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A report on *Ophidascaris* (Nematode: Ascarididae) in Indian rock python (*Python molurus molurus*) from Papanasum Western Ghats region

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Abstract

The study was conducted to describe the morphology and morphometry of nematodes recovered from the digestive tract of Indian rock python macroscopically and microscopically. Six round worms collected from Indian rock python (*Python molurus molurus*) in the Papanasum Western Ghats region were presented to Department of Veterinary Parasitology for identification. The worms were dull white in colour, medium to large in size and the length ranged from 6 to 8.5 cm. Anterior end of the worm revealed 3 roughly oval shaped prominent lips along with interlabia and cervical alae. In female, the posterior part of body is wider than anterior. Cuticle of the worm had fine transverse striations. Eggs were oval to almost spherical with pitted shell, measuring 0.071 - 0.076 X 0.66 - 0.71 mm. Based on the morphological characters and morphometry, the worms were identified as *Ophidascaris* spp.

Keywords: Snakes, python, nematode, *Ophidascaris*

Introduction

The Indian rock python (*Python molurus*) is a non-venomous snake that mostly inhabits mangrove forests, scrubs jungles, rain forests and grasslands. They primarily feed on mammals like rodents, fruit bats, birds, civets, deer and wild boar and are commonly found in India, native to tropical and subtropical regions of the Indian subcontinent and Southeast Asia. A variety of internal parasites like protozoa, trematodes, nematodes, cestodes, and acanthocephalans were reported from reptiles. Species of *Ophidascaris* Baylis, 1921 (Nematoda: Ascaridida) is the one of the very common helminths in the digestive tract of various snakes all over the world (Liang Li *et al.*, 2014) [1]. The parasitism by helminths may cause gastrointestinal obstruction, nutritional deficiencies, and tissue inflammatory reactions. This will cause the snake to become more susceptible to many other diseases also. This study was aimed to document the morphology and morphometry of nematode found in the GI tract of Indian Rock Python from Papanasum Western Ghats region.

Materials and Methods

Post mortem examination of a 6 years old female Indian rock python (*Python molurus molurus*) in the Papanasum Western Ghats region was conducted by the forest officials. A total of six round worms were recovered from the oesophagus, stomach and intestines and fixed in 10% formalin. The worms were sent to the Department of Veterinary Parasitology, Veterinary College and Research Institute, Tirunelveli for identification.

The worms were washed in water, dehydrated in ascending grades of alcohol (70, 90 and 100%) and then cleared in carbolic acid. Permanent mount was done with DPX and examined under light microscope for morphological characters. One female worm was triturated for identification of eggs. The morphological characters of the worm and egg were identified by the keys described by Soulsby (1982) [2].

Results

The worms were dull white in colour, medium to large in size and the length ranged from 6 to 8.5 cm. The anterior extremity of the worms had 3 roughly oval shaped prominent lips along with interlabia and prominent cervical alae (Fig.1). The posterior part of body is wider than anterior especially in females.

Cuticle of the worm revealed fine transverse striations. Among the six worms, three were male and three were females.

The male worms were 6 to 7.5 cm and females were 7.5 to 8.5 cm in length. The diameter of the head in the male worm was 0.23 mm. Dorsal and ventrolateral lips were same in size of 0.12 mm. The oesophagus was club shaped and 3.25 mm that was 4.33% of the total worm length. The width of the oesophagus at the base was 0.34 mm. In males, both the spicules were almost same in size measuring 2.97 mm and was 3.96% of the total worm length. The posterior end is tapered and had finger like appendage (0.047 mm), and the anus is located 0.28 mm from the posterior end (Fig.2).

The female worms were 7.5 to 8.5 cm in length. The head diameter was 0.28 mm. Dorsal and ventrolateral lips simulated each other and measured 0.16 mm. The oesophagus was club shaped and 4.9 mm in length which was 5.76% of the total worm length. The width of the oesophagus at the base was 0.43 mm. The posterior end was not tapered as like male and there was no finger like appendage (Fig.3). Eggs were oval to almost spherical shaped with pitted shell, measured 0.071 - 0.076 X 0.66 - 0.71 mm (Fig.4). Based on the above morphological characters the worms were identified as *Ophidascaris* spp.



