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Sea anemones (Cnidaria: Actiniaria, Corallimorpharia, Ceriantharia, Zoanthidea) from marine shallow-water environments in Venezuela: new records and an updated inventory

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Abstract

Background: This study compiles the diversity of sea anemones in different shallow habitats (i.e. rocky shores, coral reefs, mangroves and sandy bottoms) in several locations of Venezuela, including the most important marine reserves of Venezuela: Morrocoy National Park, Mochima National Park, Archipiélago de Los Roques National Park, Laguna de La Restinga National Park, Isla de Cubagua, and Chichiriviche de la Costa.

Results: Twenty-six species of sea anemones *sensu lato* were documented, from which only two actiniarian species are newly recorded in Venezuela. In addition, specimens of the scientific collection of the Museo Oceanológico Hermano Benigno Román, of Isla de Margarita, Venezuela, were examined and its taxonomic status updated.

Conclusions: The diversity of sea anemones in Venezuela is updated to 44 species. An illustrated guide of living specimens and short descriptions of the external anatomy of the specimens is included to facilitate sea anemone species identification in the field and to provide a base line for ecological studies that require accurate identification to species level.

Keywords: Caribbean Sea, Coral reefs, Biodiversity, Benthic invertebrate fauna

Background

Sea anemones are among the cnidarian groups in benthic assemblages of the Caribbean Sea, being found in a wide range of coastal habitats, including seagrass meadows, rocky bottoms, coral rubble, coral reefs, sandy patches, mangrove zones and artificial substrates. Although several inventories of sea anemones species have been made from many coastal and coral reef localities along the Caribbean Basin and Gulf of Mexico (González-Muñoz et al. 2012, 2013), many areas remain poorly studied, such as the Caribbean coast of Venezuela (Losada & Pauls 2003). Records of sea anemone species for Venezuela are scattered in studies of different nature, such as taxonomy (Agudo 1987; den Hartog 1980), biological and ecological interactions (Bastidas & Bone 1996; Bitter-Soto 1999; Briggs et al. 1996; Henríquez & Palacios 2008; Losada et al. 1988), feeding behavior (Liñero-Arana & González 2008), and descriptions of crustacean species engaged in symbiotic associations with sea anemones (Knowlton & Keller 1985).

The most extensive reference for sea anemones in Venezuela is the monograph of Agudo (1987), which

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includes the records and distribution of 47 species along the main coastal and insular localities (Losada & Pauls 2003). However, the taxonomic status of some of the species reported by Agudo (1987) has changed through time (e.g. Grajales & Rodríguez 2014). Therefore, an updated status of the sea anemone diversity for the region is necessary.

In this study we examined specimens of sea anemones *sensu lato* (i.e. orders Actiniaria, Ceriantharia, Corallimorpharia, and Zoanthidea) sampled during November 2012 in several shallow coastal and coral reefs environments along six locations, four of which are marine reserves in Venezuela (Fig. 1). Additionally, we examined the sea anemone specimens previously deposited in the collection of the Museo Oceanológico Hermano Benigno Román (MOHBR), of the Estación de Investigaciones Marinas at the Fundación La Salle de Ciencias Naturales, in Isla de Margarita (Venezuela). We identified 18 species of Actiniaria, one species of Ceriantharia, one species of Corallimorpharia, and six species of Zoanthidea; we confirmed the identification and updated the current taxonomic status of the sea anemone specimens in the collection of the MOHBR, including those from Agudo (1987) vouchered at the MOHBR. We also provided photographs for these 26 species in the lab or in natural habitats to guide identifications. These species do not represent all species of sea anemones found or reported in Venezuela, but they do represent those that are either more abundant or conspicuous. The major aim of this publication is to inventory the most common anemones in Venezuela and to provide an aid distinguishing these species to facilitate further biological and ecological research requiring species-level resolution.

Results

List of species of sea anemone found in the sampled localities

We collected and examined 128 specimens belonging to 26 species, 20 genera, 14 families, and four taxonomic orders (Table 1; Appendix 1). Twenty-four of these species have been previously reported for Venezuela; the species *Anthopleura pallida* Duchassaing & Michelotti, 1864a, and *Telmatactis vernonia* (Duchassaing & Michelotti, 1864b) are reported here for the first time for the country (Table 1).

Systematics

Order ACTINIARIA Hertwig, 1882
Suborder ENTHEMONAE Rodríguez et al. 2014
Superfamily ACTINIOIDEA Rodríguez et al. 2014

Family ACTINIIDAE Rafinesque, 1815
***Actinostella flosculifera* (Le Sueur, 1817)**
(Fig. 2a)
Actinia flosculifera Le Sueur, 1817

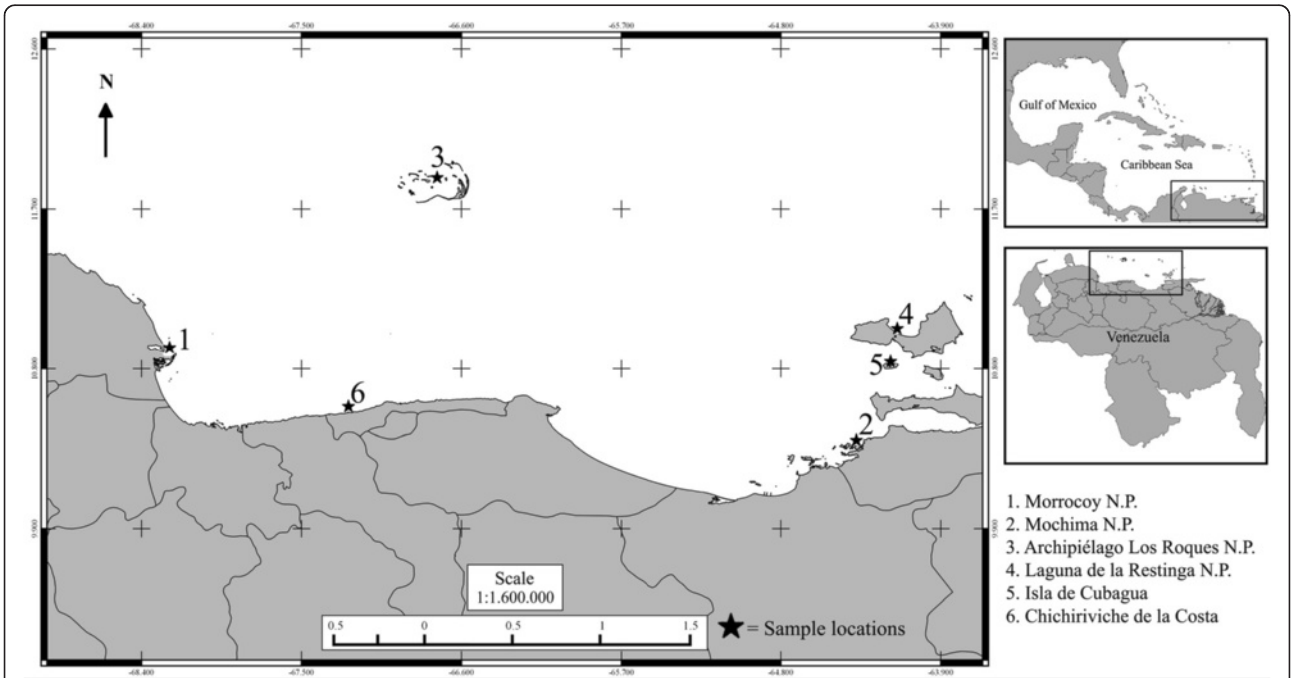

Fig. 1 Map of the coast of Venezuela indicating the localities sampled in this study: (1) Morrocoy National Park, (2) Mochima National Park, (3) Los Roques Archipelago National Park, (4) Laguna de La Restinga National Park, (5) Isla de Cubagua, (6) Chichiriviche de la Costa

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela

		West Coast				Central Coast				East Coast			
	Species	Isla de Pájaros, Maracaibo	**Morrocoy National Park**	Isla Goaigoaza, Puerto Cabello	San Esteban National Park	**Chichiriviche de la Costa**	Playa Azul, litoral Central	Balneario Camuri Chico	Los Totumos	**Mochima National Park**	Araya	Playa San Luis, Cumaná	La Chica, Golfo de Cariaco
	Order ACTINIARIA												
	Family Edwardsiidae Andres, 1881												
1	*Scolanthus curacaoensis*												
	Family Actiniidae Rafinesque, 1815												
2	*Actinia bermudensis*		e				e	e					
3	*Actinostella flosculifera*		a, e, *		e		a	e	e	e		e	e
4	*Anemonia sargassensis*		e				e	e	a, e	e	e	e	
5	*Anthopleura cascaia* †							e					
6	*Anthopleura krebsi*						e	e		e		e	e
7	*Anthopleura pallida*		*, N										
8	*Bunodosoma caissarum* ?						e	e					e
9	*Bunodosoma cangicum* ?						e	e				e	e
10	*Bunodosoma cavernatum*		e								e		e
11	*Bunodosoma granuliferum*		a, e, *		e		e	a, e	e		e	e	e
12	*Bunodosoma kuekenthali* ?												e
13	*Condylactis gigantea*	e	a, e, g, *	e	e		a	e		*, e	e		e
14	*Isoaulactinia stelloides*							e	e				e
15	*Phymactis* sp.?												
	Family Capneidae Gosse, 1860												
16	*Actinoporus elegans*		e, *							*			
	Family Homostichanthidae Carlgren, 1900												
17	*Homostichanthus duerdeni*		e				a						

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

	Family Phymanthidae Andres, 1883									
18	*Phymanthus crucifer*	a, e		a		a, e	e, *	e		e
	Family Stichodactylidae Andres, 1883									
19	*Stichodactyla helianthus*	a, e	e, h			a, e	e	e		e
	Family Aiptasiidae Carlgren, 1924a									
20	*Bartholomea annulata*	a, c, e, g, *	e		e		*, e			
21	*Bartholomea werneri* †	e								
22	*Exaiptasia pallida*	a, e, *		a			e, *		e	e
23	*Laviactis lucida*	e								
	Family Aliciidae Duerden, 1895									
24	*Lebrunia coralligens*	*					*			
25	*Lebrunia neglecta*	a, e, *					e, *		a, e	
	Family Boloceroididae Carlgren, 1924b									
26	*Bunodeopsis antilliensis*	a, e	e	a						
	Family Diadumenidae Stephenson, 1920									
27	*Diadumene lineata*									
	Family Hormathiidae Carlgren, 1932									
28	*Calliactis tricolor*	e					e		e	a
29	*Monactis vestita*									
	Family Isophelliidae Stephenson, 1935									
30	*Telmatactis cricoides*						*, e	e		
31	*Telmatactis vernonia*						*, N			
	Order CERIANTHARIA									
	Family Arachnanthidae McMurrich, 1910									
32	*Isarachnanthus nocturnus*	e	*						e	e
	Family Cerianthidae									
33	*Ceriantheopsis americanus*				e		e			e

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

34	*Ceriantheomorphe brasiliensis*						e				
35	*Pachycerianthus curacaoensis*								e		e
	Order CORALLIMORPHARIA										
	Family Corallimorphidae Hertwig, 1882										
36	*Corynactis caribbeorum*			*		b		e			
	Family Discosomatidae Duchassaing & Michelotti, 1864a										
37	*Discosoma carlgreni*	e									
38	*Rhodactis osculifera*										
	Order ZOANTHIDEA										
	Family Sphenopidae Hertwig, 1882										
39	*Palythoa caribaeorum*	e, f,*	e, f		e	e	e	*, e		e	e
40	*Palythoa mammillosa* ?	e	e, f		e	e	e	e		e	
41	*Palythoa grandis*	e	f		e	e	e		e		e
42	*Palythoa variabilis*	a, e				e	e	e			e
	Family Zoanthidae										
43	*Isaurus duchassaingi*										
44	*Zoanthus proteus* †	e									e
45	*Zoanthus pulchellus*	e						e	e		e
46	*Zoanthus sociatus*	e, f,*	f				e	*, e	e		e
47	*Zoanthus solanderi*		f			e		e			e
	Family Epizoanthidae Delage & Hirouard, 1901										
48	*Epizoanthus cutressi*										
	Family Parazoanthidae Delage & Hirouard, 1901										
49	*Parazoanthus catenularis*										
50	*Parazoanthus parasiticus*	e, *						e, *			

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

51	*Parazoanthus puertoricense*	e
52	*Parazoanthus swiftii*	

Localities sampled in the present study in bold. (*) records documented in our surveys, (?) doubtful previous records, (†) species currently considered as invalid, (N) new records for Venezuela. Citation of previous records: (a) Specimens of the MOHBR scientific collection (see Appendix 2), (b) den Hartog (1980), (c) Knowlton & Keller (1985), (d) Riemann-Zürneck (1986), (e) Agudo (1987), (f) Bastidas & Bone (1996), (g) Bitter-Soto (1999), (h) Henríquez & Palacios (2008), (i) Liñero-Arana & González (2008), (j) Carrasquel (2012)

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

		East Coast								Oceanic Islands					
	Species	Laguna de Chacopata, Península de Araya	Isla Tortuga	Laguna de Piedras (Isla de Margarita)	**Laguna de la Restinga (Isla de Margarita)**	**Isla de Cubagua**	Isla de Coche	Isla Testigo Grande, Los Testigos	Isla Iguana, Los Testigos	Golfo de Paria	**Archipiélago Los Roques National Park**	Archipiélago la Orchilla	Isla La Blanquilla	Isla Los Hermanos	Isla de Aves	Open Sea Distribution
	Order ACTINIARIA															
	Family Edwardsiidae Andres, 1881															
1	*Scolanthus curacaoensis*	e, i														
	Family Actiniidae Rafinesque, 1815															
2	*Actinia bermudensis*															
3	*Actinostella flosculifera*				a, j, *	a, *		e			*		a			
4	*Anemonia sargassensis*		a, e	a	a, j, *	a, *				a			a			
5	*Anthopleura cascaia* †															
6	*Anthopleura krebsi*															
7	*Anthopleura pallida*															
8	*Bunodosoma caissarum* ?															
9	*Bunodosoma cangicum* ?															
10	*Bunodosoma cavernatum*				a	*										
11	*Bunodosoma granuliferum*		e		j, *											
12	*Bunodosoma kuekenthali* ?															
13	*Condylactis gigantea*							e	e		e, *					
14	*Isoaulactinia stelloides*										e					
15	*Phymactis* sp.?							e	e					a		
	Family Capneidae Gosse, 1860															
16	*Actinoporus elegans*															
	Family Homostichanthidae Carlgren, 1900															
17	*Homostichanthus duerdeni*		a, e													
	Family Phymanthidae Andres, 1883															

