

***Pulluterina karachiensis* sp.n. (Cestoda: Anaplocephalidae) from the Wild Pigeon *Columba livia* Gmelin**

Rafia Rehana GHAZI

Tropical Agricultural Research Centre, Karachi University Campus, P. O. Box 8401 - KARACHI

Nassira KHATOON, Sofia MANSOOR

Department of Zoology, University of Karachi, 75270 - KARACHI

Fatima Mujib BILQEES

Department of Parasitology Baqai Medical University - KARACHI

Received: 08.12.2000

Abstract: A new species, *Pulluterina karachiensis*, is described from the common pigeon *Columba livia* Gmelin in Karachi. The new species is characterized by possessing small suckers; a longer neck; fewer testes, smaller in size, and the comparatively smaller size of ova. This is the second species of the genus from Pakistan and third in the literature.

Key Words: *Pulluterina karachiensis*, Anaplocephalidae, Wild Pigeon, *Columba livia*.

Yabani Güvercin *Columba livia* Gmelin'den *Pulluterina karachiensis* sp.n. (Cestoda: Anaplocephalidae)

Özet: Yeni bir tür, *Pulluterina karachiensis*, Karachi'de bulunan bayağı güvercin *Columba livia* Gmelin'den tanımlanmıştır. Yeni türün ayırt edici özellikleri arasında küçük emicileri, daha uzun bir boynu, daha az sayıda ve daha küçük olan testisleri ve nispeten küçük yumurtaları vardır. Bu tür, *Pulluterina* cinsinin Pakistan'da ikinci literatürde üçüncü türüdür.

Anahtar Sözcükler: *Pulluterina karachiensis*, Anaplocephalidae, Yabani Güvercin, *Columba livia*

Introduction

Columba livia the common pigeon, is found almost in all parts of the world. It is adapted to a very wide variety of habitats and can travel long distances, being a strong flyer. It tends to be gregarious in roosting and feeding. The literature reveals that this bird is parasitized by a number of external and internal parasites. The most common among the internal ones are the gut-tape worms of the genus *Raillietina* Fuhrman, 1920. Heavy infections tend to cause blockage of the gut of the host bird with secondary interactions causing damage to the intestinal tissues.

The present paper deals with a new species of the tape worm genus *Pulluterina* Smithers 1954 from the small intestine of the common wild pigeon *Columba livia* Gmelin in Karachi.

Materials and Methods

Wild pigeons *Columba livia* were bought from different areas of Karachi including the Empress Market during June to October, 1997. These were autopsied in order to examine the helminth parasites. The cestodes thus recovered from the small intestine were preserved in 70% ethyl alcohol. Later these were pressed lightly between two glass slides and tied up lightly and kept in F.A.A. solution for 24 hours. Later the cestodes were dehydrated in graded series of alcohol and stained with Mayer's Carmalum, cleared in clove oil, washed with xylene and mounted permanently in canada balsam.

The specimens were numbered and deposited in the Helminthological Collection of the senior author. Measurements are length by width in millimeters unless otherwise indicated.

***Pulluterina karachiensis* sp.n.**

(Figures 1-7)

Type host	: <i>Columba livia</i> Gmelin
Site of infection	: Small intestine
Locality	: Karachi city
Number of hosts examined	: 18
Number of specimens recovered	: 10
Date of collection	: July, 1997
Syntype No.	: KUDZ 01-07

