

# ***Coriocella* and the Worms: First Record of Scale-Worm *Asterophilia* cf. *culcitae* Ectosymbiotic on a Mollusc**

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## **Supplementary Materials**

**Table S1.** Sequences used for molecular analyses (including voucher codes, sampling localities, and GenBank accession numbers; \* indicates sequences newly produced for this paper).

<b>Voucher</b>	<b>Class</b>	<b>Family</b>	<b>Species</b>	<b>Locality</b>	<b>COI</b>
MNHN-IA-2021-675	Polychaeta	Polynoidae	<i>Asterophilia</i> cf. <i>culcitae</i>	New Caledonia, Nouméa, NE Sèche Croissant; Quinzaine des Nudibranches 2022/QNCL_OA; 22°18'57.9"S 166°21'48.3"E, <2 m depth	OR933635 *
MNHN-IA-2021-676	Polychaeta	Polynoidae	<i>Asterophilia</i> cf. <i>culcitae</i>	New Caledonia, Nouméa, NE Sèche Croissant; Quinzaine des Nudibranches 2022/QNCL_OA; 22°18'57.9"S 166°21'48.3"E; <2 m depth	OR933636 *
1	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Yakatakatabaru, Okinawa Island	LC538222
2	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Yakatakatabaru, Okinawa Island	LC538223
3	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Sakimotobu, Okinawa Island	LC538224
4	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kushimoto, Wakayama	LC538225
5	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kashiwa Island, Kochi	LC538226
6	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kashiwa Island, Kochi	LC538227
7	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kushimoto, Wakayama	LC538228
8	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kushimoto, Wakayama	LC538229
9	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Zamami Island, Okinawa	LC538230
10	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kushimoto, Wakayama	LC538231
11	Polychaeta	Polynoidae	<i>Asterophilia culcitae</i>	Japan, Kushimoto, Wakayama	LC538232

SMNH 118964	Polychaeta	Polynoidae	<i>Gastrolepidia clavigera</i>		JN852927
USNM IZ 1524013	Polychaeta	Polynoidae	<i>Arctonoe vittata</i>	USA, Kalekta Bay, South of Cape Kalekta	MZ580810
USNM IZ 1524047	Polychaeta	Polynoidae	<i>Arctonoe vittata</i>	USA, Unalaska Bay, North of Hog Island	MZ580824
ESCI426 68	Polychaeta	Polynoidae	<i>Arctonoe pulchra</i>	USA, Washington, Anacortes, Shannon Point Beach	MN447983
MBI SCCWRP 45	Polychaeta	Polynoidae	<i>Arctonoe pulchra</i>	USA, 32.678 N 117.33 W	HQ941716
SIO BIC A6558	Polychaeta	Polynoidae	<i>Branchipolynoe halliseyae</i>	Costa Rica, Pacific Ocean, Methane Seep, 999 m depth	MH370022
MNHN-IM-2019-26118	Gastropoda	Velutinidae	<i>Coriocella</i> cf. <i>tongana</i>	New Caledonia, Nouméa, NE Sèche Croissant; Quinzaine des Nudibranches 2022/QNCL_OA; 22°18'57.9"S 166°21'48.3"E, <2 m depth	OR933634 *
MNHN-IM-2019-3211	Gastropoda	Velutinidae	<i>Coriocella</i> sp.	New Caledonia, KOUMAC 2.3/KB608, 20°34.9' S, 164°07.6' E, 15 m depth	ON524246
MNHN-IM-2013-84230	Gastropoda	Velutinidae	<i>Coriocella</i> sp.	New Caledonia, Kendec Is., KOUMAC 2.1/KM302, 20°40.1' S, 164°15.4' E, 0 m depth	ON524247
MNHN-IM-2009-16119	Gastropoda	Velutinidae	<i>Coriocella</i> cf. <i>jayi</i>	Madagascar, Lavanono sector, ATIMO VATAE/BV06, 25°26.9' S, 44°55.9' E, 14 m depth	MK047762
MNHN-IM-2009-16120	Gastropoda	Velutinidae	<i>Coriocella</i> cf. <i>jayi</i>	Madagascar, Lavanono sector, ATIMO VATAE/BV06, 25°26.9' S, 44°55.9' E, 14 m depth	MK047763
MNHN-IM-2009-16128	Gastropoda	Velutinidae	<i>Coriocella nigra</i>	Madagascar, Lavanono sector, ATIMO VATAE/BB03, 25°26.4' S, 44°56.1' E, 14 m depth	MK047761
BJLinnSoc-2	Gastropoda	Velutinidae	<i>Coriocella</i> cf. <i>semperi</i>	Australia, Lizard Is.	AY161614
MNHN-IM-2013-75535	Gastropoda	Velutinidae	<i>Coriocella</i> cf. <i>semperi</i>	Austral Islands, Tubuai, external barrier, Tuhaa Pae 2013/AT04, 23°25.1' S, 149°27' W, 14 m depth	ON524248
MNHN-IM-2019-8812	Gastropoda	Velutinidae	<i>Djiboutia</i> sp.	New Caledonia, KOUMAC 2.3/KB639, 20°45.1' S, 164°13.9' E, 22 m depth	ON524245

