

***ECHINOSTOMA CRIBBI* SP.N. (TREMATODA: ECHINOSTOMATIDAE) IN A BIRD FROM DISTRICT MATIARI, SINDH, PAKISTAN**

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**Abstract**

*Echinostoma cribbi* sp.n. is being described here, collected from the small intestine of the bird cattle egret (*Bubulcus ibis* Linn., 1758). The new species is characterized by 38–40 collar spines absence of esophagus, having contiguous ovary and testes, anterior testis smaller as compared to posterior testis and a different host and locality. This is the ninth species of *Echinostoma* Rud., 1809 being reported from a bird of Pakistan.

**Introduction**

Cattle egret (*Bubulcus ibis* Linn., 1758) is a cosmopolitan species of heron. This is migratory bird nests in colonies usually near bodies of water and frequently with other wading birds and feeds on aquatic prey and terrestrial insects (Khan *et al.*, 2015, Siegfried, 1971). The relation between animal and human with cattle egrets is not always beneficial as they have implicated in the spread of animal infections such as Newcastle disease and can be a safety hazard to aircrafts when found in large groups (Fagbohun, *at al.*, 2000, Paton, *et al.*, 1986). In the present study a survey was conducted of trematodes associated with cattle egret in Matiari district, Sindh, Pakistan. The three specimens collected from small intestine belong to the genus *Echinostoma* Rudolphi (1809) and are being described herein.

**Materials and Methods**

Three trematode specimens were recovered from the small intestine of cattle egret (*Bubulcus ibis* Linn., 1758) during a survey conducted in 2013. All the three parasites were collected from the small intestine. Worms were collected by placing different parts of the viscera in separate troughs and then dissecting with the help of a sharp scissor. The specimens collected were slightly flattened between microscopic slides for 24 hrs. The worms were dehydrated in graded series of ethanol. Specimens were stained in Mayer's carmalum cleared in xylol and passed through clove oil for clearing and finally mounted permanently on slides in Canada balsam. The slides are in possession of the senior author (A.K.).

***Echinostoma cribbi* sp.n.**

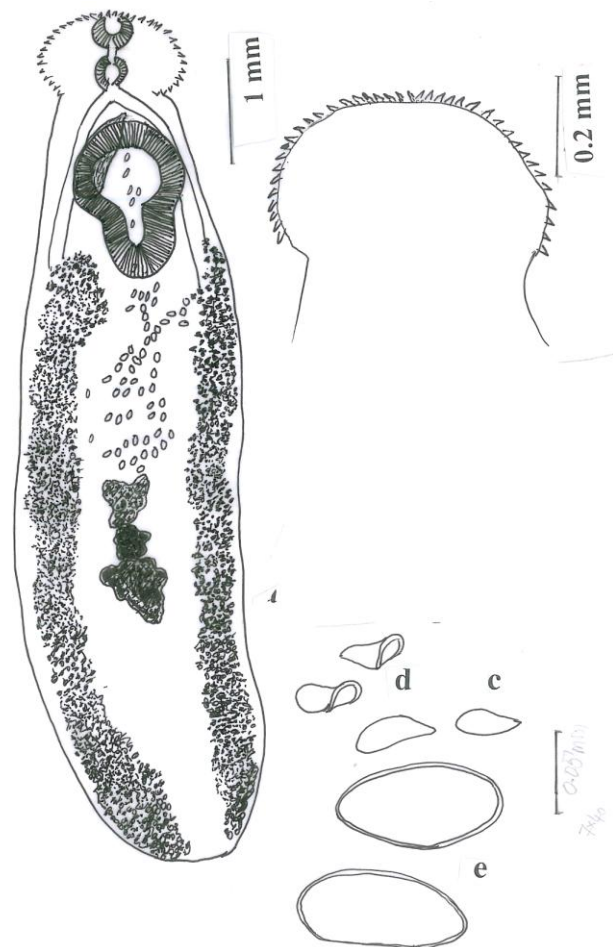
(Figs. 1a–e)

Host:	Cattle egret ( <i>Bubulcus ibis</i> Linn., 1758)
Locality:	Saraswati farm, district Matiari, Sindh, Pakistan
Location:	Small intestine
No. of host examined:	6
No. of specimens recovered:	3 from 2 hosts

