

Description of Some Acanthocephalan Species from Some Reptiles in Qena Governorate

Soheir A. H. Rabie¹, Mohey El-Din Z. AbdEl-Latif², Nadia I. Mohamed³
and Obaida F. Abo El-Hussin⁴.

Zoology Department, Faculty of Science, South Valley University

Abstract: During the present study, about 294 individuals of *Mabuya quinquetaeniata* (the common name is bean skin, *sehlia garraiya*), were collected from Qena Governorate. Two species of *Acanthocephala* were identified. The first species is *Oligacanthorhynchus ricinoides* belonging to family *Oligacanthorhynchidae* Petrochenko, 1956. 2 out of 294 were found infected and the prevalence of infection was 0.68%. The second species is *Pachysentis ehrenbergi* belonging to family *Oligacanthorhynchidae* Petrochenko, 1956. 16 out of 294 were found infected and the prevalence of infection was 5.4%.

Keywords: Description - acanthocephalan – reptiles - Qena - Governorate.

I. Introduction

Reptiles are most abundant in the warmer regions of the world and occupy different habitats. Reptiles have been established as a significant source of disease in humans for several decades. Today, numerous studies have reinforced the established view that reptiles are the major cause of disease in humans. One important finding is that reptiles other than terrapins are prolific carriers of salmonellae and other microorganisms, it appears that lizards and snakes may be even more likely to harbor known pathogenic micro-organisms than terrapins.

Bursey and Goldberg (2003) described *Acanthocephalus saurius* from the small intestine of the lizard *Norops limifrons*. Goldberg and Bursey (2004) reported Cystacanths of *Oligacanthorhynchid acanthocephalan* from the Yaqui blackhead snake, *Tantilla yaquia*. Barger (2005) described *Neoechinorhynchus moleri* from the yellow-bellied slider (*Trachemys scripta scripta*) and the Florida red-bellied turtle (*Pseudemys nelsoni*). Bursey et al., (2007) described the acanthocephalan parasite *Sauracanthorhynchus sphenomorphicola* from the intestine of the skink *Sphenomorphus granulatus*. Smales (2007) collected 1,732 amphibians and reptiles across São Paulo Province, Brazil, and 7 provinces in Paraguay, 26 species were found infected with acanthocephalans, of 1,510 anurans, 14 anurans, representing 11 species, were infected with cystacanths of *Centrorhynchus* spp. and 1 anuran with cystacanths of *Oligacanthorhynchus* sp., of 107 lizards, 1 lizard was infected with cystacanths of *Centrorhynchus* sp., 1 lizard with cystacanths of *Oligacanthorhynchus* sp., *Acanthocephalus caspanensis* was found in 3 anurans (3 species), *Acanthocephalus lutzi* in 3 anurans (2 species) and 2 snakes (2 species) and *Acanthocephalus saopaulensis* n. sp. was found in a single individual of *Bufo icteri*.

The aim of this study is constructed to study the parasites which infect some reptiles in Qena Province specially the *Acanthocephala* species.

II. Material And Methods

Collection of helminthes:

The collected hosts were dissected. The oral and body cavity were examined. The general viscera were removed and placed in physiological saline solution (0.7%). The parasites were removed and washed with saline to remove the adherent debris.

-Preparation of helminthes for light microscopic examination:

Fixation: Living parasites were refrigerated in distilled water for 2-8 hours before fixation until totally relaxed and the proboscises were everted and extended. After that, the parasites were compressed between two slides. The parasites were then fixed in F.A.A. for preservation and kept in 70 % alcohol with 5% glycerol.

Staining: The acanthocephalan worms were stained in acetic acid alum carmine. The time of staining depends on the size of parasite.

Dehydration: After staining, the parasites were dehydrated in ascending grades of alcohol (30%, 50%, 70%, 90% and absolute alcohol) for 10 minutes in each grades. It was found that specimens must be left in 100% alcohol two times more than other grades for complete dehydration.

Differentiation: Over stained parasites were rinsed in acid alcohol until the perfect staining level was reached and the stained parasites become well differentiated.

Clearing: After differentiation, the stained parasites were cleared in clove oil.

Mounting: The parasites were mounted in Canada balsam, covered with cover glass and left to dry in oven at 37 °C.

