PANAMJAS
Pan-American Journal of Aquatic Sciences

Scientific Note

Conchoderma virgatum (Spengler, 1790) (Cirripedia: Pedunculata) associated with sea turtles in Uruguayan shallow coastal waters

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Abstract. The barnacle *Conchoderma virgatum* (Spengler, 1790) is reported as an epibiont of *Chelonia mydas* from Uruguay for the first time. This study provides the first available data on the sizes of *C. virgatum* for the southwestern Atlantic Ocean.

Key words: Epibionts, green turtle, *Chelonia mydas*, pedunculate barnacle

Resumen. *Conchoderma virgatum* (Spengler, 1790) (Cirripedia: Pedunculata) en asociación con tortugas marinas en aguas someras uruguayas. Se reporta por primera vez la presencia del cirripedio *Conchoderma virgatum* (Spengler, 1790) como epibionte de *Chelonia mydas* en aguas uruguayas. En este estudio se presentan los primeros datos sobre las tallas de *C. virgatum* en el Atlántico Sudoccidental.

Palabras clave: Epibiontes, tortuga verde, *Chelonia mydas*, cirripedio pedunculado

Conchoderma virgatum (Spengler, 1790) is a pedunculate barnacle with cosmopolitan distribution, found in tropical, subtropical, temperate and polar seas (Newman & Ross 1971). This species, of pelagic condition, attaches to a variety of floating and non-living objects, as well as to nektonic vertebrates (Hastings 1972). There is no evidence of preference for any one particular host species: *C. virgatum* has been reported in association with fishes, whales, sea turtles and invertebrates (Hastings 1972, Monroe & Limpus 1979, Eckert & Eckert 1987).

The presence of *C. virgatum* in the Southwest Atlantic Ocean was firstly reported by Darwin (1852) from the Malvinas (Falkland) Islands. Holthuis (1993) also referred to this species based on an old drawing published in 1648 of a specimen collected in North-East Brazil. More recently, *C. virgatum* was reported as an epibiont of the juvenile green turtle *Chelonia mydas* (Linnaeus, 1758) in the states of Rio Grande do Sul and São Paulo, Brazil (Bugoni et al. 2001, De Loreto & Bondioli 2008).

Conchoderma spp. was reported without detail from Uruguayan coast in a popular book on marine fauna (González de Baccino 1993) and in a review paper on the ecology of sea turtles (López-Medilaharsu *et al.* 2006), the latter partially based in the material here reported. During an ongoing monitoring of the presence of juvenile *C. mydas* at the area of Cerro Verde, Atlantic coast of Uruguay, *C. virgatum* was found living as an epibiont of that species. The objective of this note is to report these findings, which represent the first documented records from Uruguay.

During January, February and March 2004, 2005, 2006 and 2007, 185 juveniles of *C. mydas* (mean Curve Carapace Length, CCL = 41.0 ± 5.5 cm) were captured in shallow waters (< 5 m depth) at Punta Coronilla, Cerro Verde and La Coronilla Islands, Uruguay (about 33º 56'S, 53º 29'W; see Fig. 1).

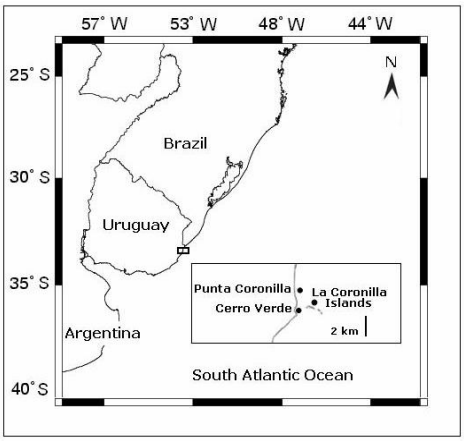

Figure 1. Sampling sites on the coast of Uruguay.

The specimens of *C. virgatum* were removed from the turtles and preserved in 70% ethanol. It is worth noting that only during 2007 a systematic and standardized sampling of epibionts was performed, therefore, small specimens (ca. 5 mm) may have been overlooked during samplings carried out in 2004, 2005 and 2006. The maximum total length of the barnacles (capitulum + peduncle) was measured to the nearest 0.1 mm with a Vernier calliper. The specimens were deposited in the Invertebrate Zoology collection of the Museo Nacional de Historia Natural (Montevideo, Uruguay).

The individuals of *C. virgatum* were attached either directly to the turtle body (Fig. 2) or to *Platylepas hexastylos* (Fabricius, 1798), an obligate commensal barnacle of sea turtles (Monroe & Limpus 1979). The number of specimens hosted by turtles varied from 1 to 10, with clumped specimens more frequent than solitary ones.

Figure 2. Juvenile green turtle (*Chelonia mydas*) hosting *Conchoderma virgatum* attached to the plastron.

Table I. *Conchoderma virgatum* collected on juvenile green turtles (*Chelonia mydas*) at Punta Coronilla, Cerro Verde and La Coronilla Islands, Uruguay.

Year	Captured Turtles (N)	Frequency (%)	Abundance (N)	Total Length (mean ± SD mm)	Total Length range (mm)
2004	34	1 (2.94)	10	26.8 ± 4.2	17.9 – 34.4
2005	52	1 (1.92)	3	17.4 ± 4.0	16.0 – 21.8
2006	28	0 (0)	0	-	-
2007	71	6 (8.45)	20	10.8 ± 4.5	3.6 – 17.4

C. virgatum has also been observed settled on balanomorphs (Eckert & Eckert 1987). These authors reported that clumped specimens of *C. virgatum* were more common than solitary ones, a fact that is in accordance with our findings.

The low abundances of *C. virgatum* herein registered (*max* = 10 per *C.mydas* individual) agrees with previous findings from the southwestern Atlantic region: 3 specimens from São Paulo State (De Loreto & Bondioli 2008) and 11 from Rio Grande do Sul State, Brazil (Bugoni et al. 2001). This contrasts with the high abundances reported for leatherback turtles (*Dermochelys coriacea*) in Caribbean waters, where hundreds of *C. virgatum* have been found on a single turtle (Eckert & Eckert 1987). The chemical or textural properties of the host´s tissues, or differences on the turtles' geographical distribution and ecology, may account for the different abundances reported.

The frequency of turtles hosting *C. virgatum*

in 2007 (8.45%) was similar to the 6.0% reported in the São Paulo State (De Loreto & Bondioli 2008) and the 7.8% in the Rio Grande do Sul State (Bugoni et al. 2001).

There is no information available about the sizes attained by *C. virgatum* in other areas of the southwestern Atlantic Ocean. However the higher total length registered in this study (34.4 mm) is similar to that reported in tropical areas (25.8 mm, see Eckert & Eckert 1987), but falls well below the sizes reported from New Zealand (80 mm of capitulum length, see Foster & Willan 1979) and the Northwest Atlantic (60 mm of total length, see Beckett 1968).

This study provides the first record of *C. virgatum* from the Uruguayan waters and the first available data on its sizes in the Southwestern Atlantic Ocean.

Acknowledgments

We thank A. Fallabrino, C. Romero, G. M. Souza, technicians and volunteers from Karumbé and A. C. Bondioli from IPeC for their valuable help and co-operation in conducting this study. We also thank D. Roccatagliata for his helpful comments on an earlier version, and to M.G. Frick (Caretta Research Project, USA) and a second anonymous reviewer for suggestions that contributed to improve this manuscript. This research was supported by Karumbé N.G.O., Laboratorio de Organismos Bentónicos Marinos (FCEyN, UBA) and Idea Wild.

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Received September 2009
Accepted March 2010
Published online August 2010