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

18	*Phymanthus crucifer*	e	a		a, e, *		e	e							
	Family Stichodactylidae Andres, 1883														
19	*Stichodactyla helianthus*	a, e	a	a, j, *	a, e, *	a	e			e, *		a		a	
	Family Aiptasiidae Carlgren, 1924a														
20	*Bartholomea annulata*				a, e, *		e	e		a, e, *					
21	*Bartholomea werneri* †														
22	*Exaiptasia pallida*		a, e	j	a, *		e			*					
23	*Laviactis lucida*						e	e		c, e, *					
	Family Aliciidae Duerden, 1895														
24	*Lebrunia coralligens*									e, *		a			
25	*Lebrunia neglecta*	e			a					e, *		a			
	Family Boloceroididae Carlgren, 1924b														
26	*Bunodeopsis antilliensis*			a, e j, *				a		*					
	Family Diadumenidae Stephenson, 1920														
27	*Diadumene lineata*								a						
	Family Hormathiidae Carlgren, 1932														
28	*Calliactis tricolor*		a	j, *	*		e			e					
29	*Monactis vestita*														d
	Family Isophelliidae Stephenson, 1935														
30	*Telmatactis cricoides*	e								e		a			
31	*Telmatactis vernonia*														
	Order CERIANTHARIA														
	Family Arachnanthidae McMurrich, 1910														
32	*Isarachnanthus nocturnus*									e					
	Family Cerianthidae														
33	*Ceriantheopsis americanus*		e												

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

34	*Ceriantheomorphe brasiliensis*										
35	*Pachycerianthus curacaoensis*					e					
	Order CORALLIMORPHARIA										
	Family Corallimorphidae Hertwig, 1882										
36	*Corynactis caribbeorum*					e		e			e
	Family Discosomatidae Duchassaing & Michelotti, 1864a										
37	*Discosoma carlgreni*										
38	*Rhodactis osculifera*							e			
	Order ZOANTHIDEA										
	Family Sphenopidae Hertwig, 1882										
39	*Palythoa caribaeorum*		e		*	e	e	e, *		e	
40	*Palythoa mammillosa* ?		e					e	e		
41	*Palythoa grandis*			e	*	e	e				
42	*Palythoa variabilis*					e					
	Family Zoanthidae										
43	*Isaurus duchassaingi*	a									
44	*Zoanthus proteus* †										
45	*Zoanthus pulchellus*					e		*			
46	*Zoanthus sociatus*				*	e	e	e, *			
47	*Zoanthus solanderi*										
	Family Epizoanthidae Delage & Hirouard, 1901										
48	*Epizoanthus cutressi*							e			
	Family Parazoanthidae Delage & Hirouard, 1901										
49	*Parazoanthus catenularis*							e			
50	*Parazoanthus parasiticus*		e		e	e		e, *			

Table 1 Distribution of sea anemones documented along the coast, islands and archipelagos of Venezuela *(Continued)*

51	*Parazoanthus puertoricense*	e
52	*Parazoanthus swiftii*	e, *

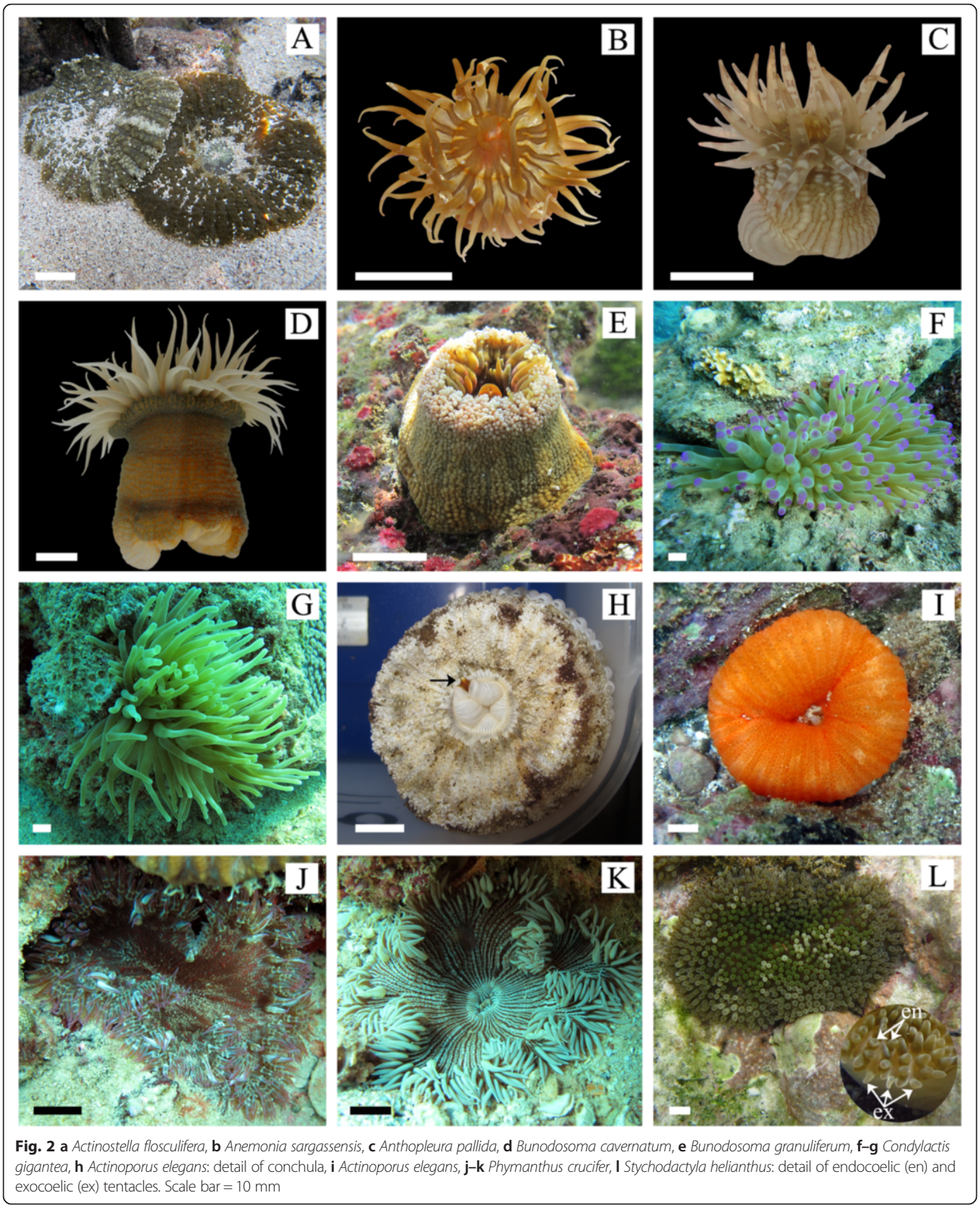

Fig. 2 **a** *Actinostella flosculifera*, **b** *Anemonia sargassensis*, **c** *Anthopleura pallida*, **d** *Bunodosoma cavernatum*, **e** *Bunodosoma granuliferum*, **f–g** *Condylactis gigantea*, **h** *Actinoporus elegans*: detail of conchula, **i** *Actinoporus elegans*, **j–k** *Phymanthus crucifer*, **l** *Stychodactyla helianthus*: detail of endocoelic (en) and exocoelic (ex) tentacles. Scale bar = 10 mm

Metridium prætextum: Couthouy in Dana (1846)
Actinostella Formosa [sic]: Duchassaing, 1850
Oulactis flosculifera: Milne-Edwards, 1857
Oulactis conquilega: Duchassaing & Michelotti, 1860
Oulactis Flosculifera [sic]: Duchassaing, 1870
Evactis flosculifera: Andres, 1883

Oulactis foliosa: Andres, 1883
Oulactis fasciculata: McMurrich, 1889a
Asteractis n. sp.: Duerden, 1897
Asteractis expansa: Duerden in McMurrich, 1898
Cradactis fasciculata: Haddon, 1898
Asteractis flosculifera: Verrill, 1899a
Actinactis flosculifera: Verrill, 1900
Actinostella flosculifera: McMurrich, 1905
Actinostella conchilega: McMurrich, 1905
Phyllactis flosculifera: Stephenson, 1922

Short description Pedal disc well developed, 10–30 mm in diameter. Column more or less elongate, 20–80 mm in height, slightly broader than pedal disc, smooth but with small rows of verrucae in its upper part. Pedal disc and column beige or pale orange. Above verrucae and below the margin lies a distinctive collar or marginal ruff formed by 48 rows of small frond-like fused papillae, pale brown or olive-green, and often with dark or pale flashes. Oral disc smooth, short, greyish-white and translucent, but sometimes with white flashes. Oral disc and mouth beige or whitish. Tentacles hexamerously arranged in four cycles (about 48 in specimens examined), inner cycles longer than outer ones, smooth, conical, tapering distally, white and translucent but with small circular white spots in its oral face and along their entire length. For further information on internal anatomy and cnidae see Schlenz & Belém (1992) and González-Muñoz et al. (2012).

Habitat This species inhabits commonly in seagrass meadows, with the column completely burrowed in the sand with only the marginal ruff, oral disc and tentacles protruding into the water column, often between 0.1–5.0 m.

Distribution Western Atlantic, from Bermuda to Brazil, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). Also reported in Canary Islands (Ocaña & den Hartog 2002), and the Gulf of Guinea (Wirtz 2003). Agudo (1987) and Carrasquel (2012) previously reported *A. flosculifera* (= *Phyllactis praetexta*) in Venezuela (Table 1) inhabiting coral reefs, seagrass meadows, sandy bottoms, rocky shores, and mangroves.

***Anemonia sargassensis* Hargitt, 1908**
(Fig. 2b)
Anemonia sargassensis Hargitt, 1908
Anemonia antillensis: Pax, 1924
Anemonia sargassiensis [sic]: Carlgren, 1949

Short description Pedal disc well-developed, 5–20 mm in diameter, reddish or bright to dark-orange. Column cylindrical, short, smooth, reddish to dark-orange. Distal part of column with poorly marked marginal projections forming acrorhagi with holotrichs and basitrichs. Oral disc smooth, 8–25 mm in diameter, wider than column, reddish to dark-orange but with whitish or yellow radial stripes from the periphery of the mouth to the base of the tentacles; mouth reddish or bright-orange. Tentacles irregularly arranged in four or five cycles (about 52–76 in specimens examined), inner cycles longer than outer ones, relatively long, smooth, slender, tapering distally, reddish to dark-orange but with the tips yellowish and sometimes with pink flashes. For further information on internal anatomy and cnidae see Fisher (1976), Carlgren & Hedgpeth (1952), and González-Muñoz et al. (2013).

Habitat This species inhabits shallow waters of coral reef lagoons, commonly under rocks or coral rubble, or even among colonies of fire-corals, between 0.5–3.0 m, but it has been also reported on floating *Sargassum* (Carlgren & Hedgpeth 1952).

Distribution Western Atlantic, from Bermuda and northern coast of the United States to Brazil, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). Agudo (1987) and Carrasquel (2012) previously reported *A. sargassensis* in Venezuela (Table 1), inhabiting coral reefs, mangroves, and rocky shores.

***Anthopleura pallida* Duchassaing & Michelotti, 1864a**
(Fig. 2c)
Anthopleura pallida Duchassaing & Michelotti, 1864a
Anthopleura Pallida [sic]: Duchassaing, 1870
Actinioides pallida: Duerden, 1897
Actinoides pallida: Verrill, 1900
Bunodactis stelloides catenulata: Verrill, 1905
Anthopleura catenulata: Cairns et al., 1986

Short description Pedal disc well-developed, 5–10 mm in diameter, grey or whitish. Column cylindrical, stout to elongate, pale to dark-brown. Column with longitudinal rows of verrucae from margin to mid-part; distal end with small and rounded marginal projections forming acrorhagi with holotrichs, basitrichs, microbasic *p*-mastigophores, and spirocysts. Oral disc narrow, smooth, 3–8 mm in diameter, brownish; mouth slightly clearer than oral disc. Tentacles hexamerously arranged in three or four cycles (about 24–48 in specimens examined), inner cycles longer than outer ones, relatively short, smooth, slender, tapering distally, whitish, translucent, but with white circular spots on its oral face along their entire length, and sometimes with brown flashes. For further information on internal anatomy and cnidae see Daly & den Hartog (2004), and González-Muñoz et al. (2013).

Habitat This species lives commonly attached to coral rubble on sandy shores (González-Muñoz et al. 2013), between 0.5–1.5 m, with grains of sand adhered to the verrucae.

Distribution Western Atlantic, from Bermuda to the Caribbean Sea and Gulf of Mexico (Daly & den Hartog 2004; González-Muñoz et al. 2012, 2013); this is the first record for Venezuela found in Boca Seca, Morrocoy National Park (Table 1).

***Bunodosoma cavernatum* (Bosc, 1802)**
(Fig. 2d)
Actinia cavernata Bosc, 1802
Urticina cavernata: Duchassaing, 1850
Bunodes cavernata: Verrill, 1864
Phymactis cavernata: Andres, 1883
Bunodosoma cavernata: Verrill, 1899b
Anthopleura cavernata: Cary, 1906
Bunodosma cavernata: Daly, 2003

Short description Pedal disc well-developed, 12–20 mm in diameter. Column cylindrical, densely covered with longitudinal rows of rounded vesicles from the margin to limbus. Pedal disc and column commonly beige or brown-reddish. Distal end of column with small and rounded marginal projections forming acrorhagi with holotrichs and basitrichs. Oral disc wide, smooth, 20–40 mm in diameter. Oral disc and mouth brown-yellowish, brown-reddish or pale brown. Tentacles hexamerously arranged in five cycles (about 96 in specimens examined), inner cycles longer than outer ones, moderately long, smooth, conical, tapering distally, white or pale-orange. For further information on internal anatomy and cnidae see Carlgren (1952), Carlgren & Hedgpeth (1952), and González-Muñoz et al. (2013).

