

A NEW SPECIES OF *STRIGEA* ABILDGAARD, 1790 (DIGENEA: STRIGEIDAE) IN CATTLE EGRET (*BUBULCUS IBIS* LINN.) FROM SINDH, PAKISTAN

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Abstract

Strigea brayi n.sp. was obtained from the small intestine of cattle egret (*Bubulcus ibis* Linn.) from Sindh, Pakistan. The trematodes were present in four hosts. This new species is characterized by a small body which includes a forebody and a hindbody. The tegment is without spines or tubercles. Tribocytic oral bilobed, oral sucker small, pharynx slightly smaller than oral sucker, caeca reaching posterior end of body, ventral sucker in posterior half of forebody, ovary roughly oval, testes in middle of hindbody. Vitellaria confined to lateral fields of hindbody reaching up to caecal end, copulatory bursa large, eggs oval and large in size. Specific differences between *S. brayi* n.sp. and other species of the genus include body size, egg size, body shape and position of various structures. Species comparisons are included.

Introduction

Cattle egret (*Bubulcus ibis* Linn) is cosmopolitan species of heron (family Ardeidae) found in tropics, subtropics and warm temperature zones. The feeding habitats include pastures, seasonally inundated grasslands, farmlands, wetlands and rice paddies they usually accompany large mammals (cows and buffaloes).

The cattle egret feeds on wide range of prey, particularly insects especially grasshoppers, flies, cricket, spiders, moths, earthworm and frogs (Siegfried, 1971).

The cattle egret is a popular bird with cattle ranchers for its perceived role as biocontrol of cattle parasites flies and ticks. Fagbohun *et al.* (2000) have implicated this bird in the spread of Newcastle disease in animals.

The aim of this paper is to increase the knowledge of diversity of trematodes of birds in Sindh, Pakistan.

Materials and Methods

Sixteen birds (Cattle egret (*Bubulcus ibis* Linn) were caught from Oderolal Station, District Matiari, Sindh, Pakistan and were anaesthetized in the laboratory viscera were cut open in different Petri dishes. Five trematodes were recovered from four birds. The worms were thoroughly washed in saline solution to get rid of the mucus, the trematode were left in distilled water for a few minutes and then fixed in F.A.A. solution, dehydrated in graded series of alcohol, stained with Mayer's carmalum and subsequently whole worms were mount in Canada balsam.

Measurements are given length by width in millimeters. Drawings were prepared with the aid of camera Lucida. Holotype and paratype are in collection of the senior author (A.K.).

***Strigea brayi* sp.n.**

(Fig. 1a–b)

Host:	Cattle egret (<i>Bubulcus ibis</i> Linn.)
Locality:	Oderolal Station, District Matiari, Sindh, Pakistan.
Location:	Small intestine
No. of host examined/infected:	16 / 4
No. of specimens examined:	5

Description

Small trematodes, forebody clearly separated from hindbody, the hindbody curved, cylindrical larger than forebody. Total body length 1.58–1.88 by 0.42–0.47. The tegment is without spines or tubercles. The tribocytic organ is bilobed. Oral sucker small, spherical measuring 0.052–0.064 by 0.052–0.066. The pharynx is slightly smaller than oral sucker measuring 0.048–0.050 by 0.046–0.050. Esophagus not prominent, caeca reaching

posterior end of the body. Ventral sucker in posterior half of forebody at a distance of 0.32–0.38 from oral sucker, rounded, larger than oral sucker, sub-median measuring 0.15–0.17 by 0.14–0.15. Ovary at a distance of 0.44–0.49 from ventral sucker roughly oval measuring 0.10–0.12 by 0.10–0.11. The testes are in the middle of hindbody, tandem the anterior heart shaped while the posterior somewhat oval, the anterior larger as compared to the posterior, the anterior measuring 0.21–0.23 by 0.20–0.21, the posterior 0.15–0.18 by 0.13–0.15. The distance between posterior testis and posterior end of body measuring 0.34–0.37. Vitellaria confined to lateral fields of the hindbody reaching up to caecal end. Copulatory bursa large with genital cone delimited from body parenchyma and surrounded by a muscular ring. Eggs large, oval measuring 0.062–0.077 by 0.042–0.044.

Discussion

Abildgaard, 1790 erected the genus *Strigea* with *S. strigis* (Schrank, 1788) as its type species.

