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## *Conspicuum aliraazi* n. sp. (Trematode: Dicroglossidae) from Common Myna (*Acridotheres tristis*) of district Larkana, Sindh, Pakistan

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### Abstract

A new trematode *C. aliraazi* n. sp. is described from the gall bladder of *A. tristis* of District Larkana, Sindh, Pakistan. In all, 03 trematodes; one new species *C. aliraazi* was recorded. The present trematode differs from its allies in the body shape; size; presence of sub-terminal oral sucker; wider ventral sucker; position of testes and distribution of uterus. On the basis of such morpho-metrical diversification, the new species *C. aliraazi* has been proposed. The authoress dedicates new species in the honour and name of her elder brother Mr. Ali Raza Soomro.

**Keywords:** Avian trematode, *C. aliraazi* n. sp. *A. tristis*, Larkana, Sindh, Pakistan

### 1. Introduction

Trematodes are commonly known as flukes which include 18,000 to 24,000 species as reported by Wood *et.al.* [16] and Poulin *et.al* [17] respectively. The flukes can be categorized into two groups, on the basis of the system which they infect the vertebrate hosts such as: tissue flukes and blood flukes. Tissue flukes infect the bile ducts, lungs and other biological tissues where as the blood flukes inhabit the blood stream in some stages of their life cycle. Human trematode infections are the most common in Asia, Africa, South America and the Middle East. However, trematodes can be found anywhere where untreated human waste is used as fertilizer.

The Common myna *A. tristis* belong to the Class Aves; Order Passeriformes; Family Sturnidae and Genus *Acridotheres*. It has Central, South and Southeast Asian origin. Being omnivore, it feeds mostly on ground dwelling insects and tropical fruits such as grapes, plums and some berries. It also consumes discarded human food in urban areas as reported by Pell [15]. Common myna happens to be a serious threat to Australian blueberry crops as well to native bird species.

### 2. Materials and Method

During the 2015 to 2016, live 72 host birds (Common myna) belonging to Family Sturnidae were captured from different localities of District Larkana, Sindh, Pakistan. They were dissected in the Parasitological Laboratory, Department of Zoology, University of Sindh Jamshoro, for the examination of endoparasites. Where live 03 trematodes were recovered from the gall bladders of *A. tristis* and were put into Petri dishes containing 2% normal saline solution. The helminth parasites were collected and dehydrated in graded series of ethanol. Specimens were stained in borax carmine, cleared in xylol and passed through clove oil for shining and permanently mounted on glass slides with the help of Canada balsam. Diagrams were made by using Camera lucida; Garcia [14]. The specimens were identified by the help of available keys and literature as reported by Yamaguti [12, 13]. Photographs were taken by digital camera (Canon- 8.0 Mega pixels). All international parameters were measured in millimeters (Table: 1)

**Table 1:** Comparative parameters of various species of Genus *Conspicuum* (Bhalerao, 1936) [5] collected from different avian hosts

Parameters	Present species	<i>C. alykhani</i> Das and Ghazi, 2014	<i>C. orientale</i> Faust et al. 1966	<i>C. quratulaini</i> Soomro, 2016	<i>C. murtazae</i> Soomro, 2016
Body size	2.72-2.70×1.27-1.25	ND	2.3-2.7×0.69-0.74	3.58-3.45 × 1.70-1.50	0.055-0.04x0.09-0.078
Fore Body	0.39-0.37	ND	ND	ND	ND
Hind body	2.30-2.28	ND	ND	2.45-2.41	0.52-0.31
Oral sucker	0.18-0.16×0.18-0.17	0.39-0.40(0.35)×0.37-0.38(0.37)	0.22	0.38-0.35 × 0.43- 0.42	0.052-0.238x
Pharynx	ND	0.30-0.33(0.31)×0.09-0.10(0.09)	0.06	0.18×0.15	0.020-0.013
Ventral sucker	0.07-0.05×0.14-0.12	0.51-0.54(0.52)×0.5-0.55(0.52)	0.33	0.19-0.18×0.43-0.41	0.055-0.104x0.94-0.164
Distance between Oral and Ventral sucker	0.25-0.23	ND	ND	0.18-0.16	0.144-0.122
Right testis	0.16-0.14×0.18-0.15	0.18-0.21(0.19)×0.20-0.24(0.22)	0.28	0.27-0.26×0.19-0.17	0.026-0.024x0.061-0.208
Left testis	0.14-0.12×0.16-0.13	0.12-0.14(0.13)×0.20-0.22(0.21)	0.24	0.14-0.13×0.18-0.15	0.32-0.031x0.058-0.040
Ovary	0.10-0.08×0.16-0.14	0.24-0.25(0.24)×0.23-0.25(0.24)	0.144	0.18-0.16×0.27-0.26	0.05-0.03x0.0794-0.0598
Post testicular space	2.50-2.48	ND	ND	2.25-2.23	0.470-0.329
Eggs	0.7-0.4	0.058-0.060(0.059)×0.039-0.04(0.039)	34-36×21-23	0.08-0.07	0.017
Host	<i>A. tristis</i>	<i>S. fulicate</i>	<i>N. arquantus lincalus</i>	<i>A. tristis</i>	<i>A. tristis</i>
Parasitic habitat	Gall bladder	Gall bladder	Bile ducts and Small intestine	Gall bladder	Gall bladder
Locality	District Larkana, Sindh Pakistan	Karachi	Peking, China	District Larkana, Sindh Pakistan	District Larkana, Sindh, Pakistan

