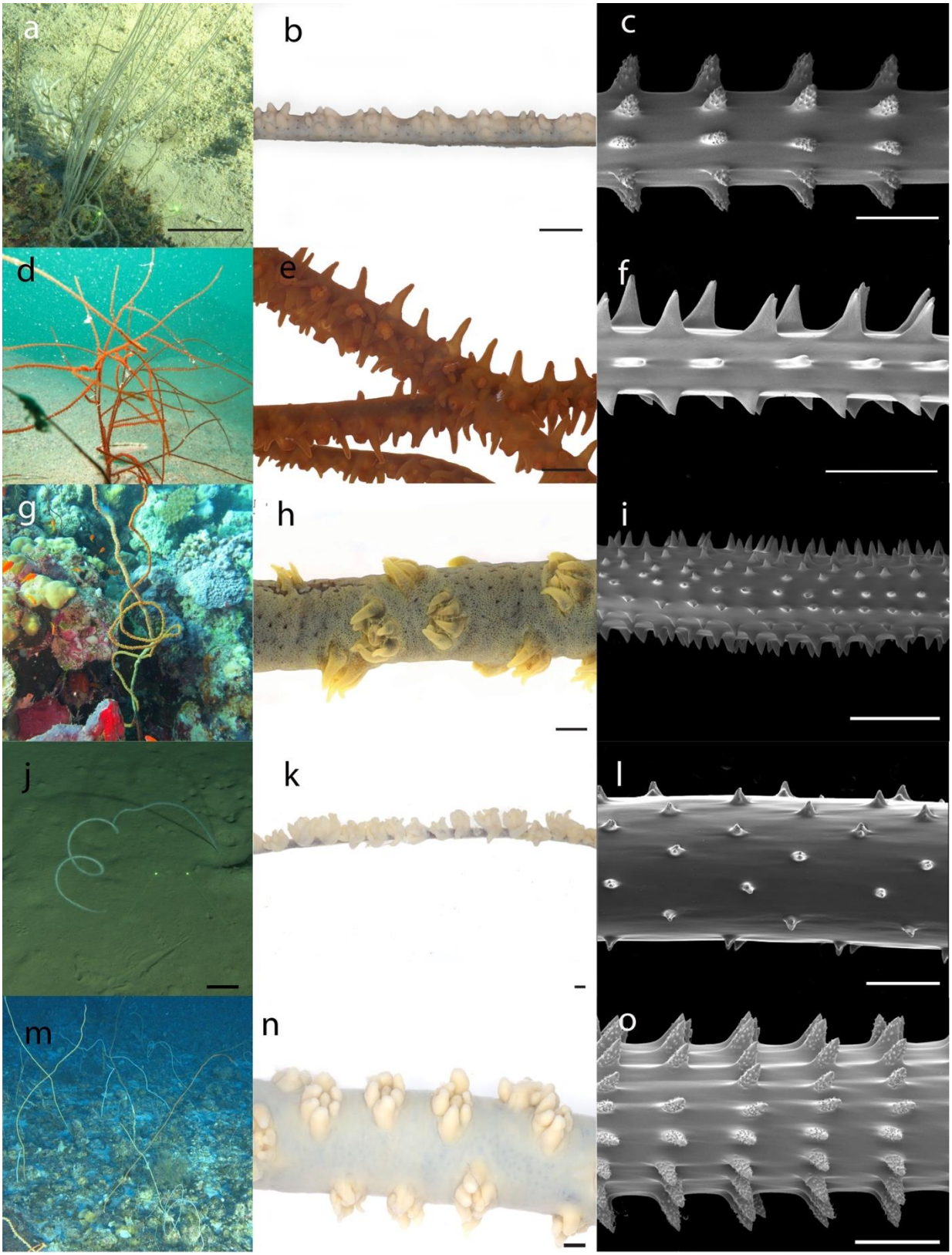

Figure S1. *In situ*, polyps, and spines images of the analysed Antipathidae genera (a) colony of *Allopathes in situ*, (b) arrangement of *Allopathes* polyps in a single series on the branch, (c) *Allopathes* spines verticillate on the branch, (d) colony of *Antipathes in situ*, (e) branch with *Antipathes* polyps, (f) triangular, laterally compressed and smooth *Antipathes* spines, (g) colony of *Cirrhipathes in situ*, (h) section of *Antipathes* stem with polyps, (i) details of *Cirrhipathes* spines on the stem, (j) colony of *Stichopathes in situ,* (k) section of *Stichopathes* stem with polyps, (l) section of *Stichopathes* spines on the stem, (m) colony of *Pseudocirrhipathes in situ*, (n) section of *Pseudocirrhipathes* stem with polyps, (o) detail of a *Pseudocirrhipathes* polyp with long saggital tentacles, (p) *Pseudocirrhipathes* spines with tubercles. Scale bars: 1 mm (b, e, h, k, n, o) 500 µm (c, f, i, l, p).