**Description**

Body elongate, medium in size measuring 7.60–8.22 by 2.05–2.22 narrower in the anterior region, maximum width at the level of the testes. Head collar well developed with 38–40 spines, the spines on the lateral sides are somewhat curved. Tegment bearing small spines from neck region to acetabulum. Oral sucker almost round, small measuring 0.34 by 0.37 by 0.34 – 0.36. Prepharynx small measuring 0.22–0.34 by 0.20–0.24. Pharynx more or less rounded measuring 0.28–0.30 by 0.27–0.88. Esophagus absent. Acetabulum near anterior extremity, post caecal bifurcation, muscular, large at a distance of 0.98–1.15 from the oral sucker. The caeca reach to posterior end of the body. The distance between caecal bifurcation and acetabulum 0.20–0.23. Cirrus sac elongated, somewhat overlapping acetabulum. The genital pore lies posterior to caecal bifurcation and little anterior to acetabulum. The distance between caecal bifurcation and acetabulum 0.090–1.10. Ovary median pre-testicular at a distance of 1.70–1.84 from acetabulum trilobed contiguous with the testes measuring

0.42–0.56 by 0.40–0.48. The anterior testis lobed, median, smaller as compared to posterior testis. The distance between posterior testis and posterior end of the body 2.27–2.45. The anterior testis measures 0.32–0.35 by 0.31–0.35 while the posterior measures 0.60–0.63 by 0.59–0.63. Vitellaria surrounding caeca from the posterior third of acetabulum to the end of the body. Uterus having moderate loops between acetabulum and ovary. Excretory vesicle Y-shaped. Eggs oval to elongate, few, with smooth walls, measuring 0.095–0.097 by 0.046–0.051.



1. *Echinostoma cribbi* sp.n.

a = Holotype entire, b = collar showing arrangement of spines

c = collar spines enlarged, d = collar spines of the sides enlarged, e = eggs, enlarged

## Discussion

The genus *Echinostoma* was erected by Rudolphi, 1809 to accommodate *E. revolutum* (Froelich, 1802) Looss, 1899 syn. *E. echinatum* (Zeder, 1803); *E. armatum* Molin, 1858; *E. revolutum* var. *japonicum* (Kurusu, 1932); *E. miyagawai* Ishii, 1932 and *E. paraulum* Dietz, 1909 in various aquatic and terrestrial birds, mammals, amphibians and humans (Yamaguti, 1971; Stillson and Platt, 2007; Belden, 2006; Grover *et al.*, 1998). The morphological diversity of the family Echinostomatidae Poche, 1926 have resulted in its subdivisions into 21 nominal subfamilies and 91 nominal genera (Jones *et al.*, 2005). Bushra *et al.*, (2014) reported that over hundred species of the genus have been reported from avian hosts.

From Pakistan a single species has been reported from mammal *E. bengalensis* Shafi *et al.*, 1886 and from bird eight including *E. revolutum* (Froelich, 1802) Rudolphi, 1809; Bhutta and Khan, 1975; *E. chloropodis* Bhutta and Khan, 1975; *E. lahorensis* Bhutta and Khan, 1974; *E. vallentini* Sanjota and Ghazi, 2011, *E. atraei* Birmani *et al.*, 2008; *E. megaovata* Dharejo, 2006; *E. sindhenses* Dharejo *et al.*, 2009 and *E. rafiae* Bushra *et al.*, 2014 from the host cattle egret this is the first record from Pakistan.

The present species comes closest to *E. vallentini* but differs in size of body which is smaller (5.5–6.4 by 0.7–0.9) as compared to the present species, shape of testes and ventral sucker, size of oral sucker is smaller

(0.12–0.13 by 0.16–0.18), presence of esophagus in *E. vallentini*, the present species, pharynx is smaller (0.15–0.17 by 0.07–0.009), a different host (*Phalacrocorax fuscicollis*) and different locality (Thatta, Pakistan).

As compared to other species reported from birds of Pakistan *E. vallentini*,

*E. atrae*, *E. megavota*, *E. sindhenses*, *E. chloropodis*, *E. revolutum* and *E. rafiae* which all have esophagus while it is absent in the present specimens. The present species is only smaller in size as compared to *E. rafiae*. The eggs in the present species are larger as compared to *E. atrae*, *E. vallentini*, *E. megavota*, *E. sindhenses*, *E. chloropodis*, *E. revolutum* and *E. rafiae*. Moreover, *E. chloropodis* and *E. revolutum* do not have prepharynx. The number of collar spines in the present species are (38–40) while in *E. vallentini* (35); *E. megavota* (35), *E. sindhenses* (50); *E. chloropodis* (46); *E. revolutum* (37) and *E. lahorensis* (45). All the species reported from Pakistan are from different hosts.

Accordingly, the present specimens is considered as a new species and named *Echinostoma cribbi*. The name is in honour of Dr. T.H. Cribb, University of Queensland, Brisbane, Australia.

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