ND = not detectable:

Measurement of parameters is in millimeters (Table: 1)

**3. Results**

**3.1. Systematic position**

Host: *A. tristis*

Parasitic habitat: Gall bladder

Locality: District Larkana, Sindh, Pakistan

No: of hosts examined: 72

No: of hosts infected: 02

No: of specimens recovered: 03

Etymology: The authoress dedicates new species in the honor and name of her elder brother Mr. Ali Raza Soomro.

**3.2. Description**

Body of the worm is elongated, thick, and highly muscular, anteriorly rounded while posteriorly tapers and measures 2.72-2.70×1.27-1.25 mm; oral sucker terminal, rounded in

shape and measures 0.18-0.16×0.18-0.17 mm; ventral sucker slightly oval to elliptical in shape, overlapping uterus, situated towards lateral field of right side and measures 0.07-0.05×0.14-0.12 mm; fore body measures 0.39-0.37 mm; testes rounded to oval in shape overlapping uterus and both separate from each other by uterus; right testis measures 0.16-0.14×0.18-0.15 mm whereas left testis measures 0.14-0.12×0.16-0.13 mm; the distance between right and left testes measures 0.54-0.52 mm; post-testicular space measures 2.50-2.48 mm; ceca invisible; ovary slightly oval to rounded in shape, located behind the uterus and measures 0.10-0.08×0.16-0.14 mm; vitelline follicles emerge at the level of ventral sucker; uterus found in jumble form filling entire body of the worm right from oral sucker up to the posterior extremity.



**Fig 1:** Map of District Larkana, where collection of *A. tristis* were made.



Fig 2: *A. tristis* collected from different localities of District Larkana



Fig 3: Photographic view of *C. aliraazi* n. sp.

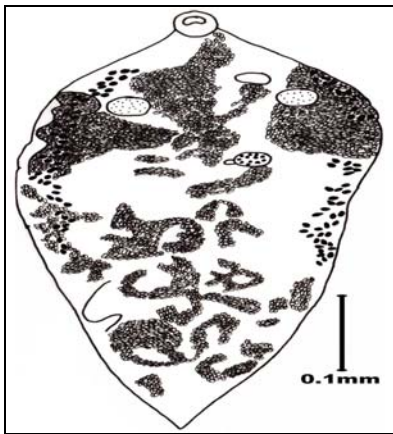


Fig 4: *C. aliraazi* n. sp.

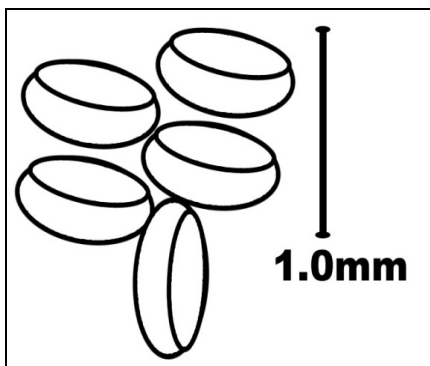


Fig 4. 1: Operculated eggs

#### 4. Discussion

Few species of Genus *Conspicuum* Bhalerao, 1936<sup>[5]</sup> reported from Pakistan include: *C. alykhani* Das and Ghazi 2014;<sup>[18]</sup> *C. murtazae* Soomro and Gachal *et al.*, 2016;<sup>[19]</sup> *C. quratulaini* Soomro and Gachal *et al.* 2016<sup>[20]</sup>. Majority of the species belonging to the Genus *Conspicuum* Bhalerao, 1936<sup>[5]</sup> reported from the various parts of the globe and include: *C. icteridorum* Denton and Byrd *et al.*, 1951;<sup>[7]</sup> *C. macrorchis* Denton and Byrd *et al.*, 1951;<sup>[7]</sup> *C. orientale* Faust *et al* 1966;<sup>[11]</sup> *C. popvi* Kasimov 1952;<sup>[8]</sup> *C. acuminatum* Nicoll, 1915;<sup>[2]</sup> *C. kalmikese* Skarjabin and Issaitchikoff, 1927<sup>[4]</sup>; *C. conspicuum* Gomes and Faria, 1912;<sup>[1]</sup> *C. rarum* Odening, 1964;<sup>[10]</sup> *C. morenoi* Odening, 1964;<sup>[10]</sup> *C. biliosum* Odening, 1964;<sup>[10]</sup> *C. latum* Odening, 1964;<sup>[10]</sup> *C. smile* Odening, 1964;<sup>[10]</sup> *C. pulchrum* Travassos, 1920;<sup>[3]</sup> *C. alectoris* Travassos, 1944;<sup>[6]</sup> *C. durenii* Vercammen 1960<sup>[9]</sup> respectively.