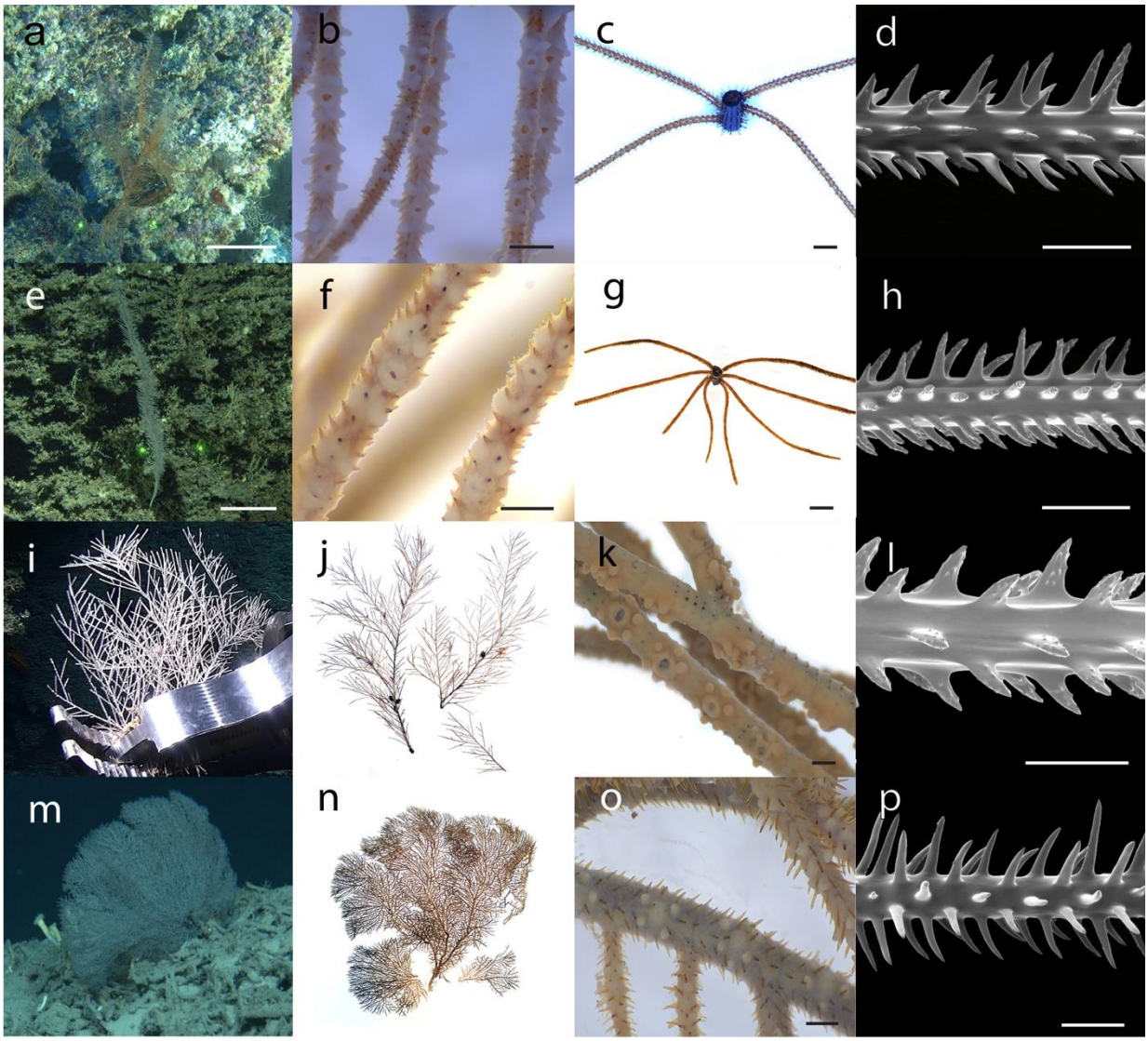

Figure S2. Analysed Aphanipathidae genera: (a) colony of *Tetrapathes in situ*, (b) *Tetrapathes* pinnules with polyps, (c) *Tetrapathes* cross section of the distal polypar node, (d) acute and tuberculate *Tetrapathes* spines, (e) colony of *Asteriopathes in situ*, (f) *Asteriopathes* pinnules with polyps, (g) *Asteriopathes* cross section of the stem, (h) *Asteriopathes* spines bearing tubercules, (i) colony of *Aphanipathes in situ*, (j) dry colony of *Aphanipathes*, (k) small and rounded polyps of *Aphanipathes*, (l) *Aphanipathes* spines arrangement along the pinnules, (m) colony of *Acanthopathes in situ*, (n) dry colony of *Acanthopathes*, (o) *Acanthopathes* branch with polyps, (p) anisomorphic polypar spines. Scale bars: 500 µm (b,c, f, g, k, o), 300 µm (d), 400 µm (h), 200 µm (l, p).

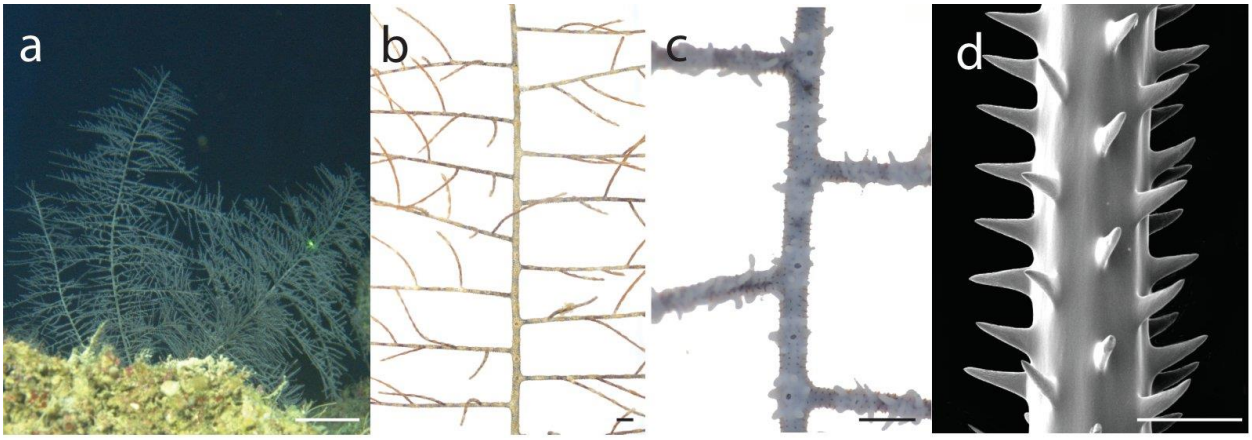

Figure S3. Colony of *Myriopathes* sp.: (a) colony *in situ*, (b) dry colony showing the pinnulation pattern, (c) polyps along the stem and pinnules, (d) spines on pinnules. Scale bars: 1 mm (b,c), 300 µm (d).

