

Description of a new ascaridoid parasite of *Bothrops jararaca* Wied (Reptilia, Ophidia) in Brazil

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ABSTRACT. A new species of *Ophidascaris* Baylis, 1920 is described on the basis of specimens recovered from the pit viper *Bothrops jararaca* Wied, 1824 in Brazil. The new species referred here was compared to other of the genus that are the closest. The differentiation was based on reliable morphological characters, mainly on what refers to the spicular length, number and distribution of caudal papillae, location of the vulvar opening, eggs size and aspect of the labial indentations. Moreover, female specimens are the only to possess a most prominent and characteristic post-anal tubercle-like structure and when analyzed together with the males, that show a great number of pre-cloacal papillae, the presence of an unpaired papilla and also of a less conspicuous post-cloacal tubercle-like structure, permit the prompt identification of the new species.

KEY WORDS. Nematoda, *Ophidascaris*, pit-viper, snakes.

RESUMO. Descrição de um novo ascarídeo parasito de *Bothrops jararaca* Wied (Reptilia, Ophidia) no Brasil. Uma nova espécie de *Ophidascaris* Baylis, 1920 é descrita, com base em exemplares parasitos de jararaca, *Bothrops jararaca* Wied, 1824 no Brasil. A nova espécie agora descrita foi comparada a outras do gênero que lhe são as mais próximas. A diferenciação foi baseada em caracteres morfológicos consistentes, principalmente nos que dizem respeito ao tamanho dos espículos, número e distribuição de papilas caudais, localização da abertura vulvar, tamanho dos ovos e aspecto das indentações labiais. Além disso, os exemplares fêmeas são os únicos no gênero a apresentarem uma estrutura em forma de tubérculo pós-anal bastante característica e proeminente, quando analisados junto aos exemplares machos, nos quais existe um grande número de papilas pré-cloacais, presença de papila caudal ímpar e, também, da estrutura pós-cloacal em forma de tubérculo, embora menos evidente que nas fêmeas, permitem a pronta identificação da espécie nova.

PALAVRAS CHAVE. Jararaca, Nematoda, *Ophidascaris*, serpentes.

Ascaridoid nematodes of different genera are very common in snakes worldwide and almost over 20 species have been allocated in the genus *Ophidascaris* Baylis, 1920; eight out of them have been reported in Brazilian hosts (VICENTE *et al.* 1993, PANIZZUTTI *et al.* 2003).

