

Report of *Carettacola stunkardi* (Martin & Bamberger, 1952) Dailey, Fast & Balazs, 1991 (Digenea: Spirorchiiidae) infecting Green Turtle *Chelonia mydas* Linnaeus, 1758 (Testudines, Cheloniidae) in Brazil

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Received August 22, 2012 – Accepted September 20, 2012 – Distributed August 31, 2013

The family Spirorchiiidae includes approximately 100 species distributed among 19 genera described parasitizing terrestrial and aquatic chelonians (Platt, 2002). Ten of these genera are exclusive to sea turtles (Smith, 1997).

The genus *Carettacola* was created by Manter and Larson (1950) to house *Carettacola bipora*. Two other species are currently accepted in this genus: *Carettacola stunkardi* (Martin & Bamberger, 1952) Dailey, Fast & Balazs, 1991 and *Carettacola hawaiiensis* Dailey, Fast & Balazs, 1991. All three species are only described parasitizing only sea turtles (Smith, 1997).

The present note report the occurrence of *C. stunkardi* in the green sea turtle *Chelonia mydas* Linnaeus, 1758 on the northern coast of the Espírito Santo state, Brazil. In September 2011, a *C. mydas* (34.5 cm curved carapace length and 3.25 kg) was found at Conceição da Barra Beach (18.40358° S, 39.69339° W), Espírito Santo state, Brazil. This animal died in a rehabilitation tank and was necropsied. The heart was analyzed based on the method described by Snyder and Clopton (2005) and simplified by Werneck et al. (2006). Only one specimen of *C. stunkardi* was found. The helminth was fixed in alcohol-formalin-acetic acid solution, stained with carmine and cleared with eugenol. The morphometric data were determined with the aid of an image analysis program (ImageJ, National Institutes of Health). The helminth collected were deposited in the Coleção Helminológica do Instituto de Biociências (CHIBB) of the Universidade Estadual Paulista, Botucatu, São Paulo State, Brazil (Number 151), the parasite analyses were authorized by federal licenses for activities with scientific purposes (SISBIO 30600-1).

The identification key proposed by Platt (2002) and Dailey et al. (1991) was used and morphometric data from the studies of Martin and Bamberger (1951), Caballero et al. (1955) and Werneck et al. (2008) were used to compare our specimen (Table 1).

The characteristics of *C. stunkardi* specimen: parasite elongate with thin extremities; oral sucker terminal; esophagus sinuous, terminating in a bulb that bifurcates immediately prior to the acetabulum; acetabulum small and not distended; ceca slightly sinuous and extending to the region near the posterior extremity of the body, running ventrally to the vitellaria; seminal vesicle, cirrus sac and ovary located in the anterior third of body; seminal vesicle located after the acetabulum and anterior to the cirrus sac; cirrus sac voluminous, between the ovary and seminal vesicle; ovary with an oval aspect; testis with round or slightly flattened shape, in the intra-cecal position and extending from the ovary region to near the excretory vesicle at the posterior extremity of the body vitellaria composed of groups of follicles ex-

tending dorsally to the ceca from the posterior region to near the ovary; excretory vesicle Y shaped. No eggs were found.

The genus *Carettacola* was created in 1950 to house *C. bipora*, which was found parasitizing the intestine of the sea turtle *Caretta caretta* Linnaeus, 1758, in the state of Florida, USA (Manter and Larson, 1950).

After, Martin and Bamberger (1952) described the genus *Haemoxenicon* in the sea turtle *C. mydas* in the state of California, USA, with two new species found in the mesenteric vessels: *H. stunkardi* and *H. chelonenecon*.

Caballero et al. (1955) reported *H. stunkardi* in blood vessels of the urinary bladder in *C. mydas* in Panama. Analyzing the specimens encountered, the authors determined (due to the compression process) that *H. stunkardi* and *H. chelonenecon* were actually the same species and maintained the former name as valid.

