

**NEW LOCALITY AND HOST RECORD OF THE GENUS  
CHOANOTAENIA RAILLIET, 1896 (CESTODA: DILEPIDIDAE)  
FROM THE BIRD *STREPTOPELIA SENEGALENSIS*  
(LAUGHING DOVE) IN HYDERABAD, SINDH, PAKISTAN**

**S. Bushra<sup>1\*</sup>, N. Das Sanjota<sup>1</sup>, A.R. Abbasi<sup>2</sup>, Aly Khan<sup>3</sup> and R.R Ghazi<sup>4</sup>**

<sup>1</sup>Department of Zoology, University of Sindh, Jamshoro, Sindh, Pakistan

<sup>2</sup>Department of Fisheries, University of Sindh Jamshoro, Pakistan

<sup>3</sup>Crop Diseases, Research, Institute (CDRI), Karachi University Campus, Karachi, Pakistan

<sup>4</sup>Vertebrate Pest Control Laboratory, Southern Zone Agricultural Research Centre,  
University of Karachi, Karachi, Pakistan

\*Corresponding author's email: syalbushra@gmail.com

**ABSTRACT**

During a survey of helminth parasites of bird *Streptopelia senegalensis* (Laughing dove) of Hyderabad District, Sindh Pakistan, fifteen specimens were recovered from the small intestine of 07 bird hosts. Present specimens are closer to the species *Choanotaenia gondwana* (Inamdar, 1934) Khan and Habibullah, 1967 in specific characters such as shape of segments, approximately same number of taeniid hooks, shape and size of scolex, shape, size and position of ovary, size of cirrus sac, almost same number and position of testes.

**KEYWORDS:** *Choanotaenia gondwana*, *Streptopelia senegalensis*, Hyderabad, Sindh, Pakistan.

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**INTRODUCTION**

The genus *Choanotaenia* is common and widespread in scrub, dry farmland. This is found in much of Sub-Saharan Africa, Saudi Arabia, Iran, Afghanistan, Pakistan and India (Inamdar, 1934; Khan and Habibullah, 1967). It is mainly but not entirely restricted to villages and surrounding farmlands. They are mostly sedentary but some populations may make movements. Birds ringed in Gujarat have been recovered 200 km North in Pakistan. The habits of the Laughing dove and its dependence on man's activities for food predisposes it as a wildlife that is easily trapped and killed.

Three species reported from Pakistan are: *C. infundibulum* (Bloch, 1779) Khan and Habibullah, 1967 in Lahore; *C. galbulae* (Gmelin, 1790) Khan and Habibullah, 1967 in Karachi. *C. gondwana* (Inamdar, 1934) Khan and Habibullah, 1967 reported in Lahore.

However, the present study represents a first record and new locality of the genus *Choanotaenia* from *Streptopelia senegalensis* (Laughing dove) from Hyderabad, Sindh, Pakistan.

**MATERIAL AND METHODS**

Seven birds *Streptopelia senegalensis* (Laughing dove) were shot down from Hyderabad at random intervals and brought to the parasitology laboratory, Department of Zoology, University of Sindh, Jamshoro, Pakistan. The birds were dissected and examined for collection of internal Helminth parasites. During examination 15 mature

specimens were collected from small intestine of seven birds. Later these specimens were fixed in hot steaming 70% ethanol, where trematodes expand and instantly die. Later the specimens were gently placed over clean glass slide, pressed lightly with another, tied with thread and fixed in F.A.A. solution (Formalin, Acetic acid and 70% ethanol prepared in a ratio of 6: 2.5: 100) for twenty four hours, stained with Mayer's carmalum, dehydrated in graded series of ethanol, cleared in clove oil and rinsed with xylene. Finally, the specimens were permanently mounted in Canada balsam for further study. Line drawings were prepared with the aid of a camera Lucida. Body measurements (Length and width) are given in millimeters (mm). Photomicrograph was prepared through Olympus Digital microscope MIC-D at SARC/ PARC, Karachi University campus. Specimens are deposited in senior author's collection, Department of Zoology, University of Sindh, Jamshoro.