Habitat This species lives attached to rocks or coral rubble, in shallow waters between 0.5–7.0 m.

Distribution Western Atlantic, from the northern coast of the United States to the Caribbean Sea and Gulf of Mexico (Carlgren & Hedgpeth 1952; González-Muñoz et al. 2012, 2013), and in the Caroline Islands, Micronesia (Bosc 1802). Agudo (1987) previously reported *Bunodosoma cavernatum* (= *B. cavernata*) in Venezuela (Table 1), inhabiting in coral reefs and mangroves.

***Bunodosoma granuliferum* (Le Sueur, 1817)**
(Fig. 2e)
Actinia granulifera Le Sueur, 1817
Urticina Lessoni [sic]: Duchassaing, 1850
Oulactis granulifera: Milne-Edwards, 1857
Urticina granulifera: Duchassaing & Michelotti, 1860
Cereus Lessoni [sic]: Duchassaing & Michelotti, 1860
Anthopleura granulifera: Duchassaing & Michelotti, 1864a
Anthopleura Granulifera [sic]: Duchassaing, 1870
Aulactinia granulifera: Andres, 1883
Bunodes tæniathus: McMurrich, 1889b
Bunodes taeniatus: Carlgren, 1895
Bunodes granulifera: Duerden, 1897
Bunodosoma granulifera: Verrill, 1899a
Bunodosoma granuliferum: Pax, 1910
Phymactis granulifera: Stephenson, 1922

Short description Pedal disc well-developed, 7–40 mm in diameter, brownish with bright-orange flashes. Column cylindrical, densely covered with longitudinal rows of rounded vesicles arranged in 24 alternated dark and light bands (dark bands with about five rows of vesicles, light ones with about three). Distal end of column with small and rounded marginal projections forming acrorhagi with holotrichs and basitrichs. Oral disc wide, smooth, 20–50 mm in diameter, olive-green, reddish-brown, dark-red or dark-green; mouth dark-red or yellowish. Tentacles hexamerously arranged in five cycles (about 96 in specimens examined), inner cycles longer than outer ones, moderately long, smooth, conical, tapering distally, olive-green, but with yellowish circular spots on the oral face along its entire length and sometimes with pink or dark-red flashes. For further information on internal anatomy and cnidae see González-Muñoz et al. (2012).

Habitat This species lives attached to rocks, commonly in shallow waters among rocky patches and seagrasses meadows, between 0.5–6.0 m.

Distribution Western Atlantic, from Bermuda to Barbados, along the Caribbean Sea (González-Muñoz et al. 2012). This species has previously been reported by Agudo (1987) and Carrasquel (2012) for Venezuela (Table 1), inhabiting coral reefs, mangroves, and rocky bottoms.

***Condylactis gigantea* (Weinland, 1860)**
(Fig. 2f-g)
Anthea gigantea Weinland, 1860
Condylactis passiflora: Duchassaing & Michelotti, 1864a
Condylactis Passiflora [sic]: Duchassaing, 1870
Bunodes passiflora: Andres, 1883
Ilyanthopsis longifilis: Hertwig, 1888
Condylactis gigantea: Verrill, 1905

Short description Pedal disc well-developed, 20–85 mm in diameter. Column cylindrical, smooth, slightly wider

than pedal disc. Pedal disc and column scarlet or bright to pale orange. Oral disc wide, smooth, 25–100 mm in diameter; oral disc and mouth yellowish to pale orange with green flashes, or pale green. Tentacles hexamerously arranged in five cycles (about 96 in specimens examined), inner cycles longer than outer ones, long, cylindrical, smooth but striated in appearance, white, greenish or pale brown in color, with tips slightly swollen and blunt, mainly bright green or pink, but sometimes white, bluish or purple. Two color morphs are commonly recognized for this species regarding the color of its tentacles tips: one with pink tips (Fig. 2f), and another one with bright-green tips (Fig. 2g). For further information on internal anatomy and cnidae see Carlgren (1952), and González-Muñoz et al. (2012).

Habitat This species inhabit shallow waters, inside crevices formed by coral rocks and coral rubble, and is also commonly observed among seagrass meadows and mangroves zones; often between 0.5–30.0 m, but has been reported down to 40 m (Agudo 1987).

Distribution Western Atlantic, from Bermuda to Brazil, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). Agudo (1987) previously reported *C. gigantea* in Venezuela (Table 1), inhabiting coral reefs, seagrass meadows, sandy bottoms, mangroves, and rocky shores.

Family CAPNEIDAE Gosse, 1860
***Actinoporus elegans* Duchassaing, 1850**
(Fig. 2h-i)
Actinoporus elegans Duchassaing, 1850
Actinoporus Elegans [sic]: Duchassaing, 1870
Aureliana elegans: Andres, 1883

Short description Pedal disc well-developed, 35–42 mm in diameter. Column cylindrical, elongate but sometimes funnel-shape, 60–100 mm in length and 45–60 in diameter, smooth but with longitudinal rows of vesicles in its distal part. Pedal disc and column whitish or beige, vesicles grey. Central part of oral disc narrow and smooth; mouth often white and with conchula (Fig. 2h). Tentacles small, vesicle-like, arranged in double radial rows covering almost the entire oral disc, located on endocoelic and exocoelic spaces. Three color morphs regarding tentacles were observed in Venezuela: white tentacles with scattered brown dots (Fig. 2h), white tentacles with pale pink and purple flashes, and tentacles and oral disc completely bright-orange (Fig. 2i). For further information on internal anatomy and cnidae see Corrêa (1973) and González-Muñoz et al. (2013).

Habitat This species inhabits sandy patches, with the pedal disc strongly attached to burrowed rocks, but with the column completely buried in the sand and only the oral disc and tentacles protruding into the water column, often between 1–2 m.

Distribution Western Atlantic, in the Caribbean Sea and Gulf of Mexico to the northern coast of Brazil (Corrêa 1973; González-Muñoz et al. 2013), but also reported in Cape Verde Islands (Wirtz 2009). Agudo (1987) previously reported *A. elegans* in Venezuela (Table 1), inhabiting sandy bottoms.

Family PHYMANTHIDAE Andres, 1883
***Phymanthus crucifer* (Le Sueur, 1817)**
(Fig. 2j-k)
Actinia crucifera Le Sueur, 1817
Cereus crucifer: Duchassaing & Michelotti, 1864a
Cereus Crucifer [sic]: Duchassaing, 1870
Phymanthus cruciferus: Andres, 1883
Ragactis cruciata: Andres, 1883
Phymanthus crucifer: McMurrich, 1889a
Epicystis crucifera: Verrill, 1898
Epicystis osculifera: Verrill, 1900
Phymantes crucifer: Cutress & Cutress, 1976
Phimanthus crucifer: Zamponi, 1981
Epicystis crucifer: Cairns et al., 1986

Short description Pedal disc well-developed, 10–40 mm in diameter, bright pink or orange. Column cylindrical to plate-like, pinkish or orange in the proximal end and fading into whitish distally, with a flame-like staining pattern; smooth but with longitudinal rows of pink verrucae in its distal part. Oral disc wide, 40–100 mm in diameter, rough, variable in color, often brown with reddish spots, olive-green with dark-brown and white spots, grey with green spots, or white with dark-brown radial stripes from mouth to the base of the marginal tentacles; mouth olive-green, pale-brown, grey or purple. Two types of tentacles: marginal and discal. Marginal tentacles short, conical, tapering distally, numerous (about 360 in specimens examined), with lateral protuberances in the oral face, or smooth, white with longitudinal light brown stripes. Discal tentacles reduced, vesicle-like, arranged in radial rows on the oral disc. Commonly three morphotypes have been recognized for *P. crucifer* regarding the presence/absence (or an intermediate state) of lateral protuberances on the oral face of the marginal tentacles (the three morphotypes were observed in Venezuela). However, recent morphological and genetic analyses suggest that the three morphotypes should be considered as a single species (González-

Muñoz et al. 2015). For further information on internal anatomy and cnidae see Carlgren (1952), and González-Muñoz et al. (2012).

Habitat This species lives attached to rocks and coral rubble, with the column burrowed in the sand and only the oral disc protruding into the water column, between 0.5–20.0 m.

Distribution Western Atlantic, along the Caribbean Sea and the Gulf of Mexico (Carlgren 1952; González-Muñoz et al. 2012, 2013). Agudo (1987) previously reported *Phymanthus crucifer* in Venezuela (Table 1), inhabiting coral reefs, seagrass meadows, sandy bottoms, and mangroves.

Family STICHODACTYLIDAE Andres, 1883
***Stichodactyla helianthus* (Ellis, 1768)**
(Fig. 2l)
Actinia helianthus Ellis, 1768
Actinia Helianthus [sic]: Ellis & Solander, 1786
Actinia Anemone [sic]: Ellis & Solander, 1786
Discosoma anemone: Duchassaing, 1850
Discosoma helianthus: Milne-Edwards, 1857
Discosoma Helianthus [sic]: Duchassaing & Michelotti, 1864a
Discosoma Anemone [sic]: McMurrich, 1898
Stoichactis anemone: Haddon, 1898
Stoichactis helianthus: Carlgren, 1900
Stichodactyla helianthus: Dunn, 1981
Stoichactis Helianthus [sic]: Zamponi & Pérez, 1996

Short description Pedal disc well-developed, 35–75 mm in diameter. Column short, diabolo-shaped, smooth but with longitudinal rows of small verrucae in its distal part. Pedal disc and column beige, verrucae greenish or light-brown. Oral disc 50–250 mm in diameter, flat to domed, beige or greenish; mouth beige. Tentacles short, digitiform, blunt, arranged in single radial endocoelic rows covering almost the entire oral disc; each endocoelic row with dozens of tentacles but only one tentacle at the margin per exocoelic row (Fig. 2l). Tentacles light brown near their bases and bright-green or with yellowish shades at tips. For further information on internal anatomy and cnidae see Dunn (1981), and González-Muñoz et al. (2012, 2013).

Habitat This species lives strongly attached to rocks and coral rubble among sandy and seagrass meadows, often between 0.5–12.0 m.

Distribution Western Atlantic, from Bermuda to Brazil, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). This species has previously been reported in Venezuela by Agudo (1987) and Carrasquel (2012) (Table 1), inhabiting coral reefs, seagrass meadows, and mangroves.

Superfamily METRIDIOIDEA Carlgren, 1893
Family AIPTASIIDAE Carlgren, 1924a
***Bartholomea annulata* (Le Sueur, 1817)**
(Fig. 3a)
Actinia annulata Le Sueur, 1817
Actinia solifera: Le Sueur, 1817
Paractis solifera: Milne-Edwards, 1857
Dysactis annulata: Milne-Edwards, 1857
Bartholomea solifera: Duchassaing & Michelotti, 1864a
Bartholomea Solifera [sic]: Duchassaing, 1870
Aiptasia solifera: Andres, 1883
Aiptasia annulata: Andres, 1883
Aiptasia annulata solifera: Verrill, 1907
Bartholomea annulata: Stephenson, 1920
Aiptasia arrulata: Atoda, 1954
Batholomea annulata [sic]: Chen et al., 2008

Short description Pedal disc well-developed, 10–25 mm in diameter. Column cylindrical to elongate, divided in capitulum and scapus. Capitulum thin, smooth, light to dark-brown, translucent, with white and yellow scattered spots; scapus robust, smooth but corrugate in appearance when contracted, light brown. Mid-part of scapus with four to five rows of cinclides. Oral disc 30–45 mm in diameter, smooth, flat, brownish, translucent, with small white and yellow dots, and sometimes with triangular spots at the base of some tentacles; mouth beige. Tentacles hexamerously arranged in up to five cycles (about 48 to 96 in specimens examined), long, slender, inner cycles longer than outer ones, tapering distally, brown but translucent, with a distinct pattern of white spiral bands giving the appearance of a corkscrew. Acontia can be protruding to the water column through the cinclides or the mouth. For further information on internal anatomy and cnidae see Carlgren (1952), Carlgren & Hedgpeth (1952), González-Muñoz et al. (2012), and Rodríguez et al. (2014).

Habitat This species lives in shallow waters inside crevices of rocks and coral rubble, with only its tentacles above the substrate. It is often observed in caves and crevices at the interface between hard and sandy substratum, commonly between 0.5–15.0 m, but also observed down to 40 m.