*C. alykhani* Das and Ghazi<sup>[18]</sup> recorded it in *S. fulvicata* of Karachi which differs from *C. aliraazi* in having oral sucker larger than ventral sucker; esophagus 3-4 times long and cirrus pouch small, tubular and plum-shaped contains winding seminal vesicles.

*C. icteridorum* Denton and Byrd<sup>[7]</sup> recorded it in *Q. quiscula aeneus* of North America which differs from *C. aliraazi* in having an undetermined number of small retractile sensory papillae visible on lateral sides of anterior half of the body; papillae more numerous on the inconspicuous dorsal lip-like projection and along lateral margin of the oral sucker; acetabulum larger with deep cup-shaped lumen and situated anteriorly at the middle third part of the body; pharynx globular; esophagus narrow and slightly wavy; ceca medially wide, straight to slightly wavy passing outside of lateral margin of testis, terminates about midway between ends of vitellaria and posterior ends of body; cerebral ganglion conspicuous and ventral to posterior margin of pharynx; excretory pore terminal whereas excretory vesicle simple, tubular and extending anteriorly; flame cell pattern  $2[(2+2+2) + (2+2+2)]$ ; vasa efferentia arising from antero-medial margin of the testes passing anteriorly and medially to unite as they enter cirrus sac; cirrus sac elongated and convoluted; seminal vesicle and ejaculatory duct are surrounded by prostatic glands cells and eversible cirrus; seminal receptacle globular and located dorsal to posterior caudal margin of ovary; mehlis glands situated medially to seminal receptacle and Laurer canal present whereas vitellaria commenced at the level of testicular zone.

*C. macrorchis* Denton and Byrd<sup>[7]</sup> recorded it in *C. brachyrhynchus* of Texas which differs from *C. aliraazi* in having retractile sensory papillae, visible only at the margin of pre-acetabular region of body; acetabulum larger, muscular with deep cup-shaped lumen and situated at the junction of anterior and middle third; pharynx globular; ceca fairly wide; slightly sinuous passing dorsal to lateral margins of testes and terminating about one third the distance from the end of vitellaria to posterior end of body; excretory system similar as in *C. icteridorum* with the exception that, the common collecting tubules pass ventral to inner margins of testes and these divide into main collecting tubules at ventro-medial margins of the male organs; vasa-efferentia arising from anterior margin of testes passing anteriorly and medially to unite as they enter into cirrus sac pouch; cirrus sac elongated oval lying anterior to acetabulum, containing convoluted seminal vesicle; ejaculatory duct surrounded by prostatic gland cells and eversible cirrus; mehlis gland medial just posterior to ovary and located at one side of the seminal

receptacle; laurer canals present and vitellaria follicles commencing at the level of testes.

*C. lanceatum* Odening *et al.*,<sup>[10]</sup> recorded it in *Anthus* of Turkestan which differs from *C. aliraazi* in having larger oral sucker; pharynx rounded; esophagus club-shaped; ventral sucker larger and testes slightly rounded but contain slight constriction on the upper side.

*C. murtazae* Soomro and Gachal. *et al.*,<sup>[19]</sup> recorded it in *A. tristis* which differs from *C. aliraazi* in having oral sucker sub-terminal; pharynx kidney shaped; esophagus tubular narrow to broad; ventral sucker broader than elongated with slight constriction at lower level located between testes. Both testes are broader in length; ovary bean-shaped, sub-medial and located behind the ventral sucker; vitelline follicles commencing at the level of testes and genital pore is located at the level of esophagus.

*C. quratulaini* Soomro and Ghachal *et al.*,<sup>[20]</sup> recorded it in *A. tristis* which differs from *C. aliraazi* in having anterior dimple on left side of oral sucker; posteriorly rounded but reflects dimple type appearance; oral sucker bean-shaped and sub-terminal; ventral sucker smaller than oral sucker and globular shaped; both testes are asymmetrical; left and right testis are small and oval in shape and vitelline follicles commencing at the level of testicular zone.

## 5. Conclusion

Present recorded trematode differs from its congeners in body shape; size; presence of terminal oral sucker; wider ventral sucker; position of testes and distribution of uterus. On the basis of such morpho-metrical diversification, this species *C. aliraazi* is considered as new one. However it is new addition to the taxonomic studies.

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