***Choanotaenia gondwana* (Inamdar, 1934) Khan and Habibullah, 1967  
(Figs. 1. A-F)**

Host:	<i>Streptopelia senegalensis</i> (Laughing dove)
Locality:	Hyderabad, Sindh, Pakistan
Site of infection:	Small intestine
Number of hosts examined/ infected:	07/05
Number of specimens recovered:	15
Prevalence:	71.42%

Description is based upon fifteen permanently mounted specimens with eleven Scolicies

Total length of strobila 10-15.5 cm, maximum width attained at mature segments.

Scolex rounded at the base and conical at the anterior end 0.16-0.171 (0.165) by 0.15-0.153 (0.151), with an elongated, well evaginated rostellum 0.09-0.095 (0.093) by 0.045-0.047 (0.046), provided with a circle of twelve to fourteen large taeniid-shaped hooks 0.021-0.035 (0.030). Suckers large unarmed, rounded in shape 0.06-0.07 (0.066) by 0.043-0.052 (0.047).

Neck apparently absent. Immature proglotids craspedote, approximately 113-125 in number. Partly mature proglotids are approximately 40-45 in number. Fully mature segments are broader than long 0.83-0.92 (0.886) by 0.84-1.16 (0.756). In some specimens, mature segments are longer than broad.

Ovary bi-lobed, situated in medium part of the segment, each lobe with irregularly small scattered lobes 0.25-0.27 (0.266) by 0.52-0.55 (0.538).

Vitellaria compact, post ovarian, roughly rounded in shape 0.82-1.1 (0.905) by 0.14-0.17 (0.16) in size.

Testes rounded, numerous 09-13 in number in each mature segment, located beyond the ovary, measure 0.05-0.08 (0.068) by 0.07-0.09 (0.076). In some segments the testes cross the excretory canals.

Cirrus pouch un-spined, extravascular, globular, lies in mid of the segment throughout the strobili, ending near the ovary. Cirrus sac continuous into narrow convoluted vas deferens, measure 0.27-0.3 (0.286) by 0.15-0.19 (0.171).

