

Table S3: Classification of the unique molecular operational taxonomic units (MOTUs) identified from COI metabarcoding. In the Method column, Hawai'i and Biocode are BLASTn approaches on local databases and Tree is based on positioning in Figure 1. The parentheses around the INSECT method indicate the probability and around ecotag represent the best identity match.

MOTU	Raw Reads	% ID	% Cover	Method	Class	Order	Family	Genus
MOTU_2	84023	100	100	Hawaii	Demospongiae	Suberitida	Suberitidae	<i>Protosuberites</i>
MOTU_6	65735	99.7	100	Hawaii	Homosclerophorida	Homosclerophorida	Plakinidae	<i>Plakortis</i>
MOTU_21	29027			INSECT (1)	Demospongiae	Biemnida	Biemnidae	
MOTU_45	17515	97.8	100	Hawaii	Demospongiae	Suberitida	Suberitidae	<i>Protosuberites</i>
MOTU_49	8939	98.4	100	Hawaii	Demospongiae	Dendroceratida	Darwinellidae	<i>Chelonaplysilla</i>
MOTU_111	8934	99.7	100	Hawaii	Demospongiae	Suberitida	Halichondriidae	<i>Hymeniacion</i>
MOTU_58	7458			INSECT (1)	Homoscleromorpha	Homosclerophorida	Oscarellidae	
MOTU_132	5473	100	99	Hawaii	Demospongiae	Dendroceratida	Darwinellidae	
MOTU_128	4065	94.8	100	Biocode	Demospongiae	Dictyoceratida		
MOTU_145	3702	98.7	100	Hawaii	Demospongiae	Tethyida	Tethyidae	<i>Tethya</i>
MOTU_161	3671	100	100	Hawaii	Demospongiae	Suberitida	Halichondriidae	<i>Hymeniacion</i>
MOTU_88	3627	100	89	Hawaii	Homoscleromorpha	Homosclerophorida	Oscarellidae	
MOTU_92	2985	92.6	99	Hawaii	Demospongiae	Suberitida		
MOTU_196	2210	89.9	99	Tree	Demospongiae	Suberitida		
MOTU_142	1500	95.8	100	Hawaii	Demospongiae	Suberitida		
MOTU_168	1104	95.5	99	Hawaii	Demospongiae	Suberitida		
MOTU_147	1099	98.7	100	Biocode	Demospongiae	Dendroceratida	Darwinellidae	<i>Chelonaplysilla</i>
MOTU_222	776	93.9	100	Hawaii	Demospongiae	Suberitida		
MOTU_195	685	100	100	Hawaii	Demospongiae	Suberitida	Halichondriidae	<i>Halichondria</i>
MOTU_514	544	98.7	99	Hawaii	Demospongiae	Suberitida	Suberitidae	
MOTU_217	502	100	100	Hawaii	Homoscleromorpha	Homosclerophorida	Oscarellidae	<i>Oscarella</i>
MOTU_213	485	99.7	100	Hawaii	Homosclerophorida	Homosclerophorida	Plakinidae	<i>Plakina</i>
MOTU_306	257	100	100	Hawaii	Demospongiae	Poecilosclerida	Tedaniidae	<i>Tedania</i>
MOTU_274	238			ecotag(0.98)	Demospongiae	Biemnida	Biemnidae	
MOTU_304	212	90.8	97	Tree	Demospongiae	Dendroceratida		
MOTU_324	209			ecotag (0.99)	Demospongiae	Suberitida	Halichondriidae	<i>Halichondria</i>
MOTU_346	189	100	100	Tree	Demospongiae	Chondrillida		
MOTU_354	169	100	100	Hawaii	Demospongiae	Haplosclerida	Chalinidae	<i>Haliclona</i>
MOTU_310	144			ecotag (0.98)	Demospongiae	Poecilosclerida	Chondropsidae	
MOTU_1973	114	100	99	Biocode	Demospongiae	Suberitida	Suberitidae	
MOTU_524	83	99.7	100	Hawaii	Demospongiae	Tethyida	Tethyidae	<i>Tethya</i>
MOTU_449	79	92.6	100	Biocode	Demospongiae	Poecilosclerida		
MOTU_445	77	100	100	Hawaii	Demospongiae	Haplosclerida	Chalinidae	
MOTU_454	57	98.7	100	Hawaii	Demospongiae	Poecilosclerida		
MOTU_506	49	100	100	Hawaii	Demospongiae	Tethyida	Tethyidae	<i>Tethya</i>
MOTU_591	41	99	98	Hawaii	Demospongiae	Poecilosclerida	Coelosphaeridae	
MOTU_602	41			INSECT (1)	Demospongiae	Poecilosclerida		
MOTU_722	37	100	100	Hawaii	Demospongiae	Haplosclerida	Chalinidae	<i>Haliclona</i>
MOTU_1125	14	90.5	98	Tree	Demospongiae	Dictyoceratida		
MOTU_907	13	99	100	Hawaii	Demospongiae	Tethyida	Tethyidae	
MOTU_223	4	100	100	Hawaii	Demospongiae	Suberitida	Suberitidae	<i>Terpios</i>