First record of *Sebekia oxycephala* (Pentastomida: Sebekidae) infecting *Helicops infrataeniatus* (Reptilia: Colubridae), São Paulo State, Brazil

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The genus *Helicops* comprises 15 species that are widely distributed throughout South America and such species are well adapted to aquatic environments (Ávila et al., 2006). These snakes are active during daytime, feed on fishes and amphibians, and forage in every layer of the water column and surface (Aguiar and Di-Bernardo, 2004).

Pentastomida is a group of parasites with a complex morphology showing "five mouths". Even though Pentastomida is in the Crustacea group, they also present characteristics of onychoforans (Abele et al., 1989). Pentastomida species are parasites of the respiratory tract of vertebrates, and most of the records and new species are associated with reptiles (Almeida and Christoffersen, 2002). In Brazil, five pentastomid species associated with snakes have already been recorded: *Cephalobaena tetrapoda* Heymons, 1922 associated with *Crotalus durissus terrificus* Laurenti, 1768 and *Liophis lineatus* Linnaeus, 1758; *Raillitiella furcocerca* Diesing, 1863 associated with *Boa constrictor* Linnaeus, 1758, *Coluber lichtensteinii* Wiedneuwied, 1824, *Drymarchon corais* Stejneger 1899, *Crotalus durissus terrificus*, *Xenodon merremii* Wagler, 1824 and *Lachesis* sp.; *Kiricephalus coarctatus* Sambon, 1910 associated with *Dryadophis bifossatus* Raddi, 1820, *Aporophislineatus* Boulenger, 1894, *Herpetodryas carinatus* Linnaeus, 1758 and *Coluber corais* Boulenger, 1894; *Porocephalus crotali* Humboldt, 1808 associated with *Crotalusdurissus terrificus*; and *Sebekia oxycephala* Diesing, 1835 (Almeida et al., 2007) associated with *Micrurus surinamensis* Cuvier, 1817 (Ávila et al., 2013).

Sebekia is a pentastomids genus generally associated with crocodilians, and the species of this genus use fishes as intermediate host. However, the biological cycle of *Sebekia oxycephala* is still not clear regarding lizards and snakes infections (Venard and Bangham, 1941; Riley, 1986; Junker and Boomker, 2006).

Studies in Brazil have shown that *S. oxycephala* seems to be a generalist species with a behavior similar to other pentastomids already studied (Rego and Eiras, 1989; Almeida et al., 2010). *Sebekia oxycephala* presents geographical distribution from the southern United States to the southern South America. In Brazil, pentastomid nymphs were reported parasitizing the fishes *Serrasalmus nattereri* Günther, 1864, *Pseudoplatystoma corruscans* Spix & Agassiz, 1829, *Phalloceros harpagos* Lucinda, 2008 (Almeida et al., 2010) and *Serrasalmus marginatus* Valenciennes, 1837 (Vicentin et al., 2011), and also the snakes *Helicops leopardinus* (Schlegel, 1837) (Rego and Vicente, 1988), *Nerodia* spp. (Overstreet et al., 1985) and *Micrurus surinamensis* (Ávila et al., 2013).

In July 2012 and February 2013, two snakes *Helicops infrataeniatus* (Jan, 1865) were sampled in a Conservation Unit (Private Reserve of the Natural Patrimony 'Aguapeí River Mouth') in Castilho municipality, São Paulo State, Brazilian southeast. The snakes were necropsied, however only one was infected with parasites. Three immature pentastomids were found, one in the body cavity and two in the lungs. The parasites were collected, fixed with alcohol 70º and examined as permanent slides with Hoyer. The pentastomid identification was based on the dimensions of the hooks, copulatoryspiculae of the males (measured with the aid of a microscope fitted with a micrometer eyepiece), number of body rings and oral cavity (Venard and Bangham, 1941; Self and Rego, 1985). The morphological analyses of the pentastomids enabled to identify the species as *Sebekia oxycephala* (Figure 1). Voucher parasite specimens were deposited at the Coleção Helmintológica do Instituto de Biociências, São Paulo State University, Botucatu, São Paulo State, Brazil, under the numbers CHIBB 7175 and 7176.

The infection of *H. infrataeniatus* with *S. oxycephala* may be related to the semi-aquatic habit and piscivorous diet of this host, since nymphs directly infect the aquatic intermediate hosts, like fishes (Junker et al., 1998; Ávila et al., 2006; Morais et al., 2011). Such affirmation was previously confirmed by Goldberg and Bursey (2004) that found *Sebekia* sp. infecting *Micrurusalleni* Schmidt, 1936, which shows terrestrial habit but piscivorous diet. Rego and Vicente (1988) also recorded this parasite associated with the congeneric species *H. leopardinus* from Mato Grosso State, Brazil.

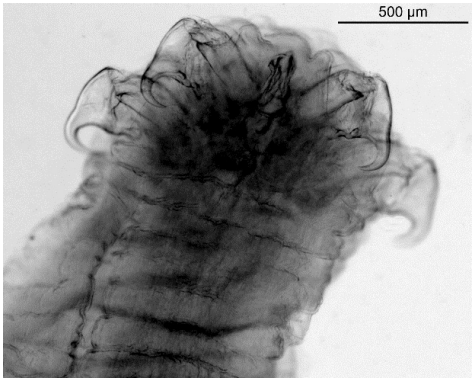

Figure 1. Anterior end of *Sebekia oxycephala* collected in the body cavity of *Helicops infrataeniatus* from the municipality of Castilho, São Paulo State, Brazil.

These findings corroborate the fact that *S. oxycephala* shows low specificity for intermediate hosts. This study reports for the first time *S. oxycephala* infecting *H. infrataeniatus*, adding this snake species to the host list of this pentastomid in Brazil and also recording São Paulo State as a new locality for geographic distribution.

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