Fig 1: *Ophidascaris* spp. Head end with cervical alae (10X)



Fig 2: *Ophidascaris* spp. Male Tail end with Spicules (4X)



Fig 3: *Ophidascaris* spp. Female Tail end (4X)

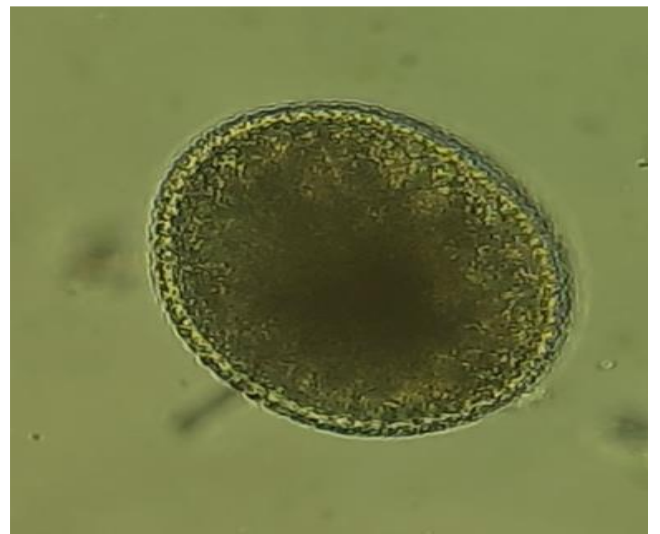


Fig 4: *Ophidascaris* spp. Egg (10X)

Discussion

The ascaridoid nematode, *Ophidascaris* spp. is frequently found in pythons (Nakulan Valsala Rajesh *et al.*, 2015) [3]. The genus *Ophidascaris* is divided into five groups of species. They are *filaria*, *obconica*, *radiosa*, *najae* and *arndti*. *Filaria* group occurs in pythons (Sprent, 1988) [4]. The genus *Ophidascaris* was created by Baylis (1921), now it includes over 30 nominal species reported worldwide. The life cycle was studied and described by Walton (1937). Khera (1956), added a new species *O. ajgaris* from *Python molurus* in India. The most prominent generic character of *Ophidascaris*, the cervical alae absent in *O. ajgaris*, was prominent in the worm recorded in the present study. In the *O. ajgaris* female measuring 11.9-15.4 cm, the head diameter was 0.3 - 0.5 mm whereas the female worm recorded in the present study, the length and head diameter was 8.5 and 0.28 mm respectively. However, the male worm identified in the present study with the length and head diameter of 7.5 cm and 0.23 mm respectively was within the range of *O. ajgaris* length (6.9-14.9 cm) and head diameter (0.217-0.435 mm). The length of the club shaped oesophagus of the male (3.25 mm) and female (4.9 mm) worm recorded in the present study was differed from the *O. ajgaris* male (4.52 - 6.56) and female (5.3 - 7.00 mm) oesophagus as recorded by Manoj Kumar Singh, (1995) [5].

The body length and head diameter of male (7.5 cm; 0.23) and female (8.5 cm; 0.28 mm) worms identified in the present study was comparable with the body length and head diameter of *O. piscatoris*, male (7.0-10.5 cm; 0.22-0.28 mm) and female (8.5 – 13.0 cm; 0.29 - 0.38 mm). Similarly, the dorsal and ventrolateral lips of male (0.12 mm) and female (0.16 mm) worms measured in this study was within the range of measurements of *O. piscatoris* male (0.10-0.12 mm) and female (0.13-0.16 mm)

In the present study, the length of the oesophagus of females and males of 4.3 mm and 3.25 mm respectively, was in agreement with the range of *O. piscatoris* females (3.04-4.67 mm) and males (3.21-4 mm). The spicule length (2.97) of the male worm of this study was also well within the range of *O. piscatoris* (2.12-3.36 mm).

Egg morphology of oval to almost spherical shaped with pitted shell measuring 0.071 - 0.076 X 0.66 - 0.71 mm of *Ophidascaris* identified in the present study was also within the range of *O. piscatoris* (0.08 - 0.09 X 0.07 - 0.08 mm). (Lucia Tri Suwanti *et al.*, 2018) [6].

The morphometry of the male and female worms recorded in the present study was closely agreed with the range of *O. piscatoris*.

Conclusions

Based on the morphological characters and morphometry, the worms were identified as *Ophidascaris spp.* worms. Even though most of the morphological features are mimicked with *O. piscatoris*, the confirmation can be done by electron microscopy study or by PCR.

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