Distribution Western Atlantic, from Bermuda to Barbados, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). Agudo (1987) previously reported *B. annulata* in Venezuela (Table 1),

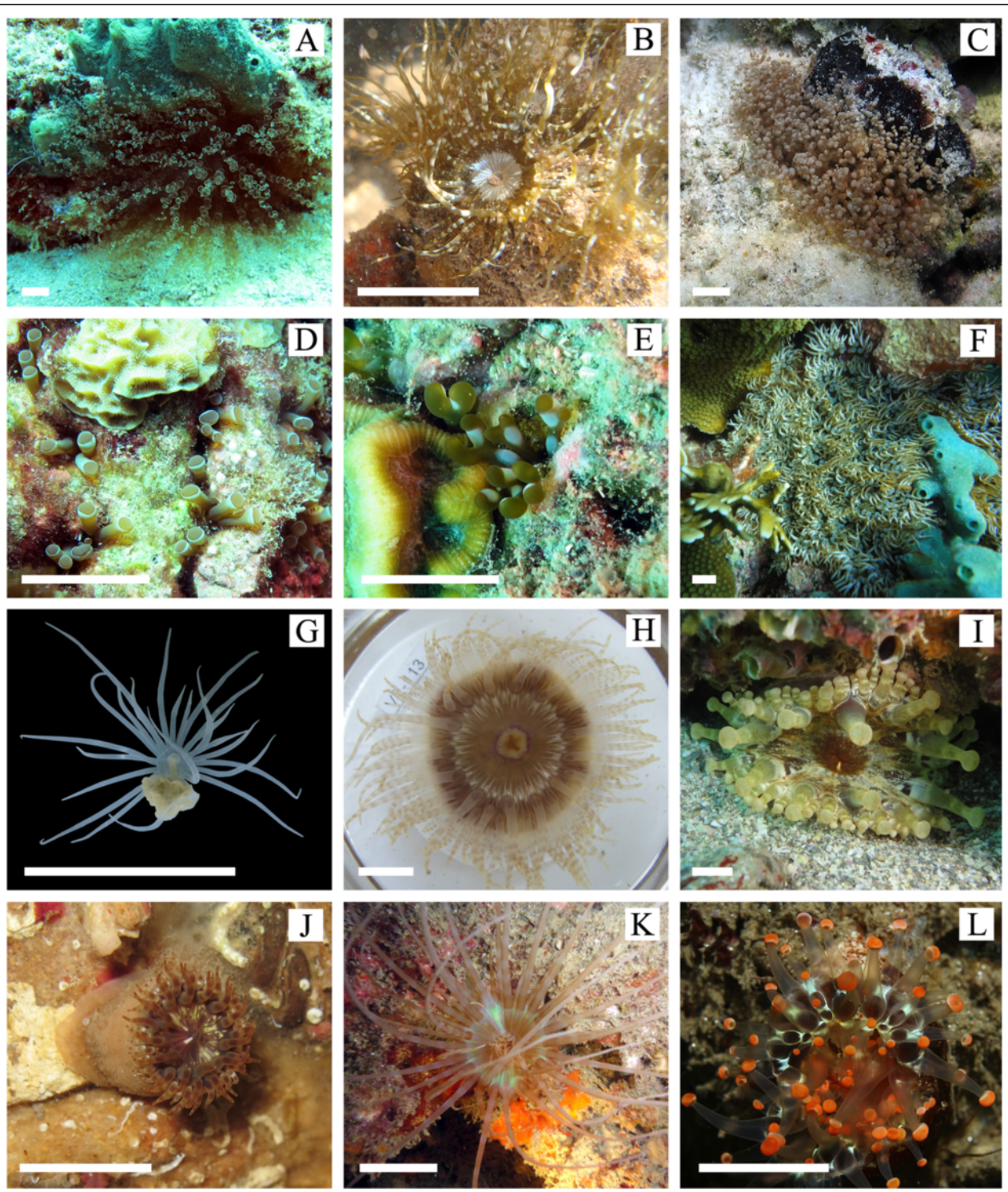

Fig. 3 **a** *Bartholomea annulata*, **b** *Exaiptasia pallida*, **c** *Laviactis lucida*, **d–e** *Lebrunia coralligens*, **f** *Lebrunia neglecta*, **g** *Bunodeopsis antilliensis*, **h** *Calliactis tricolor*, **i** *Telmatactis cricoides*, **j** *Telmatactis vernonia*, **k** *Isarachnanthus nocturnus*, **l** *Corynactis caribbeorum*. Scale bar = 10 mm

inhabiting coral reefs, seagrass meadows, mangroves, and rocky shores.

***Exaiptasia pallida* (Agassiz in Verrill, 1864)**
(Fig. 3b)
Actinia diaphana Rapp, 1829
Cribina diaphana: Deshayes & Milne-Edwards, 1840
Actinia elongata: Delle Chiaje, 1841
Adamsia diaphana: Milne-Edwards, 1857
Dysactis pallida: Agassiz in Verrill, 1864
Bartholomea tagetes: Duchassaing & Michelotti, 1864a
Bartholomea inula: Duchassaing & Michelotti, 1864a
Dysactis mimosa: Duchassaing & Michelotti, 1864a
Dysactis minuta: Verrill, 1867
Paranthea minuta: Verrill, 1868
Paranthea pallida: Verrill, 1868
Disactis mimosa [sic]: Duchassaing, 1870
Aiptasia saxicola: Andres, 1881
Aiptasia diaphana: Andres, 1883
Aiptasia Agassizii [sic]: Andres, 1883
Aiptasia inula: Andres, 1883
Aiptasia minuta: Andres, 1883
Aiptasia mimosa: Andres, 1883
Aiptasia tagetes: Andres, 1883
Aiptasia pallida: McMurrich, 1887
Aiptasia leiodactyla: Pax, 1910
Aiptasia insignis: Carlgren, 1941
Aiptasioides pallida: Stephenson, 1918
Aiptasiomorpha diaphana: Stephenson, 1920
Aiptasiomorpha leiodactyla: Stephenson, 1920
Aiptasia pulchella: Carlgren, 1943
Aiptasia califórnica: Carlgren, 1952
Aiptasiomorpha minuta: Uchida & Soyama, 2001
Aipstasia pulchella [sic]: Reimer et al., 2007
Exaiptasia pallida: Grajales & Rodríguez, 2014

Short description Pedal disc well-developed, 3–10 mm in diameter. Column cylindrical to elongate, only distinctly divisible into capitulum and scapus when contracted. Capitulum smooth, beige to dark brown, translucent; scapus smooth but corrugate in appearance when contracted, beige to dark brown. Column with two to three rows of cinclides in mid-scapus. Oral disc 5–15 mm in diameter, smooth, flat, brownish with white circular spots, or brownish, translucent, with small white, yellow, and bluish scattered dots; mouth brownish and sometimes surrounded by whitish spots. White acontia can be observed protruding through mouth or cinclides. Tentacles hexamerously arranged in four cycles (about 48 in specimens examined), long, smooth, slender, inner cycles longer than outer ones, tapering distally, brown, translucent, with white or bluish scattered dots along its entire length. For further information on internal anatomy and cnidae see Carlgren (1952), Carlgren & Hedgpeth (1952), González-Muñoz et al. (2012), and Grajales & Rodríguez (2014).

Habitat This species lives attached to rocks, coral rubble, submerged lumber, or mangrove roots, often between 0.5–22.0 m. It is commonly observed forming aggregations as a result of asexual reproduction by pedal laceration (González-Muñoz et al. 2012).

Distribution Worldwide distribution along the northwestern Atlantic coast, from Bermuda to Brazil, the Caribbean Sea and Gulf of Mexico, the Galapagos Islands, Australia, the Mediterranean Sea and the western coast of Africa, Japan and Hawaii, and Saint Helena Island (Grajales & Rodríguez 2014). *Exaiptasia pallida* (= *Aiptasia pallida*) has previously been registered in Venezuela (Agudo 1987; Carrasquel 2012) (Table 1), inhabiting the roots of mangroves.

***Laviactis lucida* (Duchassaing & Michelotti, 1860)**
(Fig. 3c)
Capnea lucida Duchassaing & Michelotti, 1860
Heteractis lucida: Duchassaing & Michelotti, 1864a
Heteractis Lucida [sic]: Duchassaing, 1870
Ragactis lucida: Andres, 1883
Aiptasia lucida: Duerden, 1897
Bartholomea pseudoheteractis: Watzl, 1922
Bartholomea lucida: Carlgren, 1949
Laviactis lucida: Grajales & Rodríguez, 2014

Short description Pedal disc well-developed, 15–25 mm in diameter. Column cylindrical to elongate, divided in capitulum and scapus. Capitulum smooth, beige to dark brown, translucent, with light-brown to white dots; scapus smooth but corrugate in appearance when contracted, beige. Column with up to five rows of cinclides in mid-scapus. Oral disc 15–30 mm in diameter, smooth, flat, brownish, translucent, with small yellow dots around the mouth. Tentacles hexamerously arranged in up to five cycles (about 48 to 96 in specimens examined), inner cycles longer than outer ones, all long, slender, tapering distally, brownish, translucent, with numerous white or grey spherical hollow vesicles irregularly arranged, giving the appearance of knobby tentacles; vesicles containing batteries of cnidae. White acontia can be observed protruding through mouth or cinclides. For further information on internal anatomy and cnidae see González-Muñoz et al. (2012), and Grajales & Rodríguez (2014).

Habitat This species lives attached to hard substratum, inside crevices or holes of rocks or coral rubble with only the tentacles protruding into the water column, often between 0.5–10.0 m.

Distribution Western Atlantic, from Bahamas to Barbados, along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013; Grajales & Rodríguez 2014). Agudo (1987) previously reported *L. lucida* (= *Bartholomea lucida*) in Venezuela (Table 1), inhabiting coral reefs.

Family ALICIIDAE Duerden, 1895
***Lebrunia coralligens* (Wilson, 1890)**
(Fig. 3d-e)
Hoplophoria coralligens Wilson, 1890
Lebrunea coralligens: Duerden, 1898a
Lebrunia coralligens: Stephenson, 1922
Taractea Danae [sic]: Andres, 1883
Stauractis incerta: Andres, 1883
Hoplophoria coralligens: Wilson, 1890
Rhodactis Danæ [sic]: Haddon, 1898
Lebrunia Danæ [sic]: Verrill, 1899a
Lebrunia Danae [sic]: Verrill, 1907
Aiptasia sp.: Verrill, 1907
Lebrunia danae: Pax, 1910
Cradactis variabilis: Hargitt, 1911
Lebrunia danæ: Weill, 1934
Lubrunia danae: Hedgpeth, 1954
Lebrunea danae: Zeiller, 1974
Labrunia danae: Hanlon et al., 1983

Short description Pedal disc well-developed, 3–6 mm in diameter. Column cylindrical, short, smooth, light brown, often with 4–6 branched outgrowths distally (pseudotentacles), which ends are as globular-shaped vesicles. Specimens with two morphs regard of pseudotentacles are often observed: the first one with branched ends bluish with a grey or brown circle in the center (Fig. 3d), and the second one with ends bifurcated, brown with grey or white spots (Fig. 3e). Oral disc 3–5 mm in diameter, smooth, beige and translucent. Tentacles hexamerously arranged in four cycles (about 48 in number), inner cycles longer than outer ones, smooth but striated in appearance, moderately long, slender, tapering distally, greyish or brownish, translucent, with whitish or yellowish tips and scattered bluish dots along its length. For further information on internal anatomy and cnidae see Crowther (2013) and González-Muñoz et al. (2013).

Habitat This species lives attached to hard substratum, inside crevices or holes of rocks or live coral, and commonly observed with only the pseudotentacles protruding into the water column; often between 0.5–6.0 m.

Distribution Western Atlantic, from Bahamas to Brazil and along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). *Lebrunia coralligens* has previously been registered in Venezuela by Agudo (1987) (Table 1), inhabiting coral reefs.

***Lebrunia neglecta* Duchassaing & Michelotti, 1860**
(Fig. 3f)
Oulactis Danae [sic] Duchassaing & Michelotti, 1860
Lebrunia neglecta: Duchassaing & Michelotti, 1860
Actinodactylus neglectus: Duchassaing & Michelotti, 1860
Rhodactis Danae [sic]: Duchassaing & Michelotti, 1864a
Lebrunea neglecta: Duchassaing & Michelotti, 1864a
Rodactis Danæ [sic]: Duchassaing, 1870
Actinodactylus Neglectus [sic]: Duchassaing, 1870

Short description Pedal disc well-developed, 10–50 mm in diameter. Column cylindrical, smooth, beige, with often 4–6 branched beige to dark-brown pseudotentacles distally, with extremely ramified forked tips; small white or grey vesicles among ramifications. Oral disc 10–25 mm in diameter, smooth, flat, beige and translucent. Tentacles hexamerously arranged in four cycles (about 48 in specimens examined), inner cycles longer than outer ones, all smooth but striated in appearance, moderately long, slender, tapering distally, beige but whitish toward tips and with small scattered white dots. For further information on internal anatomy and cnidae see González-Muñoz et al. (2012) (as *L. danae*) and Crowther (2013).

Habitat This species lives attached to hard substratum, inside holes or crevices among live corals and rocks, and commonly observed during day with only the pseudotentacles protruding into the water column; often between 0.5–12.0 m, but it has been reported down to 60 m depth (Ocaña et al. 2007).

Distribution Western Atlantic, from Bermuda to Brazil, and along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). Agudo (1987) previously registered *L. neglecta* (= *L. danae*) in Venezuela (Table 1), inhabiting coral reefs, mangroves, and rocky shores.

Family BOLOCEROIDIDAE Carlgren, 1924b
***Bunodeopsis antilliensis* Duerden, 1897**
(Fig. 3g)
Bunodeopsis antilliensis Duerden, 1897
Bunodeopsis n. sp.: Duerden, 1898a
Bunodeopsis Antilliensis [sic]: Haddon, 1898
Viatrix globulifera: Verrill, 1899a
Bunodeopsis globulifera: Verrill, 1900

Short description Pedal disc well-developed, 4–13 mm in diameter, greyish or olive-green, translucent. Column short, 5–10 mm in diameter and 4–10 mm in height, divided in capitulum and scapus. Capitulum short, narrower than oral disc, smooth, whitish and translucent; scapus wider than oral disc, covered with longitudinal rows of globular vesicles, white to greenish-brown. Oral disc 4–7 mm in diameter, whitish and translucent. Tentacles irregularly arranged in three to four cycles (about 16–46 in specimens examined), inner cycles longer than outer ones, all long, smooth, tapering distally, whitish and translucent, with white dots scattered along their entire length. The tentacles are deciduous and can be completely detached by contraction of a sphincter in the base of each tentacle. For further information on internal anatomy and cnidae see Duerden (1897) and González-Muñoz et al. (2012).

Habitat This species lives attached to seagrass leaves of *Syringodium filiforme* or *Thalassia testudinum*, between 0.5–6.0 m.

Distribution Western Atlantic, from Bermuda to Curaçao, and along the Caribbean Sea and Gulf of Mexico (González-Muñoz et al. 2012, 2013). *Bunodeopsis antilliensis* (= *B. globulifera*) has been reported in Venezuela by Agudo (1987) and Carrasquel (2012) (Table 1), inhabiting seagrass meadows and mangroves.