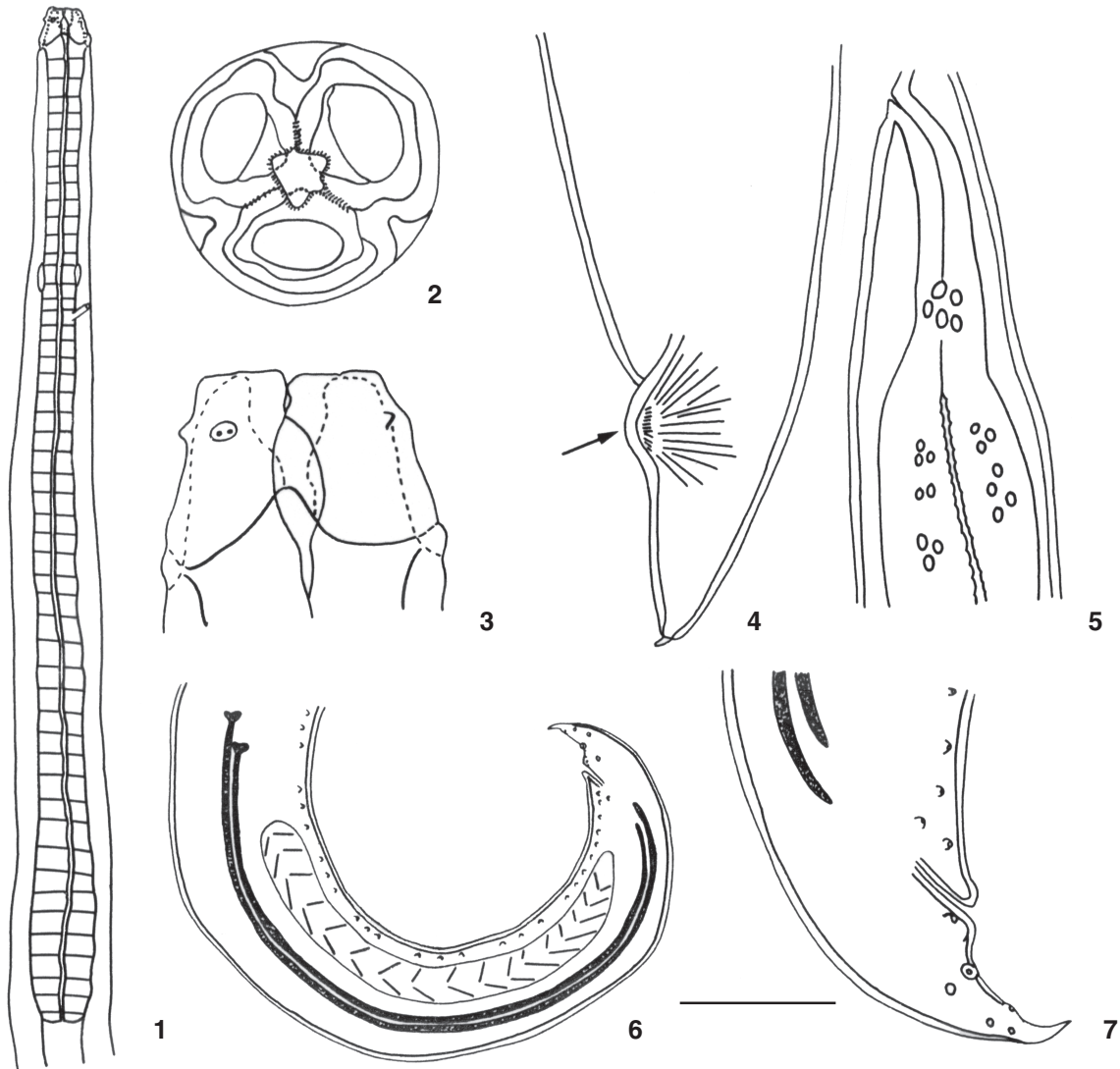
An accurate examination of the nematodes parasitizing snakes is necessary to properly determine their exact inclusion, considering that individuals of different genera are very close to each other as occurs with the nematodes of the genera *Ophidascaris* and *Hexametra* Travassos, 1920, in which the generic status is based almost exclusively on the number of uterine branches that are of difficult observation, thus requiring a careful analysis to avoid that important morphological characters are overlooked.

The present paper deals with the description of *Ophidascaris tuberculatum* **sp. nov.** parasitizing specimens of *Bothrops jararaca* Wied, 1824 captured in the State of Rio de Janeiro, Brazil.

MATERIAL AND METHODS

Five specimens of *B. jararaca*, captured in wild environments, were maintained under captivity in the serpentarium of the Instituto de Biologia do Exército (IBEx), Rio de Janeiro, Rio de Janeiro, Brazil.

Wild snakes are kept in quarantine for adaptation and to avoid contamination of the other individuals of the colony already well adjusted to laboratory conditions. The animals that die during the adaptation process are investigated for endoparasites.