The description is based on eight whole mount stained specimens with a single scolex. Length of strobila 170-285 mm, maximum width attained at the level of mature segments 5.8 mm. Scolex simple, rounded 0.6 by 0.97 in size. Rostellum and rostellar hooks absent. Suckers small, well developed, aspinose 0.19-0.2 in diameter. Neck long, 1.10 by 0.58 in size. Immature segments approximately 40-50 in number, broader than long, but smaller than the mature segments. Mature segments 50-80 in number, broader than long, 0.78-1.44 by 4.76-5.88 in size. Ovary variable, median or mostly poral in fully mature segments. The ovary is fairly well developed and consists of a large number of follicles arranged in a fan like manner. In most of the segments the ovary appears as a two-winged structure, poral portion 0.45-0.5 by 0.4-0.5 in size while the aporal part is 0.35-0.45 by 0.6-0.64 in size, vitellaria compact, posterior to ovary touching the posterior wall of the segment 0.35-0.45 in diameter. Seminal receptacle quite prominent, placed between the ovary and the yolk gland in fully mature segments, smaller in size than the yolk gland 0.21-0.24 in diameter. Testes numerous, not more than a hundred in fully mature segments, placed lateral to the ovary on each side, 38-41 on the aporal side and 31-36 in number on the poral side 0.04-0.05 in diameter. Early gravid segments nearly as broad as the mature segments 0.72-0.75 x 4.60-4.65 in size. Uterus in early gravid segments first appears as a bulbous, roughly globular structure situated either on the poral or aporal side of the segments (Figure 3) 0.21-0.35 by 0.47-0.49 in size, in later segments this structure develops more

spontaneously in size on either side of the segments (Figure 4) with reducing ovary and testes to some extent. In more gravid segments the uterus has a horizontal tubular structure, giving off longitudinal branches (Figure 6). In fully gravid segments the uterus occupies the whole space, giving off longitudinal branches in upper and lower directions inside the segments (Figure 7). The gravid segments measure 1.42-1.52 x 4.22-4.64 in size. Genital openings marginal, situated slightly in front of the middle of the lateral margin, irregularly placed throughout the strobila. Cirrus pouch small, somewhat pyriform, 0.12-0.14 x 0.29-0.32 in size, internal seminal vesicle not obvious. Vagina posterior to cirrus sac. Eggs rather rounded in shape, larger in size, 0.08-0.11 by 0.08-0.11, evident in the last gravid segments.

Discussion

The genus *Pulluterina* (Smithers, 1954) is only known by its type species *P. nestoris* in New Zealand. (1) *P. columbiae* is the second species of the genus reported from the common pigeon *Columba livia* in Lahore, Pakistan (2). The present specimens were also collected from the small intestine of the common pigeon in Karachi. These are closer to *P. columbiae* in all the general morphological characters but the main differences noted are as follows. In *P. columbiae* the length of the strobila is 156-885 x 5.25 whereas present specimens are 170-285 by 5.88 mm wide. The scolex in the present specimens is well developed with four aspinose suckers, while in *P. columbiae* the scolex is stated to be poorly developed. Neck is absent in *P. columbiae* while in the present specimens the neck is obvious and 1.1 long. Testes in *P. columbiae* are more than 100 (up to 150) in number, while in the present specimens the testes are less than 100 in number (69-77) and smaller in size. In *P. nestoris* the testes are numerous (more than 150), filling the entire segment around the expanded fan-shaped ovary. The cirrus sac in the present specimens is slightly larger in size. The egg size differs greatly. In the present specimens the eggs are rounded in shape and measure 0.08-0.11 by 0.08-0.11 in size, while in *P. columbiae* these measure 1.30-1.42 by 3.60-4.85. Besides some dimensional differences, the main differentiating character's are smaller suckers; presence of a long neck; fewer testes, smaller in size; and smaller eggs. These differences suggest the proposal of a new