Family HORMATHIIDAE Carlgren, 1932
***Calliactis tricolor* (Le Sueur, 1817)**
(Fig. 3h)
Actinia tricolor Le Sueur, 1817
Actinia bicolor: Le Sueur, 1817
Cereus bicolor: Milne-Edwards, 1857
Adamsia tricolor: Milne-Edwards, 1857
Adamsia Egletes [sic]: Duchassaing & Michelotti, 1864a
Adamsia egletes: Duchassaing & Michelotti, 1866
Calliactis bicolor: Verrill, 1869
Adamsia sol: McMurrich, 1893
Adamsia bicolor: Andres, 1883
Adamsia tricolor: Andres, 1883
Calliactis tricolor: Haddon, 1898

Short description Pedal disc well-developed, 10–30 mm in diameter, pale-orange, translucent. Column cylindrical, 12–32 mm height and 16–40 mm diameter, trumped-shaped when expanded and dome-shaped when contracted, divided into capitulum and scapus. Capitulum short, smooth, pale-brown to yellowish, translucent; scapus robust, wrinkled-texture, bright to dark-orange, often with white flashes proximally, and with one or two rows of dark-red or brown cinclides proximally. Oral disc slightly wider than column, smooth, pale-brown and translucent, often with radial white stripes that sometimes forming a white ring around the peristome; mouth bright-yellow, often surrounded by a purple ring. Tentacles hexamerously arranged in up to five cycles (about 48–96 in specimens examined), inner cycles longer than outer ones, smooth, slender, moderately short, tapering distally, whitish, greyish or pale-brown, with longitudinal rows of white dots along its entire length. White or bright-orange acontia can be protruding through mouth or cinclides. For further information on internal anatomy and cnidae see Gusmão (2010), and González-Muñoz et al. (2013).

Habitat This species is commonly found attached to shells of living hermit crabs, between 0.5–40.0 m.

Distribution Western Atlantic, from the northern coast of the United States to the northern coast of Brazil, and along the Caribbean Sea and Gulf of Mexico (Carlgren & Hedgpeth 1952; González-Muñoz et al. 2012, 2013; Zamponi et al. 1998). Agudo (1987) and Carrasquel (2012) previously registered *C. tricolor* in Venezuela (Table 1), inhabiting coral reefs and mangroves.

Family ISOPHELLIIDAE Stephenson, 1935
***Telmatactis cricoides* (Duchassaing, 1850)**
(Fig. 3i)
Entacmæa cricoides Duchassaing, 1850
Dysactis cricoides: Duchassaing & Michelotti, 1860
Paractis clavata: Duchassaing & Michelotti, 1860
Capnea cricoides: Duchassaing & Michelotti, 1864a
Capnea clavata: Duchassaing & Michelotti, 1864a
Phellia Americana [sic]: Verrill, 1868
Phellia cricoides: Verrill, 1869
Phellia Duchassaingi [sic]: Andres, 1883
Phellia clavata: Duerden, 1898a
Phellia rufa: Verrill, 1901
Euphellia cinclidifera: Pax, 1908
Telmatactis Valle-Flori [sic]: Gravier, 1916
Phellia pseudoroseni: Pax, 1924
Telmatactis valle-flori [sic]: Carlgren, 1941
Telmatactis americana: Carlgren, 1949
Telmatactis Valle Flori [sic]: Gravier, 1918
Telmatactis pseudoroseni: Carlgren, 1949
Telmatactis rufa: Corrêa, 1964
Telmatactis valle flori [sic]: Doumenc, 1973
Telmatactis cricoides: Cairns et al., 1986

Short description Pedal disc well-developed, 21–28 mm in diameter, pale-orange, translucent. Column cylindrical, 41–45 mm height and 38–40 mm diameter, divided into capitulum and scapus. Capitulum short, smooth, greyish;

scapus robuts, wrinkled-texture, pale-orange. Oral disc slightly wider than column, 41–45 mm in diameter, smooth, whitish pale-brown, with dark-brown and reddish spots irregularly scattered; mouth dark-red. Tentacles hexamerously arranged in five cycles (about 96 in specimens examined), the inner cycles longer than outer ones, smooth, moderately short, cylindrical, with the tips widely swollen and blunt. Tentacle coloration variable, often whitish or pale-brown, with V or W shaped dark-brown or dark-red spots at its bases and with transversal white spots and reddish dots scattered along entire length. For further information on internal anatomy and cnidae see Belém & Schlenz (1989), Cairns et al. (1986), and Wirtz (1996, 1997).

Habitat This species lives attached to hard substrate, under rocks of coral colonies, between 1.5–20.0 m.

Distribution Western Atlantic, from Bermuda to Brazil (Belém & Schlenz 1989; Cairns et al. 1986; Varela 2001), and along the Caribbean Sea (González-Muñoz et al. 2012). Also has been reported in Eastern Atlantic, Mediterranean Sea, and Japan (Ocaña & den Hartog 2002; Verrill 1868; Wirtz 1996, 1997). Agudo (1987) previously registered *T. cricoides* (= *T. rufa*) in Venezuela (Table 1), inhabiting coral reefs.

Telmatactis vernonia **(Duchassaing & Michelotti, 1864a)**
(Fig. 3j)
Capnea Vernonia [sic] Duchassaing & Michelotti, 1864a
Phellia Vernonia [sic]: Verrill, 1869
Capnaea Vernonia [sic]: Duchassaing, 1870
Telmatactis vernonia: Cairns et al. 1986

Short description Pedal disc well-developed, 4–10 mm in diameter, pale-orange, translucent. Column cylindrical, 5–11 mm height and 4–10 mm in diameter, divided into capitulum and scapus. Capitulum short, smooth, and greyish to pale-orange; scapus robuts, wrinkled-texture, pale-orange. Oral disc slightly wider than column, 5–12 mm in diameter, smooth, dark-brown, with white spots, and greenish and purple flashes; mouth brownish. Tentacles hexamerously arranged in five cycles (about 96 in specimens examined), the inner cycles longer than outer ones, smooth, short, cone-shape, tapering distally, pale-brown with purple flashes, and reddish transversal spots along its entire length. For further information on internal anatomy see Duchassaing & Michelotti (1864a) and Cairns et al. (1986).

Habitat This species lives attached to hard substrate, under rocks or coral rubble, between 0.5–1.5 m.

Distribution Western Atlantic, reported in St. Thomas (Duchassaing & Michelotti 1864a), Panamá (Sebens & DeRiemer 1977), and Bermuda (Cairns et al. 1986); this is the first record for Venezuela, found in Las Burbujas, Mochima, inhabiting under boulders in a rocky shore.

Order CERIANTHARIA Perrier, 1883
Suborder PENICILARIA den Hartog, 1977
Family ARACHNANTHIDAE McMurrich, 1910
Isarachnanthus nocturnus **(den Hartog, 1977)**
(Fig. 3k)
Ceriantheopsis sp. Pax, 1924
Arachnanthus nocturnus den Hartog, 1977
Isarachnanthus nocturnus: Molodtsova, 2000

Short description Base rounded, bulb-shape, forming a physa. Column elongate, smooth, 15–30 mm in diameter, divided into capitulum and scapus. Capitulum white with bright-green flashes; scapus brown yellowish. Two type of tentacles: marginal and labial tentacles. Marginal tentacles long and slender (about 24 in number), with a coloration pattern of white and dark-brown transversal alternated rows along their entire length; labial tentacles short (about 44 in number), pale-brown. For further information on internal anatomy and cnidae see Molodtsova (2003), Stampar et al. (2012) and Stampar & Morandini (2014).

Habitat This species inhabits shallow waters with the column completely burrowed in soft substrates such as sand or mud, and surrounded by a tube formed by ptychocists and secretions of mucous. It is commonly observed during night and sometimes during day light, between 10.0–27.0 m.

Distribution Western Atlantic, from Bermuda to Brazil, along the Caribbean Sea (Cairns et al. 1986; den Hartog 1977; Molodtsova 2003; Stampar & Morandini 2014; Stampar et al. 2012). *Isarachnanthus nocturnus* (= *Arachnanthus nocturnus*) has been previously recorded in Venezuela by Agudo (1987) (Table 1).

Order CORALLIMORPHARIA Carlgren, 1940
Family CORALLIMORPHIDAE Hertwig, 1882
Corynactis caribbeorum **(den Hartog, 1980)**
(Fig. 3l)
Pseudocorynactis caribbeorum den Hartog, 1980
Pseudocorynactis sp.: Pires et al., 1992
Corynactis caribbeorum: Fautin, 2011

Short description Base flat and with irregular contour. Column short, stout, 20–25 mm in diameter

and 28–32 mm in height, smooth, trump-shape when expanded and dome-shape when contracted. Base and column scarlet or bright-orange. Oral disc and mouth whitish and translucent. Tentacles long, about 120–160 in specimens examined, inner cycles longer than external ones, cone-shape but with capitated ends forming acrospheras. Tentacles whitish and translucent, acrospheras bright-orange. For further information on internal anatomy and cnidae see den Hartog (1980).

Habitat This species lives strongly attached to rocks or coral rubble, hidden below the rocks, between 15.0–25.0 m, but it has been reported down to 97 m depth (Agudo 1987).

Distribution Western Atlantic, along the Caribbean Sea, but it also has been reported in the Eastern Atlantic and Japan (den Hartog 1980; den Hartog et al. 1993; Fautin 2013; Ocaña & den Hartog 2002; Wirtz 2001). *Corynactis caribbeorum* has previously been recorded in Venezuela (Agudo 1987; den Hartog 1980) (Table 1), inhabiting coral reefs and rocky shores.

Order ZOANTHARIA
Suborder BRACHYCNEMINA Haddon & Shackleton, 1891
Family SPHENOPIDAE Hertwig, 1882

***Palythoa caribaeorum* Duchassaing & Michelotti, 1860**
(Fig. 4a)
Palythoa caribaeorum Duchassaing & Michelotti, 1860
Palythoa caribea: Duchassaing & Michelotti, 1866
Palythoa caraibeorum: Andres, 1883
Palythoa mammillosa: Verrill, 1901
Palythoa caribaea: Cairns et al., 1986

Short description Colonial polyps embedded in an extensive encrusting coenenchyme, thick and smooth, and with incrustations of sandy material. Colonies flat and variable in form. Polyps with short column (about 2–5 mm in height), pale-yellow or white. Tentacles in the margin, arranged in two cycles (about 15–24 each cycle in specimens examined), tapering distally, white-yellowish. Oral disc circular, concave; mouth slit-like. For further information on internal anatomy and cnidae see Sebens (1982), Varela et al. (2002), and Reimer et al. (2012).

Habitat This species lives attached to coral rocks, commonly in zones close to the reef's crest, often between 0.5–12.0 m.

Distribution Widespread distribution throughout the Atlantic, from Bermuda to Brazil, along the entire Caribbean Sea and Gulf of Mexico, and along the west

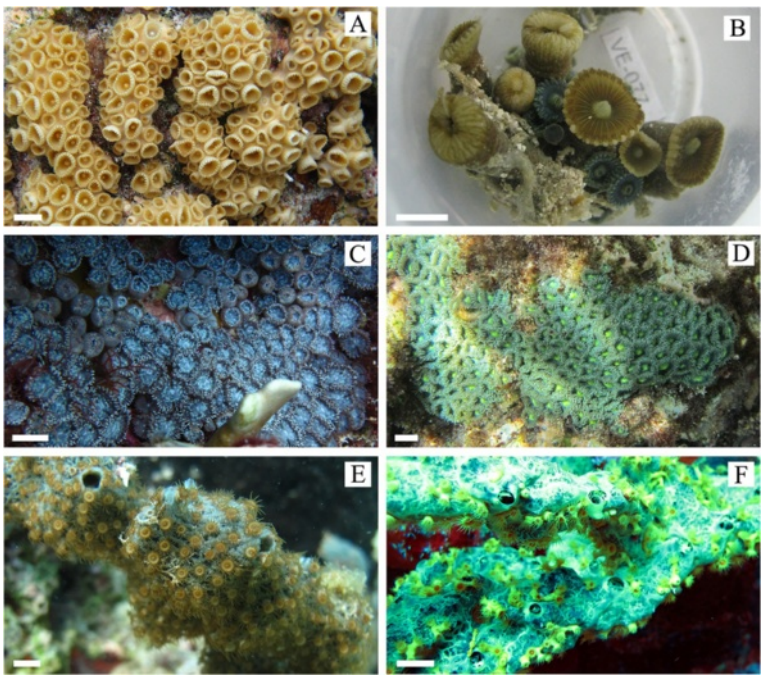

Fig. 4 **a** *Palythoa caribaeorum*, **b** *Palythoa grandis*, **c** *Zoanthus* cf. *pulchellus*, **d** *Zoanthus sociatus*, **e** *Parazoanthus parasiticus*, **f** *Parazoanthus swiftii*. Scale bar = 10 mm

coast of Africa (Acosta et al. 2005; Alves-Santos et al. 2015; Fautin 2013; Reimer et al. 2010; Varela et al. 2002). This species has been previously registered in Venezuela (Agudo 1987; Bastidas & Bone 1996) (Table 1), inhabiting coral reefs, seagrass meadows, mangroves, and rocky shores.

***Palythoa grandis* (Verrill, 1900)**
(Fig. 4b)
Protopalythoa grandis Verrill, 1900
Palythoa grandis: Pax, 1910

Short description Colonies of only few polyps that are joined by flat, stoloniferous or extensive encrusting coenenchyme; coenenchyme usually thinner than the free height of the polyps (Ryland & Lancaster 2003). Column trumped-shape, smooth, but rough in appearance due to sandy incrustations, 15–35 mm in height and 10–15 mm in diameter, ochre-yellow or brown. Tentacles in the margin, arranged in two cycles (about 60 in specimens examined), tapering distally, brown. Oral disc broad, convex or umbrella-shape when completely expanded, sometimes with the borders recurved when contracted, 10–19 mm in diameter, dark-brown or olive-greenwith pale-green radial marks, and sometimes with a whitish or beige ring surrounding the slit-like mouth. For further information on internal anatomy see Verrill (1900, 1905) and Varela et al. (2002).