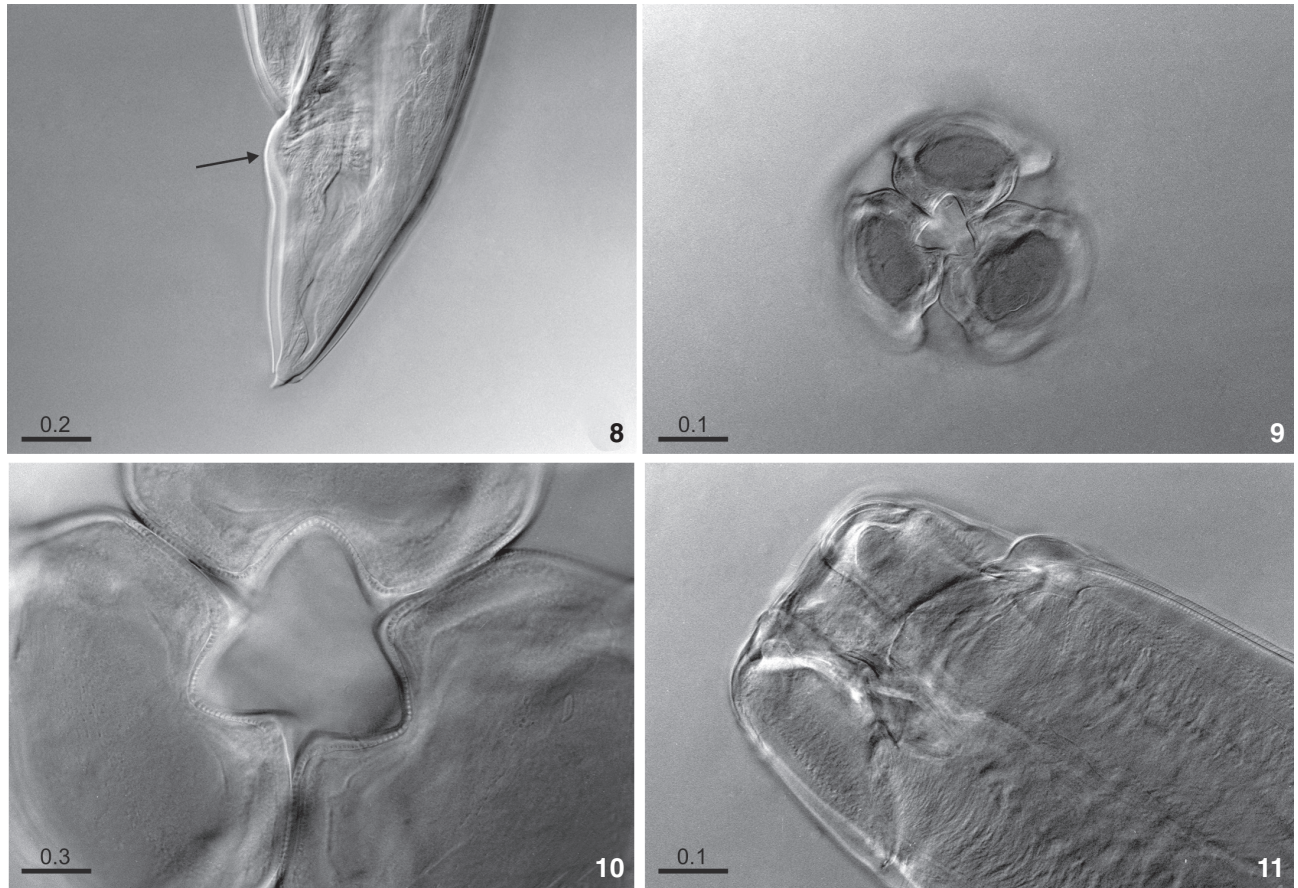


Figures 1-7. *Ophidascaris tuberculatum* sp. nov.: (1) anterior portion of the allotype, ventral view. Bar = 1.5 mm; (2) "en face" view of the mouth of the allotype. Bar = 0.1 mm; (3) anterior extremity of the allotype, ventral view. Bar = 0.2 mm; (4) posterior portion of the allotype, showing the characteristic post-anal tubercle-like protuberance (arrow), lateral view. Bar = 0.5 mm; (5) vulvar opening, ovijector and uterine bifurcation in the allotype, lateral view. Bar = 0.7 mm; (6) posterior portion of the holotype, lateral view. Bar = 0.7 mm; (7) posterior extremity of the allotype, lateral view. Bar = 0.5 mm. Bar common to figures 1-7.

Necropsies were performed immediately after deaths, between September to December 2001, in accordance with the methodology of GOMES & PUERTO (1993). Organs were examined individually in Petri dishes with a 0.85 % NaCl solution.

Briefly, the recovered nematodes were fixed in hot A.F.A (glacial acetic acid 2%; formaldehyde 3%; 70° ethanol 93%), dehydrated in an ethanol series (70°-100° GL) cleared acetic acid and phenol, unstained. En face mounts were obtained according to the method of ANDERSON (1958).

Specimens were kept either as wet material in A.F.A or preserved as whole mounts in beechwood creosote and Canada balsam (3:1). Samples were deposited in the Helminthological Collection of the Oswaldo Cruz Institute (CHIOC). Measurements are in millimeters (mm) unless otherwise indicated and means are in parentheses. Drawings were obtained with a camera lucida connected to a Olympus microscope and photomicrographs in a Zeiss microscope in a Differential Interference Contrast (DIC) system.



Figures 8-11. *Ophidascaaris tuberculatum* sp. nov.: (8) posterior extremity of the allotype, with the characteristic post-anal tubercle-like protuberance (arrow), lateral view; (9) "en face" view of the mouth and lips of the allotype; (10) "en face" view of the mouth of the allotype, showing the labial indentations or dentigerous ridges; (11) anterior extremity of the holotype, ventral view. Measurements in millimeters.