Yamaguti (1971) listed the following species of the genus *Strigea* namely *S. anhingae* Ukoli, 1968; *S. baylisi* Dubois, 1937; *S. bivolucris* (Das, 1952) Yamaguti, 1958; *S. brandivittellata* Belagurov, Maksimora et Tolkatcheva, 1967; *S. bulbosa* (Brandes, 1888) Szidat, 1928; *S. bursigera* (Brandes, 1888) Lühe, 1909; *S. caluri* Dubois, 1962; *S. caryophylla* (Dies, 1850) Mathias, 1925; *S. cuncumae* Bisseru, 1956; *S. egretta* Yang, 1962; *S. elegans* Chandler et Rausch, 1949; *S. elliptica* (Brandes, 1888) Szidat, 1928; *S. elongata* Yamaguti, 1935; *S. elongata* var. *indica* Verma, 1936; *S. falconis* Szidat, 1928; *S. falconis brasiliensis* Szidat, 1929; *S. falconis eaglesa* Verma, 1936; *S. falconis japonensis* Yamaguti, 1939; *S. falconis melagris* Harwood, 1931; *S. flosculus* Nicoll, 1914; *S. geoduboisii* Chabaud, Golvan et Rousselot, 1956; *S. glandulosa* Dubois, 1937; *S. globocephala* Verma, 1936; *S. gracilicollis* Dubois et Fain, 1956; *S. gruis* Dubois et Rausch, 1964; *S. infundibuliformis* Dubois, 1934; *S. intermedia* Szidat, 1932; *S. lilensis* Bisseru, 1956; *S. macroconophora* Dubois et Rausch, 1950; *S. macropharynx* Dubois et Rausch, 1956; *S. megregori* Tubanguai, 1932; *S. neotidis* Bisseru, 1956; *S. neophronis* Vidyarthi, 1937; *S. nicolli* Dubois, 1937; *S. nugax* Szidat, 1928; *S. orientalis* Vidyarthi, 1937; *S. plegadis* Dubinin, 1938; *S. promiscua* Nicoll, 1914; *S. pseudibis* Odening, 1962; *S. raabei* Bezubik, 1958; *S. rhodesiensis* Bisseru, 1956; *S. sarcogypnonis* (Vidyarthi, 1937) Dubois, 1966; *S. sphaerocephala* (Westrumb, 1823) *S. sphaerula* (Rud, 1803) Mathias, 1925; *S. sphaerula intermedia* Sudarikov, 1959; *S. sphaerula macrosicya* Dubois et Rausch, 1950; *S. streptocorpus* (Verma, 1936) Dubois, 1938; *S. suttoni* Dubois, 1937; *S. vaginata* (Brandes, 1888) Szidat, 1928 and *S. vandenbroekae* Dubois, 1936.

Dubois (1966) synonymised the following species, *S. elongata*, *S. falconis eaglesa*, *S. falconis japonensis*, *S. megregori* with *S. falconis megregori*.

The present specimens are smaller in size (1.58–1.88 by 0.42–0.47) as compared to *S. strigis* (4.44–6.5); *S. bulbosa* (3.0); *S. caryophylla* (8–10 by 0.5–1.0); *S. egretta* (5.04–6.5 by 0.68–0.78); *S. elegans* (3.3 by ?); *S. elliptica* (2.0 by 0.6–0.7); *S. elongatus* (3.99–4.83 by 0.95–1.20); *S. elongatus* var. *indica* (2.6 by 0.67); *S. falconis* (up to 5.5 by ?); *S. falconis brasiliensis* (2.5 by 0.42–0.70); *S. falconis eaglesa* (2.21–2.72 by 0.56–0.61); *S. falconis japonensis* (4–5.5 by 0.8–1.3); *S. falconis meleagris* (3.5 by ?); *S. globocephala* (2.52–3.2 by 0.8–1.0); *S. gracilicollis* (3.0–4.3 by ?); *S. infundibuliformis* (4.08–5.34 by ?); *S. intermedia* (3.0 by ?); *S. lilensis* (4.12 by 1.29); *S. macroconophora* (2.11–3.09 by 0.73–1.05); *S. neotidis* (1.9–2.6 by 1.03–1.05); *S. neophronis* (2.7–3.42 by 0.96–1.52); *S. nugax* (5.5–6.0 by 1.5); *S. orientalis* (3.31–3.7 by 1.06–1.08); *S. promiscua* (2.3–3.5 by ?); *S. pseudibis* (4.4 by 0.77–1.6); *S. raabei* (2.8–5.0 by 1.5); *S. rhodesiensis* (6.0–8.6 by 2.4–3.04); *S. sarcogypnonis* (4.8–5.1 by 2.28–2.58); *S. sphaerocephala* (3.0 by ?); *S. sphaerula macrosicya* (2.16–2.25 by ?) and *S. vaginata* (2.0–4.5 by ?).