Habitat This species lives attached to rocks and coral rubble, often between 0.5–3.0 m. Sometimes isolated polyps may occur (Verrill 1900). As other species closely related, this species has a tendency to form carpets, often intermingled with species of *Zoanthus*, which can grow between stolons and polyp clusters (Ryland & Lancaster 2003) (Fig. 4b).

Distribution Western Atlantic, from Bermuda to Venezuela (Acosta et al. 2005; Verrill 1900). Agudo (1987) previously documented *P. grandis* in Venezuela (Table 1), inhabiting coral reefs and rocky shores.

Family ZOANTHIDAE
***Zoanthus* cf. *pulchellus* (Duchassaing & Michelotti, 1864a)**
(Fig. 4c)
Mamillifera pulchella Duchassaing & Michelotti, 1864a
Zoanthus pulchellus: Duerden, 1898a

Short description Polyps embedded in a lamellar encrusting coenenchyme, forming colonies of several polyps. Column cylindrical, 5–25 mm in height and 5–10 mm in diameter, smooth and often without sandy incrustations, white to beige. Oral disc slightly wider than column, smooth, bluish with paler patterning; mouth slit-like, sometimes with dark triangular spots at each axial extremity. Tentacles in the margin, arranged in two cycles (about 60 in number), tapering distally, bluish or greyish. For further information on internal anatomy and cnidae see Duerden (1898a, 1902), Verrill (1900), Varela et al. (2002), and Reimer et al. (2012).

Remarks External anatomy of these specimens, including column shape and measurements, fits well with those described for *Zoanthus pulchellus*, except from coloration of the oral disc which is generally described as bright-green, pale-green, or yellow, with light radiating lines and sometimes with pink, brown, or yellow patterning (Duerden 1898a, 1902; Reimer et al. 2012; Verrill 1900).

Habitat This species lives attached to rocks or coral rubble, mostly in shallow waters, but not intertidal zones, between 0.5–1.0 m.

Distribution Western Atlantic, from Jamaica to Brazil (Acosta et al. 2005; Alves-Santos et al. 2015; Fautin & Daly 2009; Reimer et al. 2012; Varela et al. 2002). Agudo (1987) previously documented *Z. pulchellus* in Venezuela (Table 1), inhabiting coral reefs, seagrass meadows, mangroves, and rocky shores.

***Zoanthus sociatus* (Ellis, 1768)**
(Fig. 4d)
Actinia sociata Ellis, 1768
Zoanthus sociata: Le Sueur, 1817
Zoanthus sociatus: Ehrenberg, 1834
Zoanthus nobilis: Duchassaing & Michelotti, 1860
Zoanthus proteus: Verrill, 1900

Short description Polyps rising directly from a thin band-like stoloniferous coenenchyme, forming colonies of several polyps. Column club-shaped or cylindrical, 25–40 mm in height and 4–6 mm in diameter, smooth and often without sandy incrustations, white to beige. Oral disc slightly wider than distal column, smooth, olive-green, bluish or yellow; mouth slit-like, bright-green, sometimes surrounded by a dark-brown, yellow or greyish ring, or with dark triangular spots at each axial extremity. Tentacles in the margin, arranged in two cycles (about 48–60 in number), tapering distally, pale-green or greyish. For further information on internal anatomy and cnidae see Verrill (1900), Duerden (1902), Cairns et al. (1986), Varela et al. (2002), and Reimer et al. (2012).

Habitat This species lives attached to rocks or coral rubble, mostly in shallow waters, but not on intertidal zones, between 1.0–5.0 m.

Distribution Western Atlantic, from Bermuda to Brazil (Acosta et al. 2005; Alves-Santos et al. 2015; Cairns et al. 1986; Fautin & Daly 2009; Reimer et al. 2012; Varela et al. 2002). *Zoanthus sociatus* has been previously registered in Venezuela (Agudo 1987) (Table 1), inhabiting coral reefs, seagrass meadows, mangroves, and rocky shores.

Suborder MACROCNEMINA Haddon & Shackleton, 1891
Family PARAZOANTHIDAE Delage & Hirouard, 1901
***Parazoanthus parasiticus* (Duchassaing & Michelotti, 1860)**
(Fig. 4e)
Zoanthus parasiticus Duchassaing & Michelotti, 1860
Parazoanthus parasiticus: Verrill, 1900
Parazoanthus separatus: Duerden, 1900

Short description Polyps connected by a reticular coenenchyme, with the column embedded inside sponges. Oral disc and tentacles 4–10 mm in diameter in complete expansion. Oral disc 1–3 mm in diameter; oral disc and mouth yellow to yellow-brown; mouth slit-like. Tentacles in the margin, arranged in two cycles (about 24–28 in number), tapering distally, yellowish. For further information on internal anatomy see West (1979), Crocker & Reiswig (1981), Cairns et al. (1986), and Varela et al. (2003).

Habitat This species lives attached to sponges of several species, including *Cliona varians* (Duchassaing & Michelotti, 1864b), *Cliona delitrix* Pang, 1973, *Callyspongia vaginalis* (Lamarck, 1814), *Niphates digitalis* (Lamarck, 1814), *Niphates erecta* Duchassaing & Michelotti, 1864b, and *Spheciospongia* sp. Marshall, 1892 (Varela et al. 2003), in the lagoon, fore-reef, and back-reef zones, between 1.0–35.0 m.

Distribution Western Atlantic, from Bermuda to Venezuela, and along the Caribbean Sea (Acosta et al. 2005; Agudo 1987; Cairns et al. 1986; Fautin & Daly 2009; Varela et al. 2003; West 1979). *Parazoanthus parasiticus* has previously been registered in Venezuela inhabiting coral reefs (Agudo 1987) (Table 1).

***Parazoanthus swiftii* (Duchassaing & Michelotti, 1860)**
(Fig. 4f)
Gemmaria Swiftii [sic] Duchassaing & Michelotti, 1860
Gemmaria swiftii: Haddon & Shackleton, 1891
Parazoanthus swiftii: Duerden, 1898a
Parazoanthus Swiftii [sic]: Duerden, 1898b
Palythoa Swiftii [sic]: Roule, 1900
Palythoa swiftii: Pax & Müller, 1957

Short description Polyps connected by a reticular coenenchyme. Polyps situated above sponges, but not embedded. Oral disc and tentacles 12–15 mm in complete expansion. Oral disc and mouth are yellow or bright-orange; mouth slit-like. Tentacles in the margin, arranged in two cycles (about 24–28 in number), tapering distally, yellowish. For further information on internal anatomy see Duerden (1898a), West (1979), and Crocker & Reiswig (1981).

Habitat This species lives attached to sponges of several species, including *Clathria virgultosa* (Lamarck, 1814), *Iotrochota birotulata* (Higgin, 1877), and *Agelas conifera* (Schmidt, 1870); inhabits the fore-reef, and back-reef zones, between 6.0–25.0 m, but has been reported down to 50 m (Agudo 1987).

Distribution Western Atlantic, from Jamaica to Brazil (Acosta et al. 2005; Alves-Santos et al. 2015; Duerden 1898a; West 1979). Agudo (1987) previously documented *P. swiftii* in Venezuela (Table 1) inhabiting coral reefs.

Sea anemone specimens of the collection of the MOHRB

The collection of sea anemones of MOHBR is constituted by specimens collected over a relatively broad temporal range (1953–2012) by about a dozen different collectors (see Appendix 2). Most of the specimens include the basic information about them such as date of collection, locality, coordinates, and collector name. We included the available information of these specimens in Table 1, which shows the distribution of sea anemones documented along the coast of Venezuela, including previous and new data.

Of the 84 specimens examined from the MOHBR collection, 81 specimens were identified to species level and their current taxonomic status was confirmed or updated (see Table 1; Appendix 2). These specimens belong to 22 species: *Actinostella flosculifera* (11 specimens), *Anemonia sargassensis* (8 specimens), *Bunodosoma cavernatum* (1 specimen), *Bunodosoma granuliferum* (2 specimens), *Condylactis gigantea* (12 specimens), *Bartholomea annulata* (4 specimens), *Exaiptasia pallida* (6 specimens), *Lebrunia coralligens* (1 specimen), *Lebrunia neglecta* (5 specimens), *Phymanthus crucifer* (5 specimens), *Stichodactyla helianthus* (10 specimens), *Bunodeopsis antilliensis* (3 specimens), *Calliactis tricolor* (2 specimens), *Homostichanthus duerdeni* Carlgren, 1900 (1 specimen), *Actinoporus elegans* (1 specimen), *Telmatactis cricoides* (2 specimens), *Palythoa caribaeorum* (4 specimens), *Zoanthus pulchellus* (1 specimen), and *Zoanthus sociatus* (2 specimens), which were also documented during

our surveys. The other three specimens could not be identified; however, they were originally labeled in the MOBHR collection as *Haliplanella luciae* (1 specimen) currently *Diadumene lineata* (Verrill, 1869) (Beneti et al. 2015; Fautin 2013), *Palythoa variabilis* (Duerden, 1898a), and *Isaurus duchassaingi* (Duchassaing & Michelotti, 1860) (Table 1; Appendix 2).

Discussion

Comparison of previous records of sea anemone species in Venezuela and the findings of the present study

Fourty-nine shallow water species of sea anemones have been registered along coastal and coral reefs environments in Venezuela (Table 1) (Agudo 1987; Bastidas & Bone 1996; Bitter-Soto 1999; Carrasquel 2012; den Hartog 1980; Knowlton & Keller 1985; Liñero-Arana & González 2008). In addition, Riemann-Zürneck (1986) documented the record of the actiniarian *Monactis vestita* (Gravier, 1918) in the Venezuela basin, between 4000–5000 m (see Table 1). Agudo (1987) recorded 27 species of the order Actiniaria, 4 of Ceriantharia, 3 of Corallimorpharia, and 13 of Zoanthidea along the central coast and islands in Venezuela (Table 1). In the present study, we found 24 of the 47 sea anemones species documented by Agudo (1987) while two actiniarian species, *Anthopleura pallida* and *Telmatactis vernonia*, are documented for the first time in Venezuela (see Table 1).

Among the 27 actiniarian species reported by Agudo (1987) that we did not find in our surveys, *Actinia bermudensis* (McMurrich, 1889a), *Anthopleura krebsi* (Duchassaing & Michelotti, 1860), *Isoaulactinia stelloides* (McMurrich, 1889b) (= *Bunodactis stelloides*), and *Homostichanthus duerdeni*, are species that have been commonly reported in several localities along the Caribbean Sea or the Gulf of Mexico (González-Muñoz et al. 2012, 2013). Thus, it might be expected to find these species in Venezuela under a more extensive survey. On the other hand, the known distribution of other species documented by Agudo (1987), as *Bunodosoma caissarum* Corrêa in Belém, 1987 and *Bunodosoma cangicum* Belém & Preslercravo, 1973 is restricted to South America, along the Brazilian coast (Fautin, 2013; Zamponi et al. 1998), and thus, the presence of these species in Venezuela is atypical or improbable. The species *Bunodosoma kuekenthali* Pax, 1910 (= *B. kükenthali*) has only been reported for Barbados (Lewis 1960; Pax 1910) but its taxonomic status remains unknown due to the lack of recent studies about the species. The species *Anthopleura cascaia* Corrêa, 1964 is considered as *nomen nudum* according with the International Code of Zoological Nomenclature (ICZN 1999), due that it was originally described in a thesis study (Corrêa 1964), and no other description has been published to date for the species (Fautin, 2013). *Bartholomea werneri* Watzl, 1922 was recently synonymized with *B. annulata* by Grajales & Rodríguez (2014). Agudo (1987) also documented *Scolanthus curacaoensis* (Pax, 1924) (= *Edwadsia horstii*), which has a restricted distribution in the Laguna de Chacopata, (Liñero-Arana & González 2008), and in Curaçao (Pax 1924), and one unidentified species of genus *Phymactis* Milne-Edwards, 1857 (reported as *Phymactis* sp). Except for *H. duerdeni* (one specimen available previously deposited at MOHBR, see Appendix 2), it is difficult to assess or confirm the certainty of the other 10 actiniarian records because voucher specimens were not available.

From the three species of corallimorpharians reported by Agudo (1987), we only documented *Corynactis caribbeorum* (= *Pseudocorynactis caribbeorum*). This species was only found in Chichiriviche de la Costa, and has been previously reported for Venezuela by den Hartog (1980), outside the Isla Tortuga and in front to Camuri Chico coast. *Discosoma carlgreni* (Watzl, 1922) and *Rhodactis osculifera* (Le Sueur, 1817) (= *Discosoma sanctithomae*) are the other two species of corallimorpharians reported by Agudo (1987) in Venezuela (Table 1). These two corallimorpharian species, as well as *Ricordea florida* Duchassaing & Michelotti, 1860, are among the most commonly known species of corallimorpharians found in coral reefs along the Caribbean Sea and Gulf of Mexico (den Hartog 1980; Fautin & Daly 2009). Thus, despite we could not find these corallimorpharians at any of our surveys, it is possible that these species are actually present in Venezuela as they have a wide range of distribution in the Caribbean.

For the cerianthid species, Agudo (1987) documented *Ceriantheopsis americanus* (Agassiz in Verrill, 1864), *Ceriantheomorphe brasiliensis* Carlgren, 1931, *Pachycerianthus curacaoensis* den Hartog, 1977, and *Isarachnanthus nocturnus* (= *Arachnanthus nocturnus*) in Venezuela (Table 1). *Ceriantheopsis americanus* has been reported in the Northwest Atlantic, Caribbean Sea, Uruguay, and China (Fautin 2013; Molodtsova 2009). *Ceriantheomorphe brasiliensis* has been reported in the United States-Texas and Brazil (Carlgren 1931; Carlgren & Hedgpeth 1952; Molodtsova 2009), and *P. curacaoensis* in Curaçao (den Hartog 1977). In our surveys we only documented *I. nocturnus* in Chichiriviche de la Costa, but we have also observed another two species of tube anemones near to Isla de Cubagua that were not collected, and thus remain unidentified. More detailed taxonomic studies about cerianthid species in Venezuela are needed, in order to confirm the number of species for the region.