III. Results

1) *Oligacanthorhynchus ricinoides*

Family	: Oligacanthorhynchidae	Petrochenko, 1956
Subfamily	: Oligacanthorhynchinae	Southwell & Macfie, 1925
Genus	: <i>Oligacanthorhynchus</i>	Travassos, 1915
Species	: <i>ricinoides</i>	Rud., 1808

The present acanthocephalan parasite was collected from the body cavity of *Mabuya quinquetaeniata* (the common name is bean skin, *Sehlia garraiya*), 2 out of 294 were found infected and the prevalence of infection was 0.68%. This parasite is white in color. The body is cylindrical in shape and aspinose. The body wall is a thin cuticle, beneath which lies a syncytial hypodermis. The proboscis is cylindrical in shape, situated at the anterior end of the body and armed with recurved sclerotized hooks.

Male: Body is cylindrical in shape, medium sized and 1.9–2.99 mm. in length and 0.58–0.98 mm. in width. The lacunar system has two median vessels and numerous longitudinal and circular anastomoses. Proboscis receptacle is inserted in the inner side of proboscis (Fig. 1A & plate 1A). Lemnisci is filliform, with central canal and numerous nuclei. The testes are situated in the mid-region of the body, each one measures about 0.14–0.15 mm. in length and 0.10–0.11 mm. in width (Fig. 1B & plate 1A, E).

Female: Body is cylindrical in shape and measures 1.9–3.1 mm. in length and 0.56–0.77 mm. in width (Fig. 1C & plate 1B). The proboscis is cylindrical in shape and armed with many recurved sclerotized hooks which are arranged in rows (Fig. 1C & plate 1C). Proboscis receptacle is inserted in the inner side of proboscis.

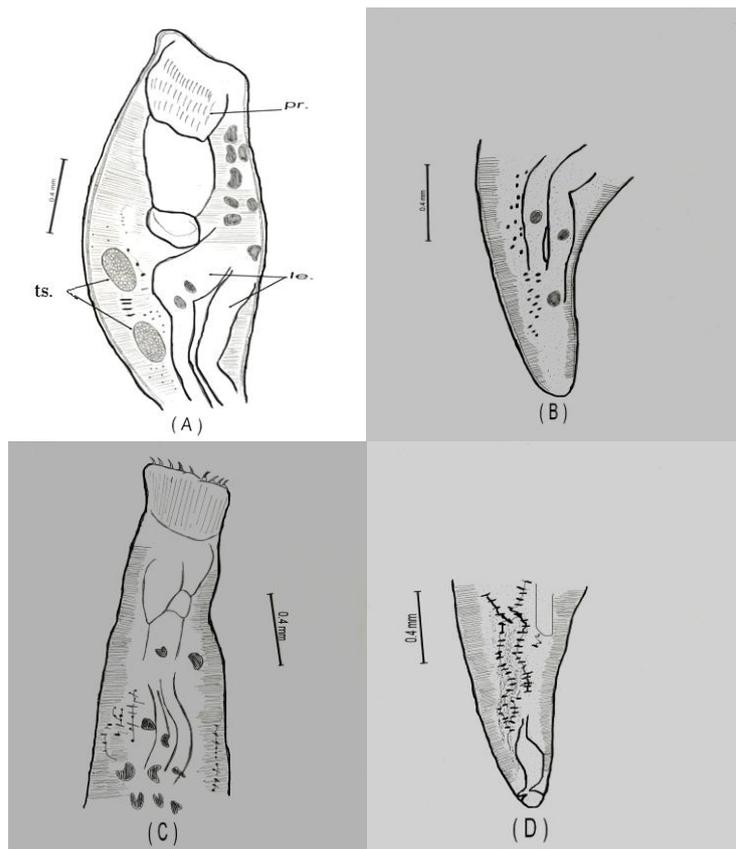


Fig. (1): Camera Lucida drawings of *Oligacanthorhynchus ricinoides* illustrate A) Anterior part of male showing (pr.= proboscis, le.= lemnisci and ts.= testes) B) Posterior part of male C) Anterior part of female and D) Posterior part of female.