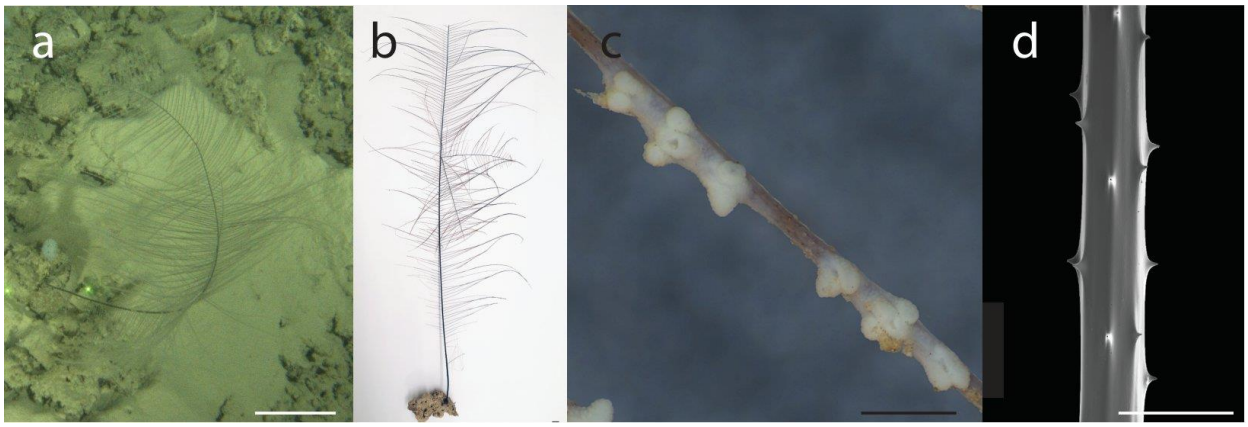

Figure S4. Colony of *Bathypathes* sp.: (a) colony *in situ*, (b) dry colony, (c) polyps, (d) spines triangular and smooth. Scale bars: 1 mm (c), 200 µm (d).

