Journal of Helminthology, Vol. XXXVI, Nos. 1/2, 1962, pp. 39–44.

Parabronema roundi n.sp. (Spiruridae: Nematoda) from *Rhinoceros bicornis* in Kenya

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This new species is described from material consisting of four males and six females said to have been recovered from the intestine of *Rhinoceros bicornis* in Kenya and sent to the writer through the courtesy of Mr. M. C. Round, B.Sc., of Veterinary Research Laboratory, Department of Veterinary Services, Kabete, Kenya.

PARABRONEMA ROUNDI n.sp.

General description

When viewed with the naked eye, these worms have a slender and delicate appearance. The females are larger than the males.

The head is typical of the genus. It is conical, narrower anteriorly than posteriorly at the auricular appendages. The mouth is slit-like and continuous with the cylindrical vestibule. It is bounded by two lateral lips, or pseudolips, each bearing a large median papilla, and by dorsal and ventral shields which overlap the lateral lips externally each of which bears a pair of submedian and a more posterior pair of lateromedian papillae. The typical complicated system of cuticular ornamentation of the head is present, consisting of six elongated horseshoe shaped posterior cordons and six anterior cordons which overlap, and are probably continuous with the posterior series.

The cuticle bears regular transverse striations about 10μ apart and, between these and over most of the body, short irregular longitudinal striations so that the surface of the worms tends to have a "cobbled" appearance. The cervical papillae are in a relatively anterior position at the level of the cuticular ring which marks the junction of the vestibule with the oesophagus. They have a bristle like termination. Along the lateral lines, immediately posterior to the cervical papillae, a pair of cervical alae arise and reach a maximum width of 18μ and then subside again to insignificant width at about the level of the middle of the oesophagus. They continue, however, as raised ridges of cuticle, almost to the caudal extremity of the female and to merge with the caudal alae of the male.

The vestibule (or pharynx) is comparatively long and extends a a considerable distance behind the head armature. Thus the distance from the anterior extremity of the worm to the posterior limit of the auricular appendages is between 0·14 and 0·152 mm. in the male and 0·168 and 0·18 mm. in the female and the length of the vestibule measured from the anterior extremity is between 0·192 and 0·22 mm. in the male and 0·232 and 0·240 mm. in the female. The oesophagus is divided into two muscular portions of approximately equal diameter. Their junction is 0·336 to 0·384 mm. from the anterior extremity of the worm in the male and 0·368 to 0·4 mm. in the female. Similarly the posterior extremity of the oesophagus is 1·58 to 2·03 mm. and 1·9 to 2·18 mm. from the anterior extremity in the male and female respectively.

The nerve ring surrounds the anterior portion of the oesophagus slightly anterior to its middle. The very inconspicuous ventral excretory pore is on the same level as the nerve ring.

Male. The male is 7·8 to 8·4 mm. in length with a maximum diameter of 0·176 to 0·216 mm. The posterior extremity is ventrally curved but is not in a spiral. The tail is bluntly pointed and between 0·15 and 0·22 mm. in length and it bears caudal alae which tend to fold over the ventral surface. Near the tail tip on the ventral surface there is a small group of 3 minute pairs of papillae and a pair of phasmids arranged in two parallel rows. Apart from these very small structures, there are 4 pairs of preanal and 3 pairs of postanal papillae. The four preanal pairs and the 2 most posterior postanal pairs of this group have very long nervous pulps. The most anterior of the 3 postanal pairs (i.e. the pair nearest the cloaca) is in the peculiar crossed transverse arrangement characteristic for most members of the genus. No median double papilla is detectable in front of the cloaca.

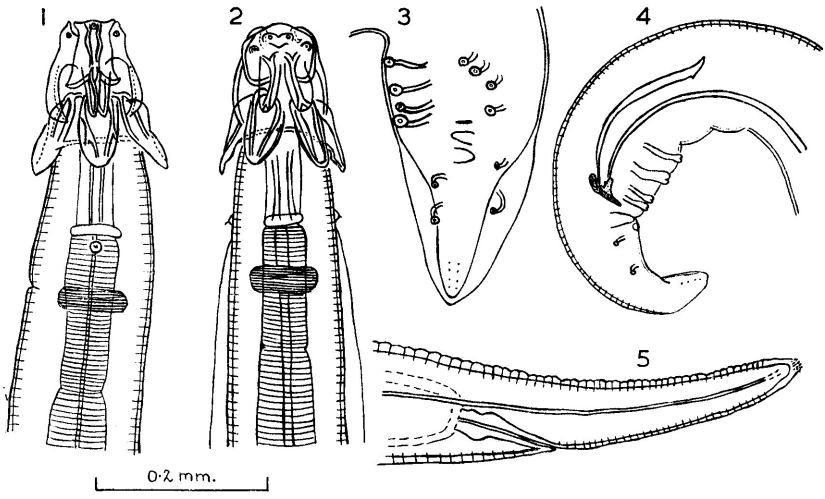
There are two unequal spicules. The right spicule is shorter and broader and measures between 0·22 and 0·24 mm. in length and the left spicule is longer and more slender and measures 0·32 to 0·35 mm. in length. A gubernaculum consisting of a naviculiform base with a pair of irregular wings is present.