The genera *Carettacola* and *Haemoxenicon* remained separate until 1995, when Dailey, Fast & Balazs analyzed *C. bipora* and *H. stunkardi* deposited in collections, defined the similarity between the genera and classified *Haemoxenicon* as a junior synonym of *Carettacola*. In the same paper, the authors described the species *C. hawaiiensis* found in blood vessels of the liver in individuals of *C. mydas* from the state of Hawaii, USA.

Carettacola stunkardi has found in *C. mydas* in the United States (Martin and Bamberger, 1952) and Panama (Caballero et al., 1955) and in a juvenile of *Eretmochelys imbricata* Linnaeus, 1758 in Brazil (Werneck et al., 2008).

The morphometric findings (Table 1) are within the ranges described in previous studies, except for the larger length and width of the oral sucker, smaller width of the ovary and smaller number of testicles. These findings do not render the identification of the species unviable and contribute toward the identification of morphometric variations in the species.

In 2011, the hearts of 12 juvenile individuals of *C. mydas* from the northern coast of the Espírito Santo State, Brazil were analyzed and *C. stunkardi* was only found in one (prevalence: 8.33%). There are no reports on the prevalence rate of *C. stunkardi*. However, Werneck (2011) analyzed 31 individuals of *E. imbricata* from the coast of Brazil and found only two specimens in one host (prevalence: 3.2%). These data and other reports on *C. stunkardi* allow one to suppose that the prevalence of this helminth is low.

There are few papers on the occurrence of the family Spirorchiiidae in Brazil, with only six species reported: *Learedius learedi* Price, 1934 (Werneck et al., 2006), *Monticellius indicum* Mehra, 1939 (Werneck et al., 2008b) and *Amphiorchis indicus* Mehrotra, 1973 (Werneck and

Table 1 - Morphometric data, in millimeters, of *Caretta cola stunkardi* (Martin & Bamberger, 1952) Dailey, Fast & Balazs, 1991 (Digenea: Spirorchiidae) from marine turtles.

Variable	Martin & Bamberger (1951)	Caballero et al. (1955)	Werneck et al. (2008)	Present report
Host	<i>C. mydas</i>	<i>C. mydas</i>	<i>E. imbricata</i>	<i>C. mydas</i>
Site of infection	Mesenteric veins	Blood vessels of the urinary bladder	Body wash	Heart
Locality	USA	Panamá	Brazil	Brazil
Number of parasites	4 (5 collected)	6 (9 collected)	1	1
Body length	3.34-3.88	4.648-5.246	6.504	4.65
Body width	0.3-0.36	0.349	0.469	0.44
Oral sucker length	0.083 diámetro	0.099-0.137	0.100	0.16
Oral sucker width		0.106-0.122	0.091	0.14
Acetabulum	0.15 (diameter)	0.106-0.133 x 0.118-0.182	0.2 (diameter)	0.16 (diameter)
Ovary length	0.17	0.213-0.266	0.33	0.2
Ovary width	0.21	0.114-0.122	0.241	0.1
Number of testes	35-46	39-40	39	29
Testes length	0.036-0.14	0.099-0.106	0.212	0.05 (0.04-0.06)
Testes width	0.024-0.095	0.114-0.129	0.154	0.09 (0.08-0.11)

Silva, 2013) in juvenile of *C. mydas*; *Amphiorchis solus* (Simha & Chattopadhyaya, 1970) in adult of *C. mydas* (Werneck et al., 2011); and *C. stunkardi* and *Amphiorchis caborojoensis* Fischthal & Acholonu, 1976 in *E. imbricata* (Werneck et al., 2008a).

The present note reports the fourth occurrence of *C. stunkardi* in the world, the second in sea turtles on the Brazilian coast and the first time in *C. mydas* in the same region.

Acknowledgments - The biological samples were obtained through the Beach Monitoring Project of the state of Espírito Santo and northern portion of the Campos Basin, which is a requirement established by the federal environmental licensing division of the Brazilian environmental agency IBAMA.

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