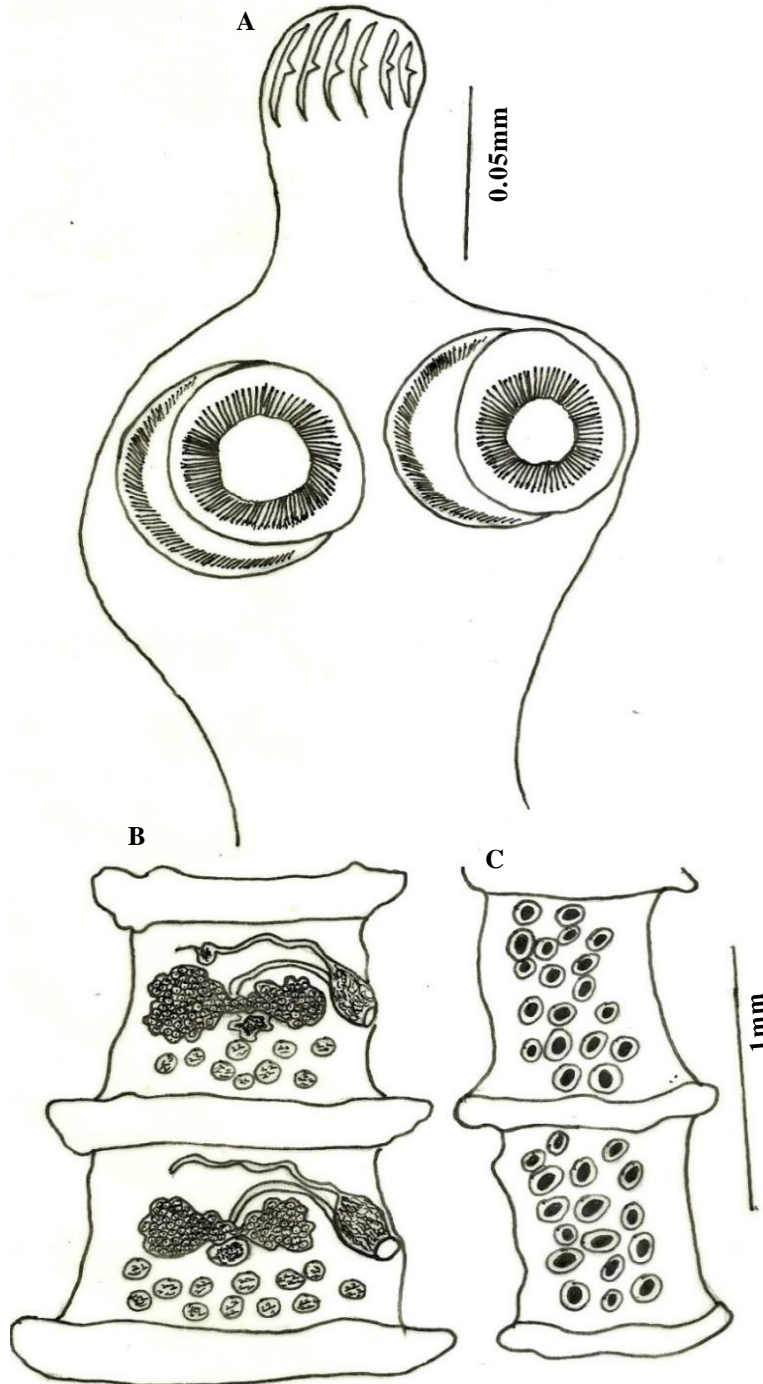


Fig. 1A-C. *Choanotaenia gondwana* (Inamdar, 1934) Khan and Habibullah, 1967 (A-F).  
A. Enlarged scolex, B. Mature segments, C. Gravid segments



Fig. 1D. *Choanotaenia gondwana* (Inamdar, 1934) Khan and Habibullah, 1967  
D. Enlarged scolex, Photomicrograph 200x



Fig. 1E-F. *Choanotaenia gondwana* (Inamdar, 1934) Khan and Habibullah, 1967 (A-F)  
E. Mature segments, Photomicrograph 78x  
F. Gravid segments, Photomicrograph 90x

Genital ducts pass between the excretory canals. Genital pore lie in the middle of the segment, irregularly alternate throughout the strobila.

Vagina is posterior to the cirrus sac as a simple tube but enlarges into rounded receptaculum seminis. It runs parallel to the cirrus pouch to open just posterior to the male genital pore.

Gravid segments longer than wide 0.9-0.99 (0.953) by 0.55-0.65 (0.608), contain sac like uterus, filled with egg capsules, each containing one egg. The number of gravid segments are approximately 110-120.

## DISCUSSION

Fairly good number of species of the genus *Choanotaenia* Railliet, 1896 have been reported from avian hosts all over the World. Species of the genus have been recorded from Pakistan, India, Africa, Europe; Russia, Queensland W. Siberia, France, Nebraska, Egypt, Morocco, Japan, Brazil, Indochina, Colorado, Kuvelai, etc. Species reported from India are *Choanotaenia gondwana* Inamdar, 1934 reported in *passer domesticus* (House sparrow); *C. manipurensis* Patwardhan, 1935 in Snipe; *C. hypolucia* Singh, 1952 in *Tringa hypoleucos* (Common sandpiper) from Lucknow; *C. bhattacharai* Chatterji, 1954 in *Querquedula querquedula* (Garganey); *C. aurantina* Singh, 1958 in *Sterna aurantia* (River tern); *C. micracantha* (Chishti *et al.*, 1986) Dar *et al.*, 2013 in *Corvus monedula* (W. jackdaw).

Species reported from Africa are *C. globulus* (Wedl, 1855) Clerc, 1903; *C. polyorchic* (Klaptocz, 1908); *C. abassena* Joyeux, Baer *et* Martin, 1936; *C. cayennensis* Joyeux *et* Baer, 1939 and *C. joyeuxi* Tseng, 1932.

Species reported from Europe are *C. infundibulum* (Bloch, 1779) Hilmy, 1936; *C. crateriformis* Goeze, 1782; *C. globulus* (Wedl, 1855) Clerc, 1903; *C. cingulifera* Krabbe, 1869; *C. citrus* Krabbe, 1869; *C. microphallos* (Krabbe, 1869) Clerc, 1903; *C. musculosa* Fuhrmann, 1896; *C. polyorchic* Klaptocz, 1908 and *C. discoidea* (Joyeux *et* Bear, 1943) Clerc, 1903.