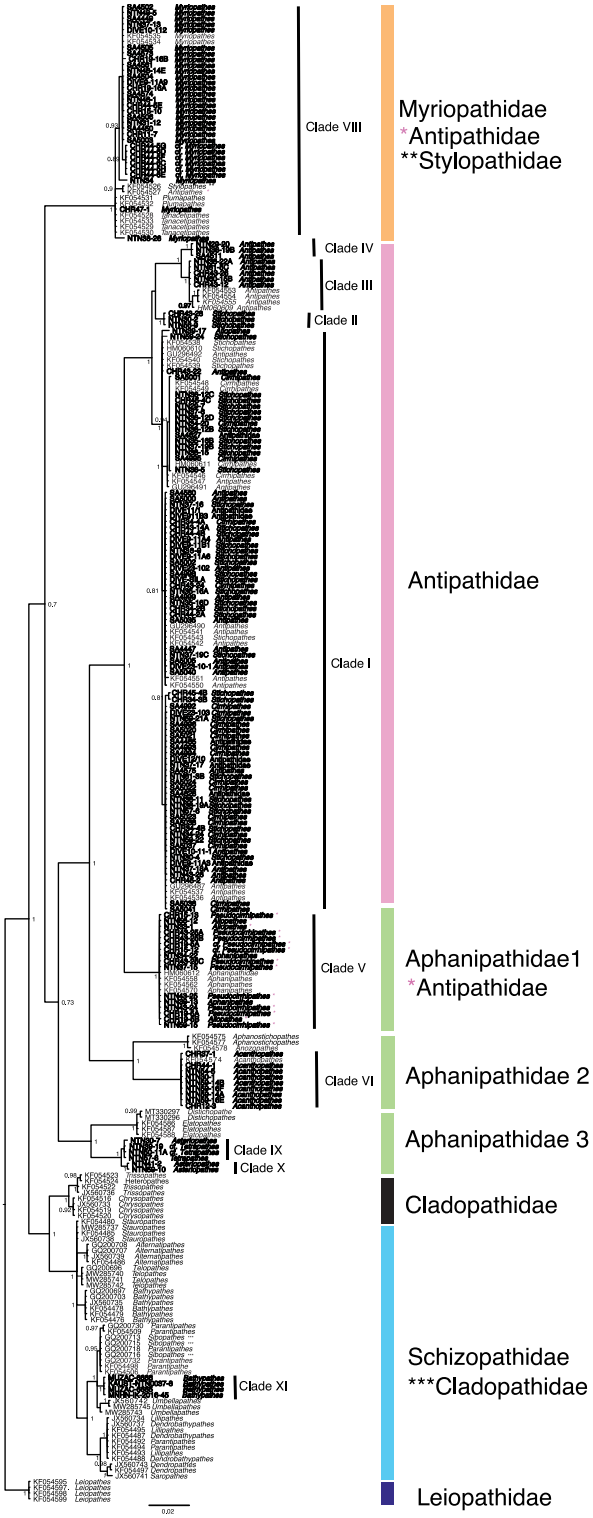

Figure S5. Bayesian inference-based phylogenetic reconstruction based on mitochondrial region trnW-IGR-nad2. Numbers at nodes indicate Bayesian posterior probability (≥0.7) and maximum likelihood bootstrap (≥70). Specimens analysed in this study are in bold. Representatives of the Antipathidae that clusters in another family-level clade are marked with single asterisks. Representatives of the Stylopathidae that clusters in another family-level clade are marked with double asterisks. Representatives of the Cladopathidae that clusters in another family-level clade are marked with triple asterisks.