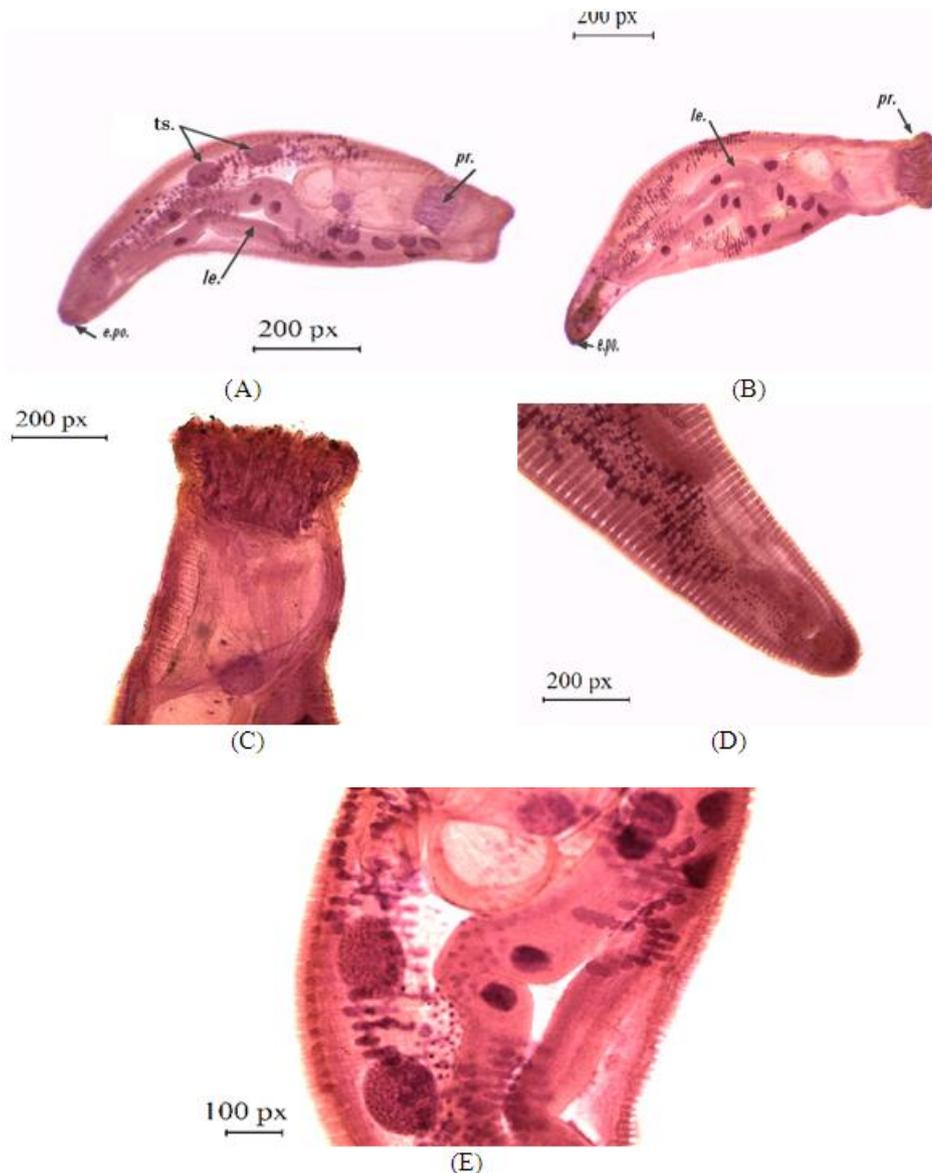


Plate (1): photomicrographs of *Oligacanthorhynchus ricinoides* illustrate A) The entire male showing (pr.= Proboscis, le.= lemnisci, ts.= testes and e. po.= excretory pore) B) The entire male showing (pr.= Proboscis, le.= lemnisci and e. po.= excretory pore) C) Anterior end of female D) Posterior end of female and E) The mid-region of male.

IV. Discussion

The morphological characters of the present acanthocephalan parasite coincide with those of the family Oligacanthorhynchidae, Southwell and Macfie 1925, and the genus *Oligacanthorhynchus*, Travassor, 1915. Petrochinko (1916) devised a system based heavily on acanthor spination in which the Acanthocephala were divided into three subclasses: Neoechinorhynchinea, Echinorhynchinea and Gigacanthorhynchinea. Yamaguti (1963) arranged the acanthocephala into four orders; Neoechiinorhynchidea, Echinorhynchidea, Gigacanthorhynchidea and the new order Apororhynchidea.

According to Yamaguti, *Oligacanthorhynchus* is characterized by the following:

Body cylindrical, of medium to large size, smooth or irregularly annulated. Lacunar system with two median main vessels and numerous longitudinal and circular anastomoses. Protonephridial organ present. Proboscis more or less globular, somewhat longer than wide. Proboscis hooks stout, in laeotropic spiral rows, with their point obliquely cut and their root produced forwards. Proboscis receptacle consisting of a thick inner wall which is attenuated ventrally, and a thinner outer wall; inner wall inserted into inside of proboscis but outer wall inserted at base of neck. lemnisci filiform, with central canal and numerous nuclei. Testes and cement glands far posterior. Cement glands 8, in pairs or not. Eggs almost spherical, with shells radially striated. Parasites of birds. Intermediate hosts snakes.