Out of the 13 zoanthid species previously reported in Venezuela (Agudo 1987; Bastidas & Bone 1996), we only found six (Table 1), one of them reported here as *Zoanthus* cf. *pulchellus*. Agudo (1987) also documented *Zoanthus proteus* Verrill, 1900 which is currently considered as synonym of *Z. sociatus* according to Reimer

et al. (2012), and *Palythoa mammillosa* (Ellis & Solander, 1786), which has been suggested as synonym of *P. caribaeorum* (Sebens 1982). Agudo (1987) reported *Palythoa variabilis* (Duerden, 1898a) which is distributed throughout the Caribbean and the Atlantic coast of South America (Alves-Santos et al. 2015; Reimer et al. 2012), but also has been documented as amphi-atlantic (Reimer et al. 2010). *Zoanthus solanderi* Le Sueur, 1817, *Parazoanthus puertoricense* West, 1979, *P. catenularis* (Duchassaing & Michelotti, 1860), and *Epizoanthus cutressi* West, 1979, are also commonly included in some inventories of sea anemones of the Caribbean Sea (e.g. Ocaña et al. 2007; Reimer et al. 2012; West 1979), and thus, they are also expected to occur in Venezuela as reported by Agudo (1987). The taxonomic status of zoanthid species, mainly those of the genera *Palythoa* and *Zoanthus*, is currently considered as chaotic due to the great intraspecific variability present in several species, and thus the true number of valid species of these genera for the Caribbean is unknown (Reimer et al. 2010, 2012). However, recent studies have suggested the utility of molecular markers to distinguish among species (Alves-Santos et al. 2015; Reimer et al. 2012). Further detailed taxonomic studies of shallow water zoanthids in Venezuela are needed in order to facilitate identification to the species level.

Sea anemone specimens of the collection MOHBR

Among the 84 specimens of the collection of the MOHRB, the identification of the specimens labelled as *Palythoa variabilis*, *Isaurus duchassaingi*, and *Diadumene lineata* (= *Haliplanella luciae*), could not be corroborated due to the poor condition of the preserved specimens. However, these zoanthid species are commonly reported in Caribbean inventories of sea anemones (Acosta et al. 2005; Cairns et al. 1986; Reimer et al. 2012), and *D. lineata* is known as a cosmopolitan species (Fautin 2013). Thus, we might expect the presence of these two species in Venezuela, but their occurrence needs to be corroborated. The external anatomy of the specimens labelled as *Zoanthus pulchellus* fits well with those previously described for this species: polyps embedded in a thin lamellar coenenchyma rather than stoloniferous, with the column approximately 4–6 mm in diameter and 4 to over 30 mm in height, and 50–60 short tentacles (Reimer et al. 2012). Thus, although there is no information about the coloration pattern of these preserved polyps, we agree with the previous identification that this specimen belongs to *Z. pulchellus*.

Conclusions

Based on the current taxonomic status and the general distribution patterns of the 47 species documented by Agudo (1987), we suggest that at least eight of his records are currently invalid or erroneous, and only 39 sea anemone species documented by him could be found in Venezuela, of which 24 species are documented in the present study. Taking into account the previous records of *D. lineata*, and *I. duchassaingi* in the collection of the MOHBR, and that of *Monactis vestita* reported by Riemann (1986), plus the two new records of sea anemones documented in our surveys, this study increases to 44 the number of records of sea anemones that might be found in Venezuela.

Methods

The Caribbean coastline of Venezuela extends approximately 2,695 km, plus an important insular region constituted by 14 archipelagos composed of 300 island and keys (Conde & Carmona-Suárez 2003; Miloslavich et al. 2005). Sampling was conducted in November 2012 in four marine reserves along the Venezuelan coast: Morrocoy National Park (10°53'2.51"N, 68°12'43.66"W), Mochima National Park (10°23'44.43"N, 64°22'2.16"W), Archipiélago de Los Roques National Park (11°46'21.67"N, 66°42'8.67"W), and Laguna de La Restinga National Park (10°58'36.75"N, 64°9'4.40"W) (Fig. 1). Additionally, we include observations and collections made in Isla de Cubagua (10°50'8.40"N, 64°8'51.74"W) and Chichiriviche de la Costa (10°33'12.18"N, 67°14'24.43"W) in the central coast of Venezuela (Fig. 1). Sampled habitats included sandy bottoms, rocky shore, seagrass meadows, coral rubble, coral reefs and mangrove roots. Representative specimens of each species were collected by hand, either by snorkeling or scuba diving, and using a hammer and a chisel. Specimens were photographed *in situ* and habitat characteristics were recorded. Collected samples were transferred to the laboratory and maintained in an aquarium to photograph their color while alive. Specimens were relaxed using menthol crystals in seawater, subsequently fixed in 10 % formalin seawater, and their diagnostic characters were examined for identification. Voucher specimens of each identified species were deposited in the collection of the MOHBR (see Appendix 1). In addition, eighty-four specimens of sea anemones previously deposited by other authors in the collection at MOHBR were examined.

We followed the taxonomic classification implemented in Fautin (2013) with modifications from Rodríguez et al. (2014). Taxa were organized in suborder and family, and listed in alphabetical order. External appearance and measurements described for each species were based in living specimens collected in Venezuela. The synonym list for each species only contains reference to the first citation of the species by a particular name.

Appendix 1

Table 2 Specimens collected during the present study

No.	Code	MOHBR	Species	National Park	Locality	State	Latitude N	Longitude W
1	RG-001	I-1576	*Lebrunia neglecta*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
2	RG-002	I-1577	*Lebrunia coralligens*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
3	RG-003	I-1578	*Lebrunia coralligens*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
4	RG-004	I-1579	*Palythoa caribaeorum*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
5	RG-005	I-1580	*Bartholomea annulata*	Morrocoy	Tumba 4	Falcon	10° 50′ 13.86″	68° 14′ 14.08″
6	RG-006	I-1581	*Exaiptasia pallida*	Morrocoy	Muelle	Falcon	10° 51′ 27.03″	68° 16′ 48.12″
7	RG-007	I-1582	*Parazoanthus parasiticus*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68°12′ 43.66″
8	RG-008	I-1583	*Actinostella flosculifera*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
9	RG-009	I-1584	*Anthopleura pallida*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
10	RG-010	I-1585	*Bunodosoma granuliferum*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
11	RG-011	I-1586	*Lebrunia coralligens*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
12	RG-012	I-1587	*Actinoporus elegans*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
13	RG-013	I-1588	Actiniidae sp.	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
14	RG-014	I-1589	*Exaiptasia pallida*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
15	RG-015	I-1590	*Exaiptasia pallida*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
16	RG-016	I-1591	*Bartholomea annulata*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
17	RG-017	I-1592	*Palythoa caribaeorum*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
18	RG-018	I-1593	*Zoanthus sociatus*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
19	RG-019	I-1594	*Zoanthus sociatus*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
20	RG-020	I-1595	*Zoanthus sociatus*	Morrocoy	Boca Seca	Falcon	10° 49′ 58.73″	68° 14′ 10.60″
21	RG-021	I-1596	*Exaiptasia pallida*	Morrocoy	Las Luisas	Falcon	10° 51′ 30.34″	68° 18′ 35.22″
22	RG-022	I-1597	*Bunodeopsis antilliensis*	Morrocoy	Las Luisas	Falcon	10° 51′ 30.34″	68° 18′ 35.22″
23	RG-023	I-1598	*Lebrunia coralligens*	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
24	RG-024	I-1599	Actiniidae sp.	Morrocoy	Cayo sombrero	Falcon	10° 53′ 2.51″	68° 12′ 43.66″
25	RG-025	I-1600	*Phymantus crucifer*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
26	RG-026	I-1601	*Lebrunia coralligens*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
27	RG-027	I-1602	*Parazoanthus parasiticus*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
28	RG-030	I-1603	*Condylactis gigantea*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
29	RG-031	I-1604	*Condylactis gigantea*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
30	RG-032	I-1605	*Lebrunia neglecta*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
31	RG-033	I-1606	*Exaiptasia pallida*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
32	RG-034	I-1607	*Bartholomea annulata*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
33	RG-035	I-1608	*Phymanthus crucifer*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
34	RG-036	I-1609	*Phymanthus crucifer*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
35	RG-037	I-1610	*Phymanthus crucifer*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
36	RG-038	I-1611	*Phymanthus crucifer*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
37	RG-039	I-1612	*Exaiptasia pallida*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
38	RG-040	I-1613	*Exaiptasia pallida*	Mochima	Manglar	Sucre	10° 22′ 18.17″	64° 20′ 12.33″
39	RG-041	In progress	*Telmatactis cricoides*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
40	RG-042	I-1614	*Lebrunia coralligens*	Mochima	Las burbujas	Sucre	10° 21′ 6.03″	64° 24′ 45.86″
41	RG-043	I-1615	*Telmatactis vernonia*	Mochima	Las burbujas	Sucre	10° 21′ 6.03″	64° 24′ 45.86″
42	VE-003	I-1616	*Actinostella flosculifera*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″

Table 2 Specimens collected during the present study *(Continued)*

43	VE-004	I-1617	*Exaiptasia pallida*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
44	VE-005	I-1618	*Zoanthus sociatus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
45	VE-007	I-1619	*Actinostella flosculifera*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
46	VE-008	I-1620	*Exaiptasia pallida*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
47	VE-010	I-1621	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
48	VE-012	I-1622	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
49	VE-013	I-1623	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
50	VE-015	I-1624	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
51	VE-016	I-1625	*Calliactis tricolor*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
52	VE-017	I-1626	*Bartholomea annulata*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
53	VE-018	I-1627	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
54	VE-019	I-1628	*Bunodosoma cavernatum*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
55	VE-045	I-1629	*Zoanthus* cf. *pulchellus*	Los Roques	Boca de Cote	Dependencias Federales	11° 46′ 21.67″	66° 42′ 8.67″
56	VE-046	I-1630	*Parazoanthus swiftii*	Los Roques	Boca de Cote	Dependencias Federales	11° 46′ 21.67″	66° 42′ 8.67″
57	VE-047	I-1631	*Condylactis gigantea*	Los Roques	Boca de Cote	Dependencias Federales	11° 46′ 21.67″	66° 42′ 8.67″
58	VE-049	I-1632	*Exaiptasia pallida*	Los Roques	Isla Larga	Dependencias Federales	11° 55′ 40.66″	66° 45′ 3.05″
59	VE-050	I-1633	*Actinostella flosculifera*	Los Roques	Arena y Manglar	Dependencias Federales	11° 53′ 9.81″	66° 50′ 49.98″
60	VE-052	I-1634	Actiniidae sp.	Los Roques	Arena y Manglar	Dependencias Federales	11° 53′ 9.81″	66° 50′ 49.98″
61	VE-053	I-1635	*Laviactis lucida*	Los Roques	La Herradura	Dependencias Federales	11° 48′ 0.97″	66° 53′ 5.61″
62	VE-054	I-1636	*Lebrunia coralligens*	Los Roques	Dos Mosquises	Dependencias Federales	11° 47′ 32.72″	66° 53′ 37.69″
63	VE-055	I-1637	*Lebrunia coralligens*	Los Roques	Dos Mosquises	Dependencias Federales	11° 47′ 32.72″	66° 53′ 37.69″
64	VE-056	I-1638	*Lebrunia coralligens*	Los Roques	Dos Mosquises	Dependencias Federales	11° 47′ 32.72″	66° 53′ 37.69″
65	VE-057	I-1639	*Stichodactyla helianthus*	Los Roques	Dos Mosquises	Dependencias Federales	11° 47′ 36.57″	66° 53′ 17.43″
66	VE-064	I-1640	*Anemonia sargassensis*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
67	VE-065	I-1641	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
68	VE-066	I-1642	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
69	VE-067	I-1643	*Anemonia sargassensis*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
70	VE-069	I-1644	*Actinostella flosculifera*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
71	VE-072	I-1645	*Condylactis gigantea*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
72	VE-073	I-1646	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
73	VE-074	I-1647	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
74	VE-075	I-1648	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
75	VE-076	I-1649	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
76	VE-077	I-1650	*Palythoa grandis*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
77	VE-078	I-1651	*Palythoa grandis*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
78	VE-079	I-1652	*Parazoanthus parasiticus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
79	VE-080	I-1653	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
80	VE-081	I-1654	*Stichodactyla helianthus*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
81	VE-082	I-1655	Actiniidae sp.	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
82	VE-085	I-1656	*Bartholomea annulata*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
83	VE-086	I-1657	*Phymanthus crucifer*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
84	VE-089	I-1658	*Palythoa caribaeorum*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
85	VE-090	I-1659	*Exaiptasia pallida*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
86	VE-091	I-1660	Actiniidae sp.	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″
87	VE-100	I-1661	*Bunodeopsis antillensis*	Isla Cubagua	Las Cabeceras	Nueva Esparta	10° 50′ 8.40″	64° 8′ 51.74″