The single testis extends forwards to within approximately 1·0 mm. of the posterior extremity of the oesophagus and its extremity loops back a short distance.

Female. The female is 11·4 to 13·6 mm. in length with a maximum diameter of 0·256 to 0·320 mm.

The tail is 0·256 to 0·304 mm. long, dorsally curved, conical and somewhat bluntly pointed. It bears a number of minute cuticular spikes at its extremity. No phasmids are discernible.

The vulva is ventral in position and between 1·17 and 1·76 mm. behind the posterior extremity of the oesophagus. The uterus is crowded with a large number of larvae.



Parabronema roundi n.sp.

FIG. 1.—Anterior extremity, female, lateral view. FIG. 2.—Anterior extremity, female, dorsal view. FIG. 3.—Posterior extremity, male, ventro-lateral view. Fig. 4.—Posterior extremity, male, lateral view. FIG. 5.—Posterior extremity, female, lateral view.

Affinities

P. roundi n.sp. differs from *P. okapi* Leiper, 1935, *P. bonnei* (Van Thiel, 1925), and *P. skrjabini* Rassowska, 1924 and resembles *P. indicum* Baylis, 1921, *P. africanum* Baylis, 1921, *P. rhodesiense* Yorke and Maplestone, 1926, *P. smithi* (Cobbold, 1882) and *P. rhinocerotis* Khalil, 1927 in having a head armature with auricular appendages which are folded and grooved. It differs from all members of this latter group in the following ways :—

1. The very anterior position of the cervical papillae at the level of the vestibulo-oesophageal junction. In other species they are at the level of, or posterior to, the nerve ring.

2. The presence of cuticular bristles on the extremity of the tail of the female. In other species this appendage is smooth.

3. The great length of the vestibule in relation to the head armature. In other species it barely extends beyond the posterior limits of the auricular appendages.

4. The greater distance between the posterior extremity of the oesophagus and the vulva.

Parabronema roundi n.sp.

Type host : *Rhinoceros bicornis.*

Type locality : Kenya.

Habitat : ? Intestine, (more probably stomach).

Types : In London School of Hygiene and Tropical Medicine.

Note on the Status of the Genus *Parabronema* Baylis, 1921

When Baylis named the new genus he stated "the genus to which these worms belong seems to the writer to have very close relationships with *Habronema* Diesing".

Baylis and Daubney (1926) placed *Parabronema* next to *Habronema* in the subfamily Spirurinae Railliet, 1915 in the family Spiruridae Orley, 1885.

Yorke and Maplestone (1926) preferred to place *Parabronema* in the subfamily Acuariinae Railliet, Henry and Sisoff, 1912 of the family Acuariidae Seurat, 1913, presumably because of the "cordons" present on the anterior extremity.

Skrjabin (1941) made a new subfamily Parabronematinae for *Parabronema* and *Squamanema* Van Thiel, 1925 and placed it in his new family Histiocephalidae.

Baer (1950) arranged *Parabronema* under Schistophorinae Travassos, 1918 in the family Acuariidae.

Chabaud and Mouchet (1956) allude to the close proximity of *Parabronema* to *Habronema* and suggest that this may one day be demonstrated on biological grounds, (i.e., that use is made of a Dipteran intermediate host by *Parabronema* as in *Habronema*).

The present writer prefers to adhere to the original opinion of Baylis (1921) and considers that the genus should never have been classified with the Acuariidae.

P. congolense Van den Berghe and Vuylsteke, 1937 from the okapi and *P. okapi* Vuylsteke, 1935 were shown by Baer (1950) to be synonyms of *P. okapi* Leiper, 1935 and *P. skrjabini* Rassowska, 1924 respectively. *P. congolense* Vuylsteke, 1953 *nec* Van den Berghe and Vuylsteke, 1937 has been placed in synonymy with *P. africanum* Baylis, 1921 by Chabaud and Mouchet (1956).

Although *P. bonnei* (Van Thiel, 1925), *P. skrjabini* Rassowska, 1924, and *P. okapi* Leiper, 1935 have less complex head ornamentation than other members of the genus, the writer considers that this does not, at present, furnish sufficient grounds for splitting them off under a separate genus *Squamanema* Van Thiel, 1925, as has been proposed (in part) by Sarwar (1954). Such a move would be justifiable only on the grounds of convenience if there was a large number of species to distinguish.

ACKNOWLEDGMENT

The writer is thankful to the Director, Dr. S. M. Willmott, Commonwealth Bureau of Helminthology for permission to publish this paper.

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