2) *Pachysentis ehrenbergi*

Family : Oligacanthorhynchidae Petrochenko, 1956
Subfamily : Oligacanthorhynchinae Southwell & Macfie, 1925
Genus : *Pachysentis* Meyer, 1931
Species : *ehrenbergi*

The present acanthocephalan parasite was collected from the body cavity of *Mabuza quinquetaeniata*. 16 out of 294 were found infected and the prevalence of infection was 5.4%.

Male: The body is cylindrical in shape and aspinose and measures 3-3.9 mm. in length and 0.81-0.84 mm. width. The proboscis is relatively circular and measures 0.46-0.49 mm. in length and 0.38-0.42 mm. in width and armed with longitudinal rows of recurved sharped hooks. Each row includes 18 hooks (Fig. 2A & Plate 2A). The proboscis receptacle is cylindrical in shape, double walled and measures 0.89-0.95 mm. in length and 0.36-0.40 mm. in width. The testes are oval in shape and measures 0.20-0.26 mm. in length and 0.10-0.14 mm. in width (Plate 2B).

Female: The body is cylindrical in shape and aspinose and measures 2.6-3.7 mm. in length and 0.78-0.83 mm. in width. The proboscis is relatively circular and measures 0.40-0.46 mm. in length and 0.37-0.43 mm. in width. and armed with longitudinal rows of recurved sharped hooks. Each row includes 18 hooks (Fig. 2A & Plate 2A). The proboscis receptacle is cylindrical, double walled and measures 0.80-0.95 mm. in length and 0.36-0.39 mm. in width.

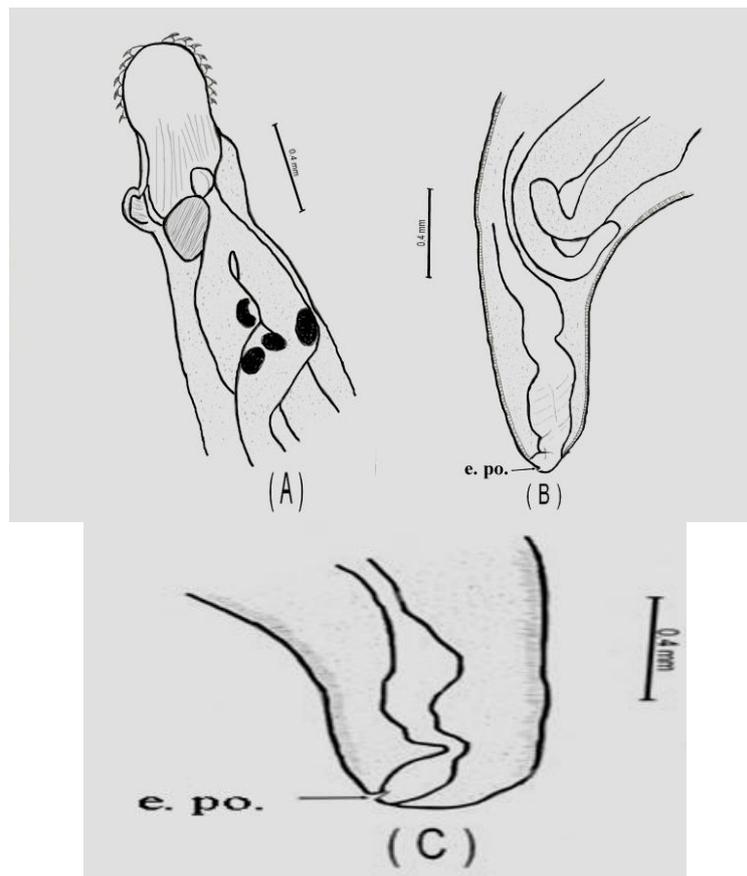


Fig. (2): Camera Lucida drawings of *Pachysentis ehrenbergi* illustrate: A) Anterior end of the worm, B) Posterior end of male showing (e. po.= excretory pore) and C) Posterior end of female showing (e. po.= excretory pore)