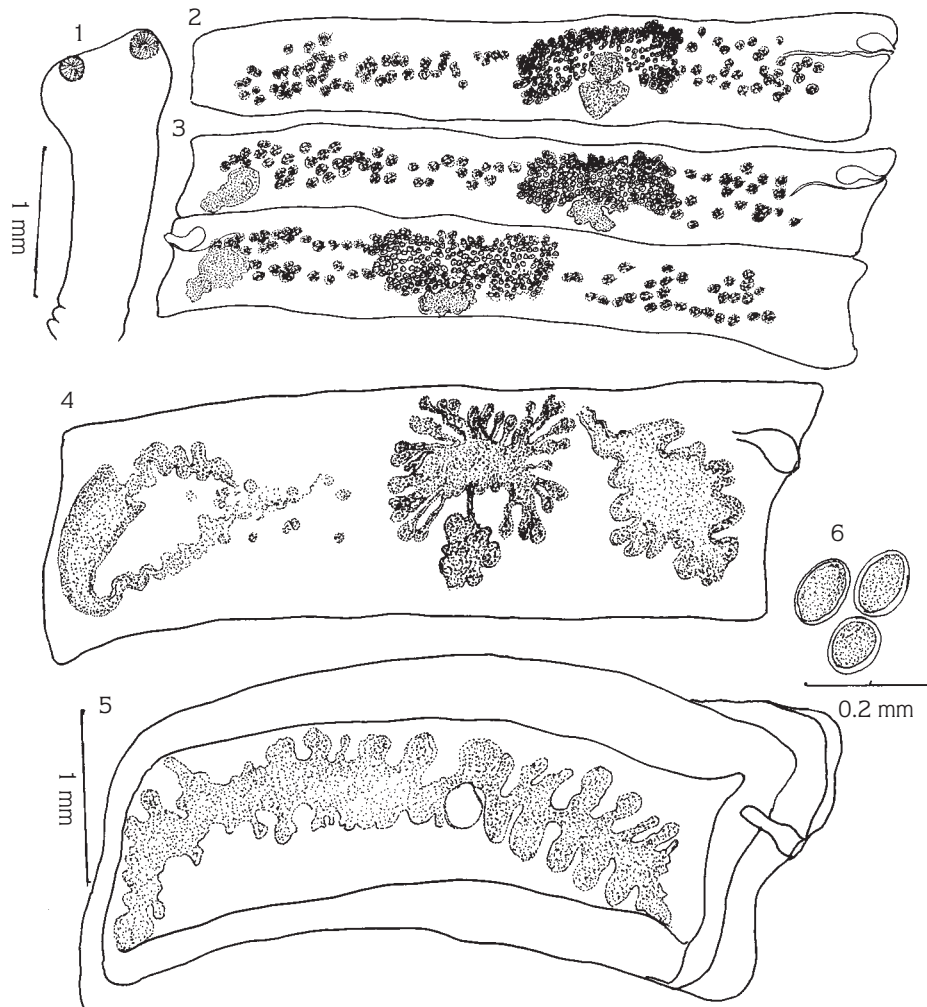


Figure 1. Scolex, lateral view.
 Figure 2. Mature segment.
 Figure 3. Early gravid segments.
 Figure 4. Early gravid segment, later stage.
 Figure 5. Gravid segment.
 Figure 6. Uterine eggs.

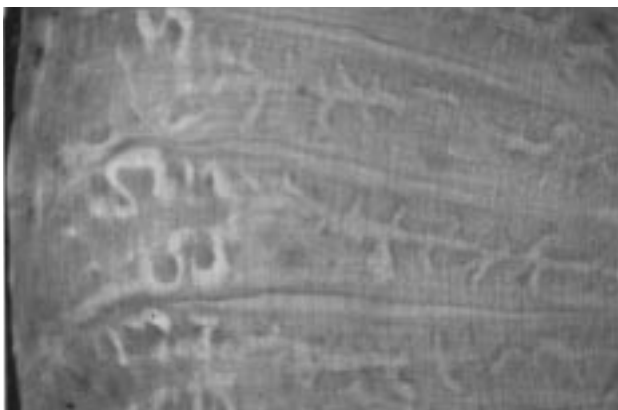


Figure 7. Gravid segment, photomicrograph

species, *Pulluterina karachiensis*. The species name refers to the locality from where the host bird was bought and examined for helminth parasite screening.

Acknowledgements

This work was supported by a grant provided to the second author from Dean Faculty of Science and Research Facility by the Chairman Department of Zoology, University of Karachi, is gratefully acknowledged.

References

1. Schmidt, G. D. CRC Handbook of Tapeworm identification. CRC Press, Inc. Florida, pp. 675, 1986.
2. Khan, D. and Habibullah. Avian cestodes from Lahore, Pakistan Bull. Dept. Zool. Univ. Punjab (N.S.) Article 1, pp. 1-34, 1967.