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## *Conspicuum quratulaini* n.sp. (Trematode: Dicrocoellidae) from Common myna *Acridotheres tristis* (Passeriformes: Sturnidae) in District Larkana, Sindh, Pakistan

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### Abstract

A new trematode *Conspicuumi quratulaini* n.sp. is recorded from the Gall bladder of Common myna *Acridotheres tristis* of District Larkana, Sindh, Pakistan. In all, 04 trematodes were recorded. Present trematodes reflect diversification from their congeners in body shape; size; presence of shoulder type outgrowths; morphologically wrinkle appearance; distribution of uterus and post-testicular space and shape of testes. On the basis of such morpho-metrical changes this species *Conspicuum quratulaini* treated as a new species. This new species is dedicated in the honor and name of (Dr. Quratulain Soomro Medical officer).

**Keywords:** Avian trematode, *Conspicuum quratulaini* n. sp., common myna, *Acridotheres tristis*, Larkana, Sindh, Pakistan

### 1. Introduction

The Common myna, *Acridotheres tristis* Linnaeus, 1776 belongs to the Class Aves; Order Passeriformes; Family Sturnidae and Genus *Acridotheres*. It is commonly found in South Asia ranging from Iran, Pakistan, India, Nepal, Bhutan, Bangladesh, Sri Lanka, Afghanistan, Uzbekistan, Tajikistan and Turkman as reported by Ali and Salim *et al* [1]. It is a cross-pollinator of flowering plants such as *Salmalia* and *Erythrina*. It walks on the ground and hops occasionally, being opportunistic feeder; it feeds on insects attached to the body of the grazing cattle's as reported by Brown and Boudjelas [2]. The Common mynas are popular as cage birds for their singing and "mimicking" abilities. The range of the common myna is increasing at such a rapid rate that in 2000 the Species Survival Commission (IUCN) declared it one of the world's most invasive species that has an impact on biodiversity, agriculture and other human interests as reported by Brown and Boudjelas [2]. Limited work has been done on this species in Pakistan [4, 9].

The trematodes (or flukes) are leaf shaped with an outer cover called the tegument which may be smooth or spiny. There are two suckers for attachment, an anterior oral sucker and a posterior ventral sucker. The suckers form a characteristic feature of the group, from which the name Trematode is derived from the Greek word for "hole." They can occur in a variety of host environments, with the majority being endoparasites. The digestive system is well developed; they generally feed on intestinal debris, blood, mucus and other tissues, depending on the host.

### 2. Materials and Method

During June 2015 to March 2016 total of 72 live host birds belonging to Family Sturnidae were captured from different localities of District Larkana, Sindh, Pakistan. They were dissected in Laboratory. Live 04 trematodes were recorded from the Gall bladder of *Acridotheres 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, passed through clove oil for shining and finally mounted permanently on slide with the aid of Canada balsam. Diagrams were made by using camera Lucida as reported by Garcia and Ash [3]. The key was prepared for the identification of species. Photographs were taken by digital camera. All international parameters were used for measuring variations in millimeters (Table: 1).

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**Table 1:** Comparative characteristics of various species of Genus *Conspicuum* (Bhalero, 1936) collected from different avian hosts

Body parts	Present species	<i>C. alykhani</i> Sanjota N. Das and Raffia Rehana Ghazi, 2014	<i>C. orientale</i> Faust <i>et al</i> , 1966;	<i>C. icteridorum</i> Denton and Bryad <i>et al</i> , 1951	<i>C. murtazae</i> Bakhtawar S, 2016	<i>C. macrorchis</i> Denton and Bryad <i>et al</i> , 1951
Body size	3.58-3.45 × 1.70-1.50	ND	ND	2.20- 5.97×0.70-1.97	0.055-0.04×0.09- 0.078	4.27-5.47×1.40- 2.04
Oral sucker	0.38-0.35 × 0.43- 0.42	0.39-0.40(0.35)×0.37- 0.38(0.37)	0.22	0.20-0.58	0.052-0.238x	0.30-0.50
Pharynx	0.18×0.15	0.30-0.33(0.31)×0.09- 0.10(0.09)	0.06	0.08-0.40	0.020-0.013	0.14-0.24
Ventral sucker	0.19-0.18×0.43- 0.41	0.51-0.54(0.52)×0.5- 0.55(0.52)	0.33	0.38-0.82	0.055- 0.104×0.94- 0.164	0.55-0.84
Distance between Oral and Ventral sucker	0.18-0.16	ND	ND	ND	0.144-0.122	ND
Right testis	0.27-0.26×0.19- 0.17	0.18-0.21(0.19)×0.20- 0.24(0.22)	0.28	0.09	0.026- 0.024×0.061- 0.208	0.25
Left testis	0.14-0.13×0.18- 0.15	0.12-0.14(0.13)×0.20- 0.22(0.21)	0.24	0.45	0.32- 0.031×0.058- 0.040	0.77
Ovary	0.18-0.16×0.27- 0.26	0.24-0.25(0.24)×0.23- 0.25(0.24)	0.144	0.10-0.36	0.05- 0.03×0.0794- 0.0598	0.30-0.37
Post testicular space	2.25-2.23	0.470-0.329	ND	ND	0.470-0.329	ND
Hind body	2.45-2.41	ND	ND	ND	0.529-0.31	ND
Eggs	0.08-0.07	0.058- 0.060(0.059)×0.039- 0.04(0.039)	34-36×21-23	27-33×17-23	0.017	27-31×19-20
Host	<i>Acridotheres</i> <i>tristis</i>	<i>Saxicoloides fulicite</i>	<i>Numenius</i> <i>arquantus</i> <i>lincalus</i>	<i>Quiscalus</i> <i>quiscula aeneus</i>	<i>Acridotheres</i> <i>tristis</i>	<i>Corvus</i> <i>brachyrhynchus</i>
Location	Gall bladder	Gall bladder	Bile ducts and small intestine	Gall bladder	Gall bladder	Gall bladder
Locality	District Larkana, Sindh Pakistan	Karachi	Peking, China	N. America	District Larkana, Sindh, Pakistan	Texas: Clodines and Sealey