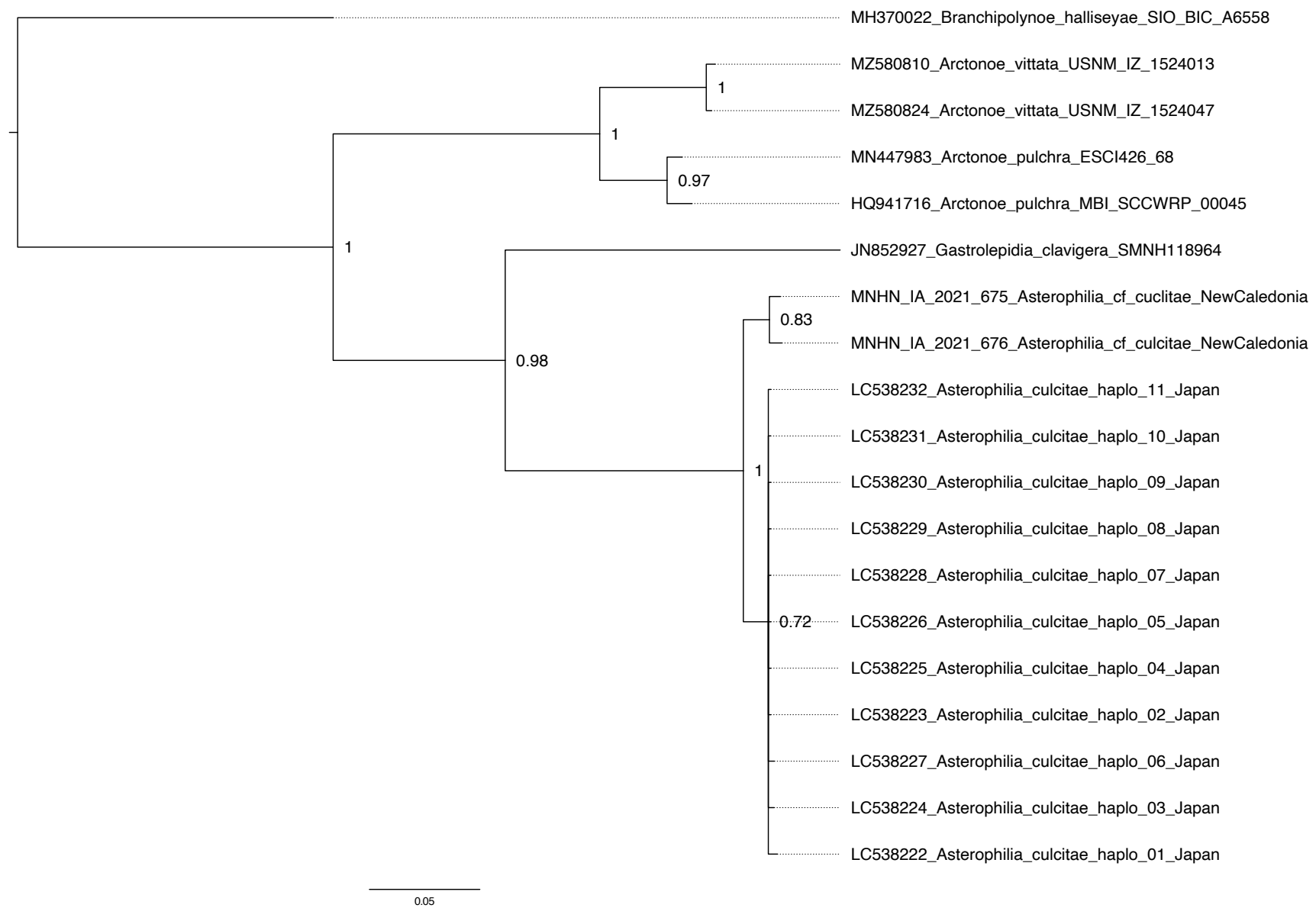
**Table S2.** Pairwise COI genetic distances (%) between worm specimens, calculated with MEGA11 (K2P, pairwise deletion).