RESULTS

Ophidascaaris tuberculatum sp. nov.

Figs I-II

Description based on six adult specimens, three males and three females.

Males 80-90 (85) long, 0.52-0.75 (0.73) wide; females 80-150 (100.7) long, 0.93-1.02 (0.97) wide.

Mouth with three lips, each 0.17-0.20 (0.18) long, 0.10-0.23 (0.17) wide in males, 0.20-0.24 (0.21), 0.20-0.25 (0.22), respectively, in females. Dorsal lip with single and double latero-ventral papillae. Labial indentations or dentigerous ridges well developed; interlabia present, not reaching the half portion of the lips. Esophagus 4.71-4.59 (4.64) long and 0.23-0.31 (0.26) wide in males, 5.90-6.10 (5.96), 0.35-0.39 (0.36), respectively, in females. Nerve ring and excretory pore 0.80-1.05 (0.85), 1.0-1.05 (0.98), respectively, from the anterior end in both sexes.

Males: spicules 2.45-2.90 (2.71) long. Tail pointed, with

a conspicuous terminal mucron. Seventy-four caudal papillae: 30 pairs and 1 unpaired papilla are pre-cloacal, 1 pair is ad-cloacal, 5 pairs and 1 unpaired papilla are post-cloacal. This unpaired papilla is close to the tail end. Cloacal aperture 0.20-0.40 (0.30) from posterior extremity.

Females didelphic, opisthodelphic. Eggs 0.075-0.080 (0.078) long, 0.061-0.080 (0.072) wide. Vulvar aperture not prominent, in the anterior middle third of the body; ovejector 1.07-1.20 (1.15) long. Conspicuous post-anal, muscular tubercle-like protuberance, with a rugose surface. Anal opening 0.20-0.50 (0.35) from posterior extremity.

Type host: *Bothrops jararaca* Wied, 1824 (Ophidia, Viperidae); common names: pit viper, "jararaca".

Site of infection: stomach.

Prevalence: 20%.

Intensity of infection: 8.

Type locality: Serra das Araras, Petrópolis, State of Rio de Janeiro, RJ, Brazil (22°30'39"S; 43°11'4"W), 857 m high.

Studied specimens: Holotype CHIOC no. 36232 a, allotype CHIOC no. 36232 b (whole mounts), paratypes CHIOC no. 36232 c, d (whole mount), 35315 (wet material).

Etymology: the specific name is after the neuter Latin word *tuberculatum* meaning "having tubercles".

DISCUSSION

In the genus *Ophidascaris* Baylis, 1920, only three species can be compared to *Ophidascaris tuberculatum*:

Ophidascaris obconica (Baird, 1860) Baylis, 1921 re-described by FREITAS (1968), based on specimens recovered from *Helicops angulatus* (Linnaeus, 1758) in Brazil, is similar to *O. tuberculatum* in the length of the spicules; nevertheless, it can be distinguished from the new species by presenting the vulvar aperture located in the posterior middle third of the body, whereas in the specimens studied here, the vulvar opening is at the anterior middle third region.

Ophidascaris ochoterenai proposed by CABALLERO (1939) on the basis of specimens recovered from *Drymarchon corais melanurus* (Boie, 1827) in Mexico, can be also associated to the specimens presently described by the spicular dimensions, number of post-cloacal papillae but differing by the location of the vulvar aperture, that similarly to the observed in *O. obconica*, opens in the anterior middle third of the body.

Ophidascaris sprenti described by ARAÚJO (1969) based on nematode parasites of the rattlesnake *Crotalus durissus terrificus* (Linnaeus, 1758) in Brazil, can be considered closer to *O. tuberculatum* on what refers to some of the characters shared with *O. ochoterenai* and also by the size of eggs, the difference in the length of tail observed in males and females; nevertheless, males of *O. sprenti* possess a single pre-cloacal papilla-like protuberance lacking terminal enervation whereas males of *O. tuberculatum*, present a true, unpaired and enervate pre-cloacal papilla; also,

in males as well as in females of the new species, the labial indentations or dentigerous ridges are prominent and large.

Most of all, *O. tuberculatum* differs from the other above referred species by the overall number and distribution of caudal papillae, pointed tail with a conspicuous terminal mucron observed in the males and by the very outstanding post-anal muscular tubercle-like protuberance with rugose surface presented by the females.

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