ND=Not detectable

Measurement of parameters is in millimeters (Table: 1)

### 3. Results

#### 3.1 Taxonomic position

Host: *Acridotheres tristis*

Parasitic Habitat: Gall bladder

Locality: District Larkana, Sindh, Pakistan

No: of hosts examined: 72

No: of hosts infected: 02

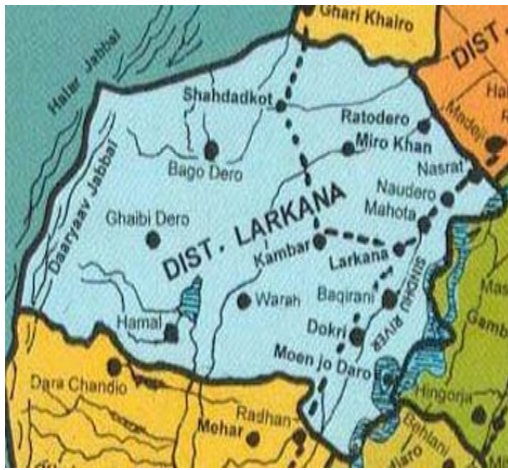
No: of specimens recovered: 04

Etymology: The name of new species is dedicated in the honor of elder sister (Dr. Quratulain Soomro Medical officer)

#### 3.2 Description

Body of worm is elongated, thick and highly muscular; anteriorly rounded contain dimple on left side of oral sucker, posteriorly also rounded but reflects wrinkle type appearance measuring 3.58-3.45×1.70-1.50 mm; oral sucker bean shaped

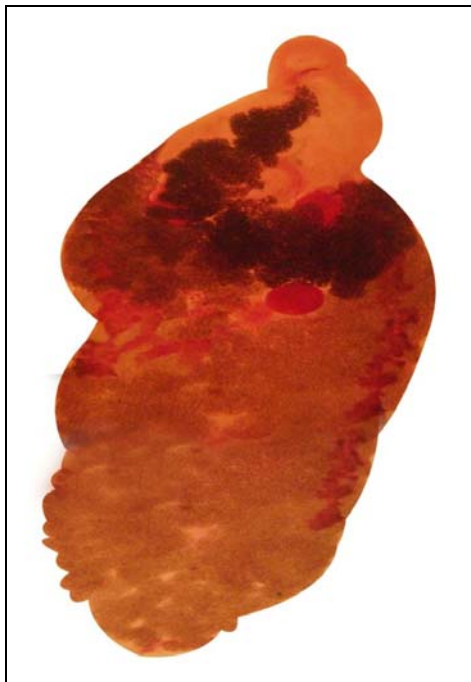
and sub-terminal measuring 0.38-0.35×0.43- 0.42 mm; pharynx long slightly bean shaped completely separated from the oral sucker measuring 0.18×0.15 mm; esophagus not visible; ventral sucker is smaller than oral sucker but globular shaped measuring 0.19-0.18×0.43-0.41 mm in diameter; both testes are asymmetrical overlapped with uterus, left testis smaller than right testis and oval in shape measuring 0.14-0.13 ×0.18-0.15 mm; right testis larger than the left testis oval to round in shape measuring 0.27-0.26× 0.19-0.17 mm above the right testis the worm contains dimple at the margin; ovary oval in shape and located behind the left testis measuring 0.18-0.16×0.27-0.26 mm; vitelline follicles commencing at the level of testicular zone; ceca not observed due to jumbling of uterus; small spaces manifesting empty area, whereas rest of the body is filled with uterus; eggs are operculated and brownish in colors measuring 0.08-0.07 correspondingly.