The eggs in the present species are smaller (0.062–0.077 by 0.042–0.044) as compared to *S. strigis* (0.098–0.11 by 0.057–0.082); *S. baylisi* (0.097–0.10 by 0.067–0.76); *S. bulbosa* (0.090–0.11 by 0.060–0.067); *S. caluri* (0.084–0.90 by 0.052–0.063); *S. cuncumae* (0.097–0.10 by 0.06–0.07); *S. egretta* (0.096); *S. elegans* (0.11–0.13 by 0.065–0.088); *S. elliptica* (0.099–0.10 by 0.060–0.067); *S. elongata* (0.084–0.10 by 0.060–0.069); *S. elongata* var. *indica* (0.08–0.094 by 0.061–0.067); *S. falconis* (0.082–0.11 by 0.040–0.065); *S. falconis eaglesa* (0.10–0.11 by 0.075–0.080); *S. flosculus* (0.100–0.105 by 0.070); *S. geoduboisii* (0.098–0.0105 by 0.060–0.065); *S. gracilicollis* (0.10 by 0.06); *S. gruis* (0.090–0.11 by 0.060–0.070); *S. infundibuliformis* (0.09–0.11 by 0.062–0.068); *S. intermedia* (0.09 by 0.05); *S. lilensis* (0.10–0.11 by 0.057–0.060); *S. macroconophora* (0.090–0.099 by 0.063–0.070); *S. macropharynx* (0.10–0.11 by 0.057–0.065); *S. megregori* (0.10–0.11 by 0.063–0.069); *S. neotidis* (0.11–0.13 by 0.061–0.068); *S. neophronis* (0.087–0.11 by 0.076–0.087); *S. nicolli* (0.099–0.11 by 0.057–0.072); *S. orientalis* (0.087–0.10 by 0.045–0.076); *S. plegadis* (0.096–0.10 by 0.058); *S. promiscua* (0.10–0.11 by 0.065–0.079); *S. pseudibis* (0.095 by 0.059); *S. raabei* (0.12–0.13 by 0.075–0.086); *S. rhodesiensis* (0.10–0.11 by 0.068–0.075); *S. sarcogypnonis* (0.10 by 0.05); *S. sphaerula* (0.11–0.12 by 0.066–0.077); *S. sphaerula macrosicya* (0.100–0.108 by 0.060–0.063); *S. suttoni* (0.09–0.11 by 0.060–0.072); *S. raginata* (0.080–0.106 by 0.046–0.065) and *S. vandenbroekae* (0.092–0.095 by 0.050–0.060).

As compared to the recent species reported *S. infecta* Lunaschi and Drago (2012) differs from the present species in having shape of body plump, sacciform hindbody and strongly curved dorsally. *S. meridionalis* Lunaschi and Drago (2009) described from the small intestine of savana hawk (*Buteogallus meridionalis*) from

Argentina differs from the present species in the arrangement of vitelline follicles which are in the forebody. *S. orbiculata*

Lunaschi and Drago (2013) differs from the present species in having vitelline follicles in forebody which are densely distributed from its anterior edge and eggs with miracidia and eye-spots.

The species namely *S. glandulosa* Dubois, 1937 (Bhutta and Khan, 1975) and *S. Qadri* Das *et al.*, 2016 have been reported from Pakistan. The species resembles present species but *S. glandulosa* differs from the present specimens in having ovary laterally elongated, the testes are kidney shaped and the host *Spizaetus cinahatus* is different from the present host, moreover, *S. qadri* differs in having larger body (1.65-2.91 by 0.46-0.51); larger oral sucker (0.05-0.07 by 0.085-0.09); shape of testes, position of ovary, and possessing eggs of larger size (0.08-0.09 by 0.035-0.041). Thus the present species is regarded as a new species, the name *S. brayi* is proposed in honour of Dr. Rodney A. Bray, British Museum Natural History, London.