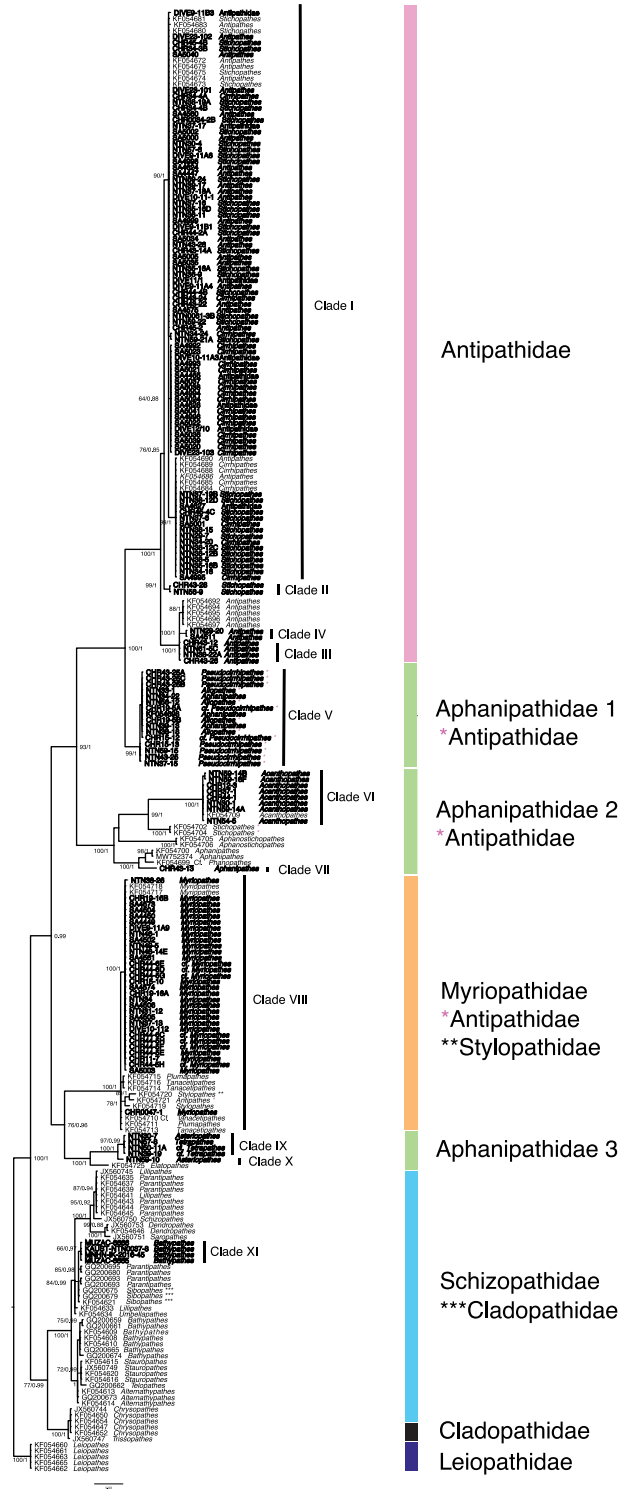

Figure S6. Bayesian inference-based phylogenetic reconstruction based on mitochondrial region nad5-IGR-nad1. Numbers at nodes indicate Bayesian posterior probability (≥0.7) and maximum likelihood bootstrap (≥70). Specimens analysed in this study are in bold. Representatives of the Antipathidae that clusters in another family-level clade are marked with single asterisks. Representatives of the Stylopathidae that clusters in another family-level clade are marked with double asterisks. Representatives of the Cladopathidae that clusters in another family-level clade are marked with triple asterisks.