Table 2 Specimens collected during the present study *(Continued)*

88	VE-111	I-1662	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
89	VE-114	I-1663	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
90	VE-115	I-1664	*Calliactis tricolor*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
91	VE-116	I-1665	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
92	VE-117	I-1666	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
93	VE-118	I-1667	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
94	VE-119	I-1668	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
95	VE-120	I-1669	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
96	VE-121	I-1670	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
97	VE-123	I-1671	*Bunodosoma cavernatum*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
98	VE-124	I-1672	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
99	VE-125	I-1673	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
100	VE-126	I-1674	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
101	VE-127	I-1675	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
102	VE-128	I-1676	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
103	VE-130	I-1677	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
104	VE-132	I-1678	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
105	VE-134	I-1679	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
106	VE-135	I-1680	*Anemonia sargassensis*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
107	VE-136	I-1681	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
108	VE-137	I-1682	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
109	VE-138	I-1683	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
110	VE-139	I-1684	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
111	VE-140	I-1685	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
112	VE-141	I-1686	Actiniidae sp.	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
113	VE-142	I-1687	Actiniidae sp.	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
114	VE-143	I-1688	*Actinostella flosculifera*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
115	VE-144	I-1689	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
116	VE-145	I-1690	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
117	VE-149	I-1691	*Bunodosoma cavernatum*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
118	VE-150	I-1692	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
119	VE-153	I-1693	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
120	VE-155	I-1694	*Anemonia sargassensis*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
121	VE-164	I-1695	*Exaiptasia pallida*	Isla Cubagua	La Brea	Nueva Esparta	10° 49′ 52.97″	64° 12′ 36.56″
122	VE-165	I-1696	*Anemonia sargassansis*	La Restinga	Canal de Entrada	Nueva Esparta	10° 58′ 40.43″	64° 10′ 13.84″
123	VE-166	I-1697	*Callactis tricolor*	La Restinga	Canal de Entrada	Nueva Esparta	10° 58′ 40.43″	64° 10′ 13.84″
124	VE-167	I-1698	*Bunodeopsis antilliensis*	La Restinga	Canal de Entrada	Nueva Esparta	10° 58′ 40.43″	64° 10′ 13.84″
125	VE-168	I-1699	*Anemonia sargassensis*	La Restinga	Canal de Entrada	Nueva Esparta	10° 58′ 40.43″	64° 10′ 13.84″
126	VE-169	I-1700	*Lebrunia neglecta*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
127	VE-170	I-1701	*Condylactis gigantea*	Mochima	Punta la Cruz	Sucre	10° 23′ 44.43″	64° 22′ 2.16″
128	VE-171	I-1702	Actiniidae sp.	Los Roques	Isla Larga	Dependencias Federales	11° 55′ 40.66″	66° 45′ 3.05″

Appendix 2

Table 3 Examined specimens from MOHBR Collection

	Code	Previous Identification	Current Identification	State	Locality	Date	Collector
1	I-546	Actinia 1	*Anemonia sargassensis*	Nueva Esparta	Laguna de Punta de Piedras, Isla Margarita	23/02/1995	Gutiérrez, J.
2	I-547	*Aiptasia pallida*	*Exaiptasia pallida*	Nueva Esparta	Laguna de Punta de Piedras, Isla Margarita	16/02/1995	Gutiérrez, J.
3	I-881	*Telmatactis rufa*	*Telmatactis cricoides*	Dependencias Federales	Isla La Blanquilla	01/08/1987	Verginelli, R.
4	I-882	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Dependencias Federales	Isla de Aves	01/10/1988	Sole, G.
5	I-883	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Dependencias Federales	Isla La Blanquilla	26/06/1986	Piñango, H.
6	I-884	*Actinostella flosculifera*	*Actinostella flosculifera*	Dependencias Federales	Isla La Blanquilla	26/06/1986	Piñango, H.
7	I-885	*Bartholomea annulata*	*Bartholomea annulata*	Falcón	Cayo Pescadores, Morrocoy	01/10/1984	Agudo, I.
8	I-886	*Anemonia sargassensis*	*Anemonia sargassensis*	Dependencias Federales	Isla La Blanquilla	01/07/1987	Verginelli, R.
9	I-887	*Bartholomea annulata*	*Bartholomea annulata*	Falcón	Playa Azul, Morrocoy	12/03/1985	-
10	I-888	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Dependencias Federales	Isla La Tortuga	01/05/1986	Verginelli, R.
11	I-889	*Bunodeopsis antilliensis*	*Bunodeopsis antilliensis*	Vargas	Playa Azul, Litoral Central	13/03/1985	-
12	I-891	*Actinostella flosculifera*	*Actinostella flosculifera*	Falcón	Playa Azul, Morrocoy	14/03/1985	-
13	I-892	*Lebrunia danae*	*Lebrunia neglecta*	Falcón	Playa Norte, Morrocoy	12/11/1986	Agudo, I.
14	I-893	*Zoanthus proteus*	*Zoanthus sociatus*	Falcón	Cayo Sombrero, Morrocoy	09/08/1984	Agudo, I.
15	I-894	*Bunodosoma granuliferum*	*Bunodosoma granuliferum*	Vargas	Balneario Camuri Chico	30/11/1984	Agudo, I.
16	I-895	*Anemonia sargassensis*	*Anemonia sargassensis*	Sucre	Golfo de Paria, Caño Guariquén	07/03/1985	Agudo, I.
17	I-896	*Haliplanella luciae*	not identified	Sucre	Golfo de Paria, Caño Guariquén	21/03/1980	Verginelli, R.
18	I-897	*Homostichanthus duerdeni*	*Homostichanthus duerdeni*	Dependencias Federales	Isla La Tortuga	01/05/1986	Verginelli, R.
19	I-898	*Phymanthus crucifer*	*Phymanthus crucifer*	Vargas	Playa Azul, Litoral Central	14/03/1985	-
20	I-899	*Telmatactis rufa*	*Telmatactis cricoides*	Dependencias Federales	Isla La Blanquilla	01/08/1987	Verginelli, R.
21	I-900	*Aiptasia pallida*	*Exaiptasia pallida*	Falcón	Cayo Pescadores, Morrocoy	01/10/1984	Agudo, I. and Blondell, S.
22	I-901	*Bunodeopsis antilliensis*	*Bunodeopsis antilliensis*	Dependencias Federales	Archipiélago Los Testigos, Isla La Iguana	21/06/1988	-
23	I-904	*Anemonia sargassensis*	*Anemonia sargassensis*	Miranda	Los Totumos	01/08/1981	Gil, R.
24	I-905	*Bunodosoma granuliferum*	*Bunodosoma granuliferum*	Falcón	Cayo Pescadores, Morrocoy	01/10/1981	Blondell, S. and Agudo, I.
25	I-906	*Lebrunia danae*	*Lebrunia neglecta*	Sucre	Playa San Luis, Cumaná	18/06/1982	Agudo, I.
26	I-907	*Homostichantus duerdenii*	*Actinoporus elegans*	Vargas	Playa Azul, Municipio Vargas, Litoral Central	13/03/1985	-
27	I-908	*Condylactis gigantea*	*Condylactis gigantea*	Falcón	Caño de Manglar, Morrocoy	06/02/1985	López, I. and Martelo, M.
28	I-909	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Miranda	Los Totumos	10/06/1982	Quijano, N.

Table 3 Examined specimens from MOHBR Collection *(Continued)*

29	I-911	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	14/03/1985	-
30	I-912	*Condylactis gigantea*	*Condylactis gigantea*	Zulia	Isla de Pájaros	12/03/1985	-
31	I-913	*Lebrunia danae*	*Lebrunia neglecta*	Dependencias Federales	Isla La Blanquilla	-	Agudo, I.
32	I-914	*Condylactis gigantea*	*Condylactis gigantea*	Falcón	Boca Seca, Morrocoy	15/03/1985	-
33	I-915	*Actinostella flosculifera*	*Actinostella flosculifera*	Falcón	Cayo Boca Seca, Morrocoy	16/03/1985	-
34	I-916	*Actinostella flosculifera*	*Actinostella flosculifera*	Vargas	Playa Azul, Litoral Central	13/03/1985	-
35	I-917	*Zoanthus pulchellus*	*Zoanthus pulchellus*	Dependencias Federales	Isla de Aves	01/10/1988	-
36	I-918	*Actinostella flosculifera*	*Actinostella flosculifera*	Falcón	Cayo Sombrero, Morrocoy	01/03/1985	Agudo, I. and Blondell, S.
37	I-920	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	12/03/1985	-
38	I-921	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	13/03/1985	-
39	I-923	*Actinostella flosculifera*	*Actinostella flosculifera*	Vargas	Playa Azul, Municipio Vargas, Litoral Central	12/03/1985	-
40	I-925	*Condylactis gigantea*	*Condylactis gigantea*	Zulia	Isla de Pájaros	12/03/1985	-
41	I-929	*Calliactis tricolor*	*Calliactis tricolor*	Sucre	Golfo de Cariaco	-	Verginelli, R. and Agudo, I.
42	I-930	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	14/03/1985	-
43	I-934	*Actinostella flosculifera*	*Actinostella flosculifera*	Falcón	Cayo Sombrero, Morrocoy	01/03/1988	Agudo, I. and Blondell, S.
44	I-935	*Condylactis gigantea*	*Condylactis gigantea*	Zulia	Isla de Pájaros	12/03/1985	-
45	I-936	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	14/03/1985	-
46	I-938	*Condylactis gigantea*	*Condylactis gigantea*	Vargas	Playa Azul, Litoral Central	13/03/1985	-
47	I-939	*Condylactis gigantea*	*Condylactis gigantea*	-	-	-	-
48	I-942	*Stichodactyla helianthus*	*Stichodactyla helianthus*	-	-	01/03/1953	-
49	I-943	*Aiptasia pallida*	*Exaiptasia pallida*	Falcón	Cayo Boca Seca, Morrocoy	15/03/1985	-
50	I-944	*Phymanthus crucifer*	*Phymanthus crucifer*	Miranda	Los Totumos	01/08/1981	Gil. R.
51	I-945	*Anemonia sargassensis*	*Anemonia sargassensis*	Dependencias Federales	Isla La Tortuga	01/05/1986	Verginelli, R.
52	I-946	*Lebrunia danae*	*Lebrunia neglecta*	Falcón	Cayo Pescadores, Morrocoy	01/10/1984	Agudo, I.
53	I-949	*Lebrunia coralligens*	*Lebrunia coralligens*	Dependencias Federales	Isla La Blanquilla	01/08/1987	Verginelli, R.
54	I-950	*Palythoa mammillosa*	*Palythoa caribaeorum*	Dependencias Federales	Isla La Blanquilla	01/08/1987	Verginelli, R.
55	I-953	*Palythoa mammillosa*	*Palythoa caribaeorum*	Falcón	Playa Azul, Morrocoy	14/05/1985	Agudo, I.
56	I-954	*Palythoa variabilis*	not identified	Falcón	Cayo Sombrero, Morrocoy	04/08/1984	Agudo. I.
57	I-955	*Isaurus duchassaingi*	not identified	Sucre	Laguna de Chacopata	01/10/1988	Verginelli, R.
58	I-956	*Palythoa mammillosa*	*Palythoa caribaeorum*	Dependencias Federales	Isla La Tortuga	01/05/1986	Verginelli, R.
59	I-957	*Palythoa caribbeorum*	*Palythoa caribaeorum*		Ensenada Penetepe, Golfo de Cariaco	01/07/1989	Agudo, I.

Table 3 Examined specimens from MOHBR Collection *(Continued)*

60	I-961	*Zoanthus sociatus*	*Zoanthus sociatus*	Dependencias Federales	Isla La Blanquilla	01/08/1987	Verginelli, R.
61	I-978	*Bartholomea annulata*	*Bartholomea annulata*	Dependencias Federales	Gran Roque, Los Roques	19/04/1954	-
62	I-994	*Phymanthus crucifer*	*Phymanthus crucifer*	Falcón	Parque Nacional Morrocoy	25/03/1973	García, C.
63	I-1151	*Actinostella flosculifera*	*Actinostella flosculifera*	Nueva Esparta	Isla Cubagua	14/11/2002	Capelo, J.
64	I-1152	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Nueva Esparta	Laguna de Punta de Piedras, Isla Margarita	23/02/1989	Velásquez, Y.
65	I-1155	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Dependencias Federales	Isla La Blanquilla, Caronton	13/03/1988	-
66	I-1192	*Bunodosoma cavernata*	*Bunodosoma cavernatum*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	20/01/2011	Carrasquel, M. and Velásquez, M.
67	I-1193	*Phyllactis praetexta*	*Actinostella flosculifera*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	20/01/2011	Carrasquel, M. and Velásquez, M.
68	I-1194	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	20/01/2011	Carrasquel, M. and Velásquez, M.
69	I-1197	*Actinostella flosculifera*	*Actinostella flosculifera*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	27/06/2012	Carrasquel, M.
70	I-1198	*Anemonia sargassensis*	*Anemonia sargassensis*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	24/05/2012	Carrasquel, M.
71	I-1199	*Aiptasia pallida*	*Exaiptasia pallida*	Nueva Esparta	Isla Cubagua	25/03/2012	Carrasquel, M. and Méndez, E.
72	I-1200	*Actinostella flosculifera*	*Actinostella flosculifera*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	30/03/2009	Carrasquel, M.
73	I-1201	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	31/04/2012	Carrasquel, M.
74	I-1204	*Calliactis tricolor*	*Calliactis tricolor*	Nueva Esparta	Bajo Manzanillo, Isla Margarita	28/06/2012	López, R.
75	I-1205	*Anemonia sargassensis*	*Anemonia sargassensis*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	07/06/2012	Carrasquel, M.
76	I-1206	*Bunodeopsis antilliensis*	*Bunodeopsis antilliensis*	Nueva Esparta	Laguna de La Restinga, Isla Margarita	27/06/2012	Carrasquel, M.
77	I-1207	*Stichodactyla helianthus*	*Stichodactyla helianthus*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
78	I-1208	*Anemonia sargassensis*	*Anemonia sargassensis*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
79	I-1209	*Lebrunia danae*	*Lebrunia neglecta*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
80	I-1210	*Bartholomea annulata*	*Bartholomea annulata*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
81	I-1211	*Aiptasia pallida*	*Exaiptasia pallida*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
82	I-1212	*Phymanthus crucifer*	*Phymanthus crucifer*	Nueva Esparta	Isla Cubagua	24/07/2012	Carrasquel, M. and Méndez, E.
83	I-1213	*Phymanthus crucifer*	*Phymanthus crucifer*	Nueva Esparta	Laguna de Punta de Piedras, Isla Margarita	23/02/1989	Velásquez, Y.
84	I-1214	*Aiptasia pallida*	*Exaiptasia pallida*	Vargas	Playa Azul, Litoral Central	13/03/1985	-

Abbreviations
MOHBR: Museo Oceanológico Hermano Beningo Román.

Competing interests
The authors declare that they have no competing interests.

Authors' contributions
RG, NS, EG, CH, AC and JC designed and coordinated the study and the collection of data, and drafted the manuscript. RG, NS, EG, CH, GC, EM, CL, MR, IV, SP, AC, and JC participated in the collection of specimens, the taxonomic identification of sea anemones species, and the revision of the specimens vouchered at the Museo Oceanológico Hermano Benigno Román. All authors read and approved the final manuscript.

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