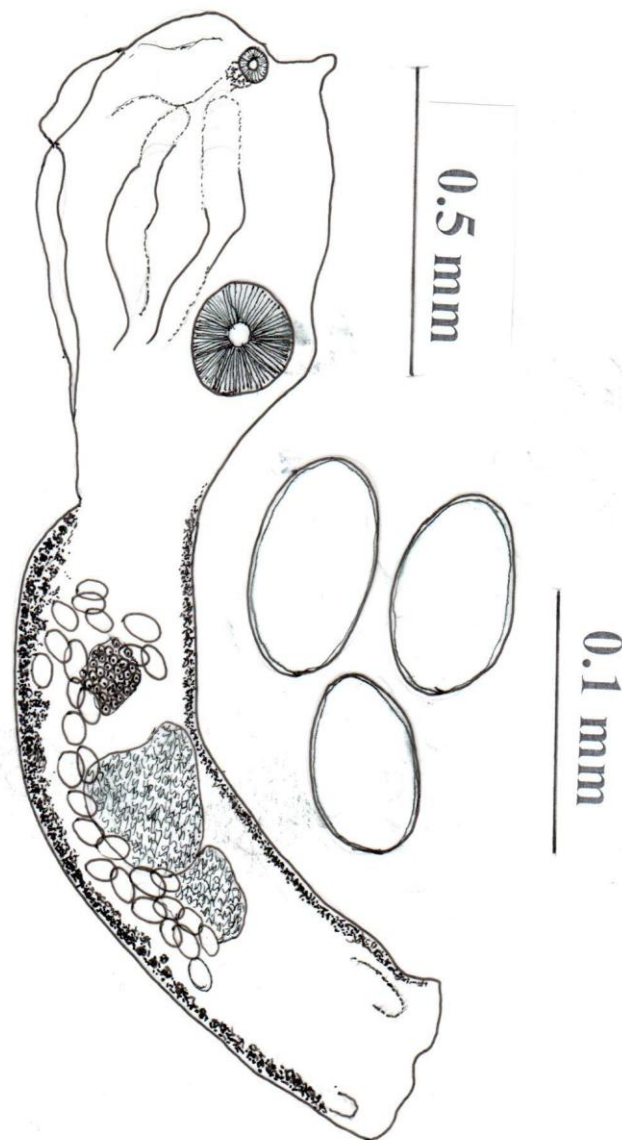


Fig. 1a. *Strigea brayi* n.sp. holotype

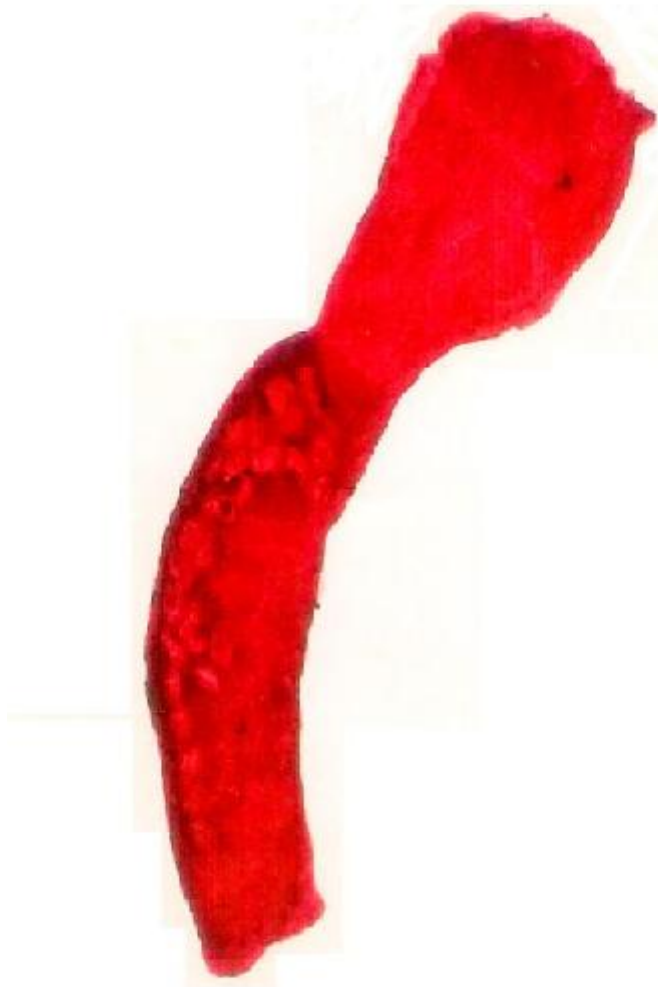


Fig. 1b. Photomicrograph of *Strigea brayi* n.sp.

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