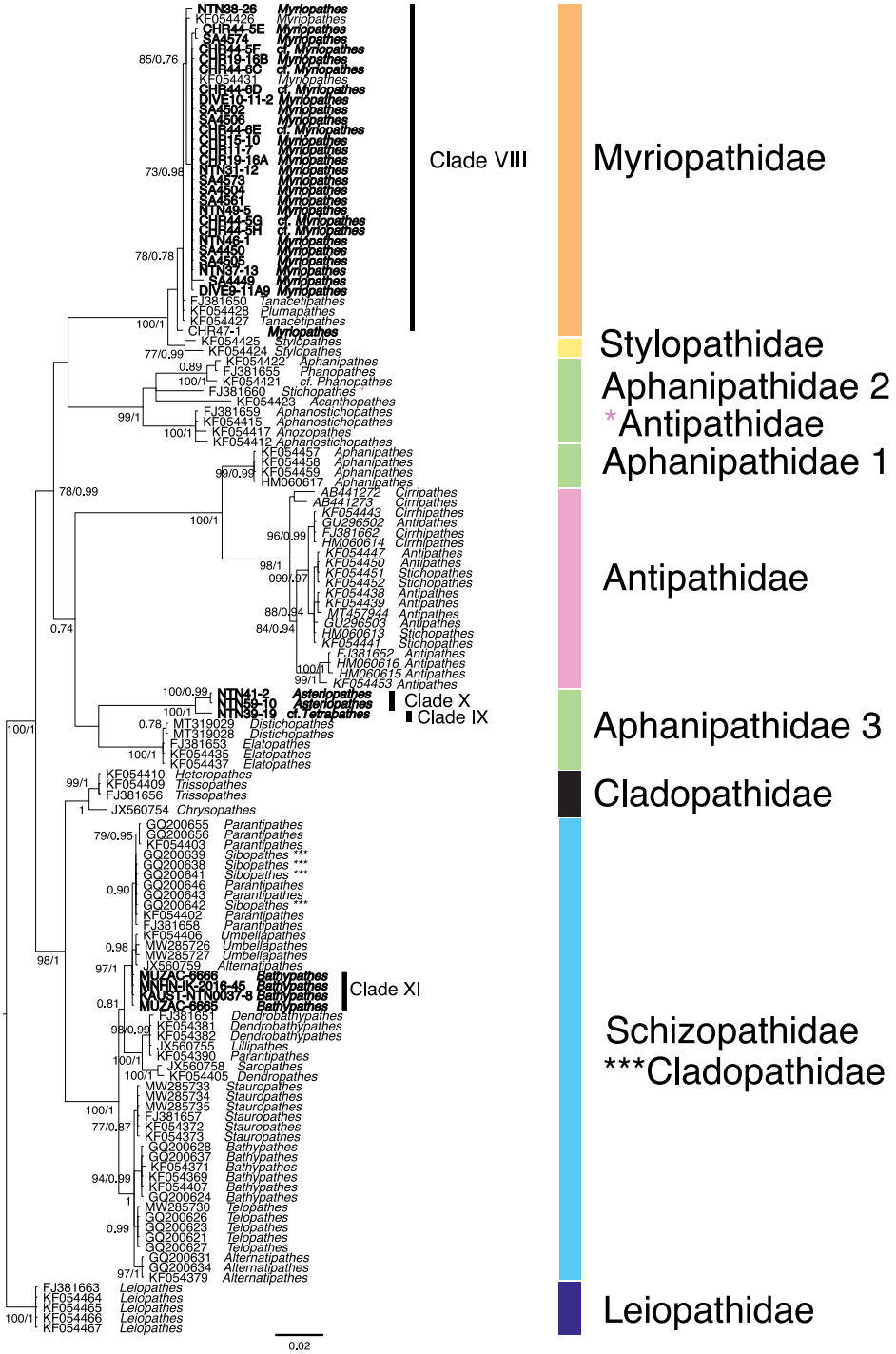

Figure S7. Bayesian inference-based phylogenetic reconstruction based on mitochondrial region cox3-IGR-cox1. Numbers at nodes indicate Bayesian posterior probability (≥0.7) and maximum likelihood bootstrap (≥70). Specimens analysed in this study are in bold. Representatives of the Antipathidae that clusters in another family-level clade are marked with single asterisks. Representatives of the Cladopathidae that clusters in another family-level clade are marked with double asterisks.

References

Brook G (1889) The Voyage of H.M.S. Challenger. Zoology. Report on the Antipatharia collected by *HMS Challenger* during the years 1873–1876. *The Voyage of H.M.S. Challenger* **LXXX**, 1–222

Brugler MR, Opresko DM, France SC (2013) The evolutionary history of Antipatharia (Cnidaria: Anthozoa: Hexacorallia) as inferred from mitochondrial and nuclear DNA: implications for black coral taxonomy and systematics. *Zoological Journal of the Linnean Society* **169**(2), 351–361. doi:10.1111/zoj.12060

Chimienti G, Terraneo TI, Vicario S, Marchese F, Purkis SJ, Abdulla Eweida A, Rodrigue M, Benzoni F (2022)A new species of *Bathypathes* (Cnidaria, Anthozoa, Antipatharia, Schizopathidae) from the Red Sea and its phylogenetic position. *Zookeys* 1116, 1–22. doi:10.3897/zookeys.1116.79846 pmid:36760986

Lü T, Zhan Z, Xu K (2021) Morphology and molecular phylogeny of three black corals (Antipatharia, Schizopathidae) from seamounts in the Western Pacific Ocean, with description of a new species. *Journal of Oceanology and Limnology* **39**(5), 1740–1757. doi:10.1007/s00343-021-0455-9