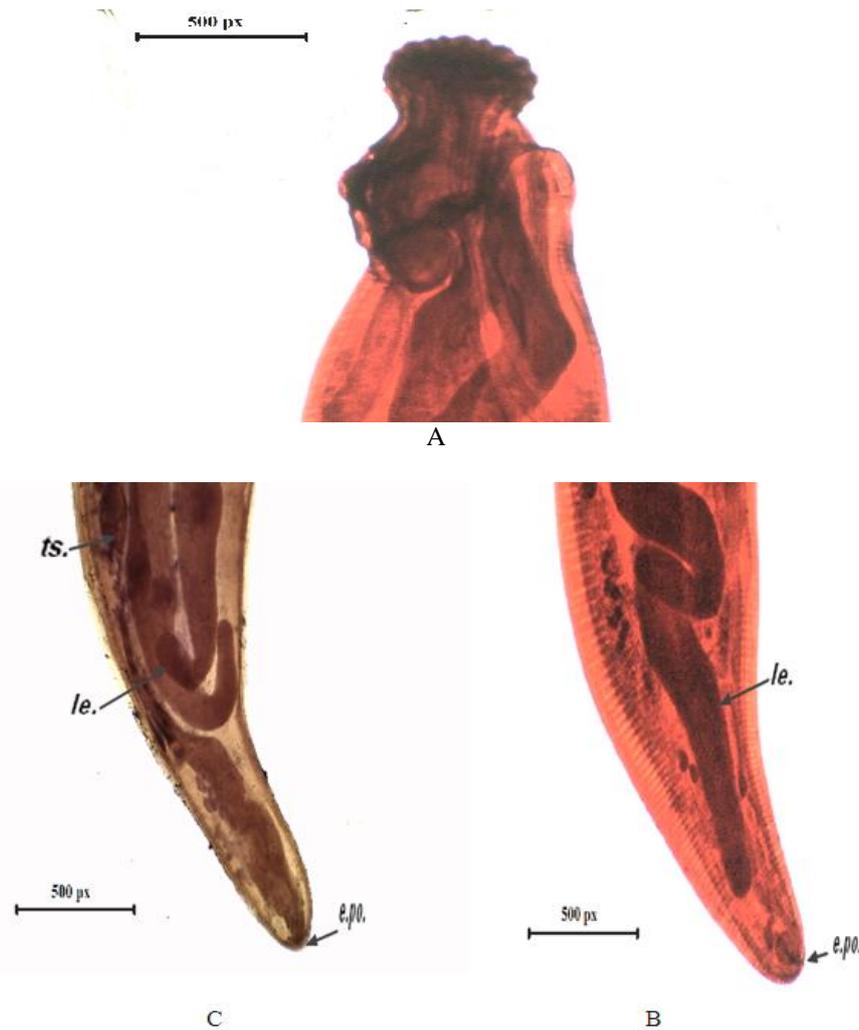


Plate (2): Photomicrographs of *Pachysentis ehrenbergi* illustrate: A) Anterior end of the parasite, B) Posterior end of male showing (le.= lemnisci, ts.= testes and e.po.= excretory pore) and C) Posterior end of female showing (le.= lemnisci, and e. po.= excretory pore).

V. Discussion

The morphological characters of the present acanthocephalan parasite coincide with those of the family Oligacanthorhynchidae, Southwell and Macfie 1925, and the genus *Oligacanthorhynchus*, Travassos, 1915. Yamaguti (1963) arranged the Acanthocephala into four orders; Neoechiinorhynchidea, Echinorhynchidea, Gigacanthorhynchidea and the new order Apororhynchidea. *Pachysentis* (Meyer, 1931) is characterized by the following:

-Trunk fairly wide in proportion to length. Anterior half commonly wider than posterior half. Proboscis subspherical, with 12 longitudinal, regularly or irregularly alternating, straight or crooked rows of 3 to 12 hooks each, total of 42 to 102. Larger hooks with complex manubria and roots, remaining spines rootless. Tips of hooks with or without barbs. Testes tandem, at least 1 preequatorial. Cement glands compact, 8 in number, each with single giant nucleus. Eggs with sculptured outer membrane. Parasites of carnivore. Meyer (1931) proposed *Pachysentis* to include *P. ehrenbergi* Meyer, 1931; *P. canicola* Meyer, 1931; and *P. procumbens* Meyer, 1931, all from Brazilian or Egyptian carnivores. No additional species have been described under this generic name. Meyer (1931) also established Pachysentidae, a family rejected by Van Cleave (1952), and Golvan (1962), but accepted by Petrochenko (1958), who misspelled it as Pachisentidae throughout most of his monograph. The facies of *Pachysentis* are identical with *Oncicola* except, "mit mehr als 36 Proboscishaken," (Meyer, 1933). Hence, *P. ehrenbergi* has 102 hooks arranged in 12 spiral rows of 8 or 9; *P. canicola* has 72 hooks arranged in 12 irregular rows of six each; *P. procumbens* has at least ("mindestens") 90 hooks, but their arrangement has not been described. *Pachysentis angolensis* (Golvan, 1957) comb. n. has 42 hooks arranged in 12 regularly alternating rows of three and four each. The artificiality of separating *Pachysentis* from *Oncicola* on the basis of more than 36 hooks is obvious, particularly since a few species otherwise conforming to *Oncicola* have only 30 hooks. Yet, for the sake of convenience it seems best to let the genus stand at this time.

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