	MNHN_IA_2021_675	MNHN_IA_2021_676	LC538232	LC538231	LC538230	LC538229	LC538228	LC538226	LC538225	LC538223	LC538227	LC538224	LC538222	JN852927	MZ580810	MZ580824	MN447983	HQ941716	MH370022
MNHN_IA_2021_675_Asterophilia_cf_culcitae_NewCaledonia	0																		
MNHN_IA_2021_676_Asterophilia_cf_culcitae_NewCaledonia	0.9	0																	
LC538232_Asterophilia_culcitae_haplo_11_Japan	1.9	2.3	0																
LC538231_Asterophilia_culcitae_haplo_10_Japan	1.9	2.3	0	0															
LC538230_Asterophilia_culcitae_haplo_09_Japan	1.9	2.3	0	0	0														
LC538229_Asterophilia_culcitae_haplo_08_Japan	1.9	2.3	0	0	0	0													
LC538228_Asterophilia_culcitae_haplo_07_Japan	1.9	2.3	0	0	0	0	0												
LC538226_Asterophilia_culcitae_haplo_05_Japan	1.9	2.3	0	0	0	0	0	0											
LC538225_Asterophilia_culcitae_haplo_04_Japan	1.9	2.3	0	0	0	0	0	0	0										
LC538223_Asterophilia_culcitae_haplo_02_Japan	1.9	2.3	0	0	0	0	0	0	0	0									
LC538227_Asterophilia_culcitae_haplo_06_Japan	2.1	2.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0								
LC538224_Asterophilia_culcitae_haplo_03_Japan	2.1	2.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0							
LC538222_Asterophilia_culcitae_haplo_01_Japan	2.3	2.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0						
JN852927_Gastrolepidia_clavigera_SMNH118964	18.9	18.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	20	20	20.3	0					
MZ580810_Arctonoe_vittata_USNM_IZ_1524013	24.6	24.8	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.3	23.3	22.6	25.7	0				
MZ580824_Arctonoe_vittata_USNM_IZ_1524047	24.6	24.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	23.1	23.1	22.3	25.4	0.5	0			
MN447983_Arctonoe_pulchra_ESCI426_68	24.8	24.1	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.9	23.9	23.2	26	7.6	7.4	0		
HQ941716_Arctonoe_pulchra_MBI_SCCWRP_00045	25.2	25.1	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.6	24.6	23.9	25.5	7.9	7.7	1.7	0	
MH370022_Branchipolynoe_halliseyae_SIO_BIC_A6558	30.2	30.1	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.7	29.7	29.4	30.1	31.2	31.7	29.5	29.5	0

**Table S3.** Pairwise COI genetic distances (%) between snail specimens, calculated with MEGA11 (K2P, pairwise deletion).

	MNHN_IM_2019_26118	ON524246	ON524247	MK047762	MK047763	MK047761	AY161614	ON524248	ON524245
MNHN_IM_2019_26118_Coriocella_sp_NewCaledonia	0								
ON524246_Coriocella_sp_MNHN_IM_2019_3211	13.7	0							
ON524247_Coriocella_sp_MNHN_IM_2013_84230	13.7	0.7	0						
MK047762_Coriocella_cf_javi_MNHN_IM_2009_16119	17.2	18.3	18.8	0					
MK047763_Coriocella_cf_javi_MNHN_IM_2009_16120	14.9	16.6	17.1	2.5	0				
MK047761_Coriocella_nigra_MNHN_IM_2009_16128	17.1	14.1	14.1	16.3	14.2	0			
AY161614_Coriocella_cf_semperi_BJLinnSoc_2	16.7	15.1	15.5	17.2	15.1	6.4	0		
ON524248_Coriocella_cf_semperi_MNHN_IM_2013_75535	16.2	14.9	15.3	17.2	15.1	6.2	0.8	0	
ON524245_Djiboutia_sp_MNHN_IM_2019_8812	19.7	19.4	20.0	22.6	20.3	20.9	20.1	20.0	0

**Figure S1.** Bayesian Inference tree of the COI worm dataset, at nodes posterior probability values (considered supported when >0.95)



**Figure S2.** Bayesian Inference tree of the COI snail dataset, at nodes posterior probability values (considered supported when >0.95)