Opresko DM (2001) Revision of the Antipatharia (Cnidaria: Anthozoa). Part I. Establishment of a new family, Myriopathidae. *Zoologische Mededelingen* **75**, 343–370.

Opresko DM (2004) Revision of the Antipatharia (Cnidaria: Anthozoa). Part IV. Establishment of a new family, Aphanipathidae. *Zoologische Mededelingen* **78**, 209–240.

Opresko DM, Goldman SL, Johnson R, Parra K, Nuttall M, Schmahl GP, Brugler MR (2020) Morphological and molecular characterization of a new species of black coral from Elvers Bank, north-western Gulf of Mexico (Cnidaria: Anthozoa: Hexacorallia: Antipatharia: Aphanipathidae: Distichopathes). *Journal of the Marine Biological Association of the United Kingdom* **100**(4), 559–566. doi:10.1017/s002531542000051x

Thoma JN, Pante E, Brugler MR, France SC (2009) Deep-sea octocorals and antipatharians show no evidence of seamount-scale endemism in the NW Atlantic. *Marine Ecology Progress Series* **397**, 25–35. doi:10.3354/meps08318

Wagner D (2015*a*) A taxonomic survey of the shallow-water (<150 m) black corals (Cnidaria: Antipatharia) of the Hawaiian Islands. *Frontiers in Marine Science* **2**, 24. doi:10.3389/fmars.2015.00024

Wagner D (2015*b*) The spatial distribution of shallow-water (<150 m) black corals (Cnidaria: Antipatharia) in the Hawaiian archipelago. *Marine Biodiversity Records* **8**, e54. doi:10.1017/S1755267215000202