Three species reported from Pakistan are: *C. infundibulum* (Bloch, 1779) Khan and Habibullah, 1967 in Lahore; *C. galbulae* (Gmelin, 1790) Khan and Habibullah, 1967 in Karachi. *C. gondwana* (Inamdar, 1934) Khan and Habibullah, 1967 reported in Lahore.

Mcorist *et al.* (1984) reported avian pathology associated with diarrhea and mortality in finches due to cestode infection, identified as *Choanotaenia* spp. the authors also gave results of treatment trials.

Rausch and Mckown (1994) reported *Choanotaenia atopa* from a domestic cat in Kansas.

Rausch (1948) reported cestodes in North American owls with description of *Choanotaenia speotoy* as a new species.

Present specimens are recovered from *Zenaida macroura* (Dove), while *C. infundibulum* is reported from *Milvius migrans*; *C. gondwana* from *Passer domesticus* and *C. galbulae* from *Corvus splendens* in Pakistan.

In the present specimens, the length of strobila is 10-15.5cm, while in *C. infundibulum* it is 3.79-12.00; in *C. gondwana* it is 14.5-15.0 and in *C. galbulae* length of strobila is 14.5-15.6.

In the present specimens scolex is rounded at the base and conical at the anterior end, rostellum is well developed with 12-14 large taeniid hooks 0.021-0.035, while in *C. infundibulum* scolex is also dome shaped, rostellum with 20 hooks, 0.023-0.027 in length;

in *C. gondwana* scolex shape approximately match with present specimens but rostellum is conical with 12-14 hooks, 0.01 in length; in *C. galbulae* scolex is rounded, rostellum with 21 number of hooks and 0.035-0.041 in length.

In the present specimens segments are craspedote, mature segments are broader than long and gravid segments are longer than wide with a sac like uterus, finally breaking into capsules, each capsule contain one egg, while in *C. infundibulum*; *C. gondwana*; *C. galbulae* mature segments are also broader than long and gravid segments are longer than wide.

In the present specimens ovary is median, bi-lobed, lie in mid of the segment, each lobe scattered with slightly small lobes, while in *C. infundibulum* it is wing shaped, lobated, lie near the anterior margin of the segment; in *C. gondwana* ovary lies in the median part of the segment, bi-lobed, each lobe with large number of irregularly scattered lobes.

In the present specimens testes are 09-13 in number, conspicuous, placed beyond the ovary, in few specimen's testes cross the excretory canals, while in *C. infundibulum* testes are 28 in number, lie behind the ovary; in *C. gondwana* the testes are 17 in number, confined to the post ovarian space and extend laterally up to the longitudinal excretory canals and in *C. galbulae* the number of testes are 31 to 37, lie in the posterior half of the segment, confined to the middle region and do not extend beyond the excretory canals.

In the present specimens, the genital pore lies in the mid of the segment, irregularly alternating while in *C. infundibulum* and *C. gondwana* it is also irregularly alternating throughout the strobila and lies in the anterior of the segment; in *C. galbulae* it is also alternating irregularly and lies at about a quarter of the length from anterior margin of each segment.

In the present specimens cirrus sac is small, globular not crossing the excretory canals and lie in mid of the segment, while in *C. infundibulum* it is very long and thin, crossing the longitudinal excretory canals and ending near the ovary, lies at anterior part of the segment; in *C. gondwana* cirrus sac is elongated, crossing the excretory canals and extend near the middle of the segment and lies in the anterior part of the segment.

## CONCLUSION

The present specimens resemble *Choanotaenia gondwana* in general shape of segments, approximately same number of taeniid hooks, shape and size of scolex, shape, size and position of ovary, size of cirrus sac, almost same number and position of testes, while some minor differences are noted in the size of strobila, size of suckers, segments, gonads and different host and locality. The present specimens are, therefore, regarded as *C. gondwana* from a new host *Streptopelia senegalensis* from Hyderabad, Sindh, Pakistan.

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