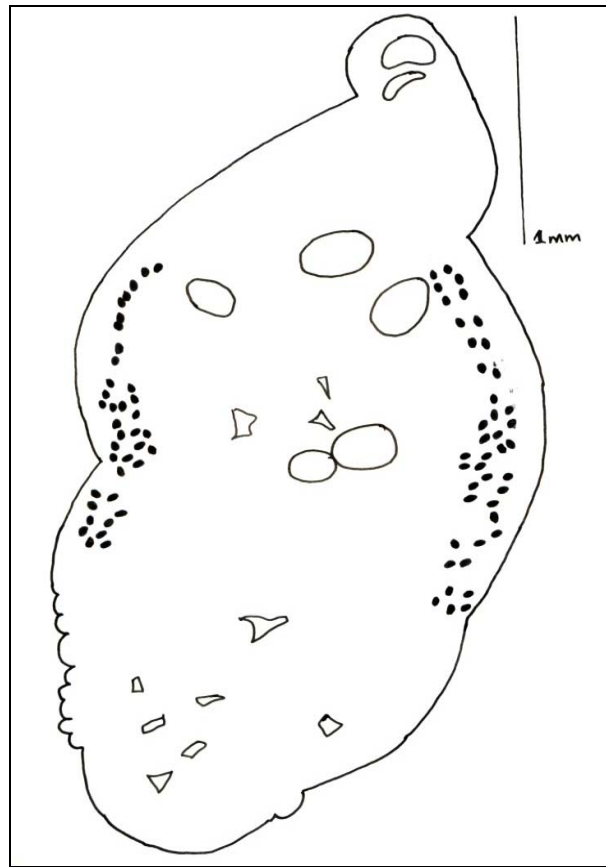
**Fig 1:** Map of District Larkana where collection of Common myna *Acridotheres tristis* were made.



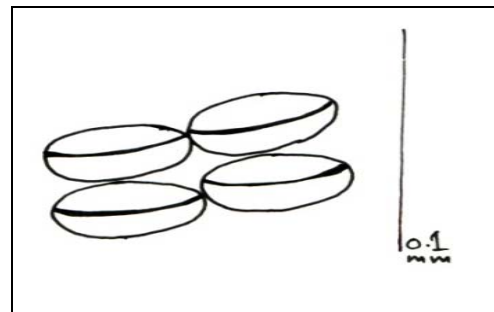
**Fig 2:** Common myna *Acridotheres tristis* collected from different localities of District Larkana



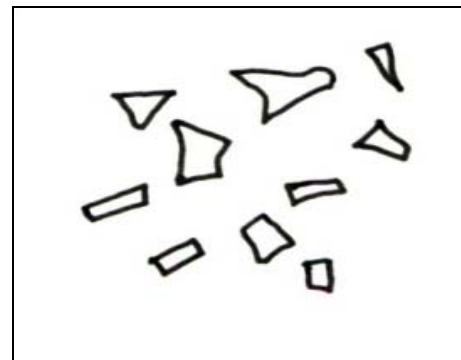
**Fig 3:** Photographic view of *Conspicuum quratulaini* n. sp.



**Fig 4:** *Conspicuum quratulaini* n.sp.



**Fig 5:** operculated eggs



**Fig 6:** Empty areas where uterus is not present

#### 4. Discussion

Few reported species of Genus *Conspicuum* Balrao, 1936 reported from Pakistan includes only two species *C. alykhani* Sanjota N. Das and Raffia Rehana Ghazi, 2014 [4] and *C. murtazae* Bakhtawar S [9]. Majority of the species belonged to

Genus *Conspicuum* Bhalerao, 1936<sup>[5]</sup> which were reported from various countries and include: *C. icteridorum* C;<sup>[6]</sup> *C. macrorchis* Denton and Bryad *et al*, 1951;<sup>[6]</sup> *C. orientale* Faust *et al*, 1966;<sup>[7]</sup> *C. acuminatum* (Nicoll, 1955) Travassos, 1944;<sup>[8]</sup> *C. kalmikese* (Skarjabin *et al* Issaaitchikoff, 1927);<sup>[8]</sup> *C. conspicuum* (Gomes De Faria, 1912 Bhalerao, 1936);<sup>[4]</sup> *C. alectoris* Travassos, 1944;<sup>[8]</sup> *C. rarum* (Shtrom, 1940) Odening; 1964,<sup>[8]</sup> *C. durenii* (Vercammen Grandjean, 1960) Odening; 1964;<sup>[8]</sup> *C. morenoi* Odening, 1964;<sup>[8]</sup> *C. biliosum* (Shtrom, 1940) Odening, 1964;<sup>[8]</sup> *C. latum* (Shtrom, 1940) Odening, 1964;<sup>[8]</sup> *C. pulchrum* (Travassos, 1920) Travassos, 1944;<sup>[8]</sup> respectively.

*C. icteridorum* Denton and Bryad<sup>[6]</sup> recorded in *Quiscalus quiscula aeneus* of North America which differs from *C. quratulaini* in having thick cuticle; small retractile sensory papillae much more numerous on the conspicuous dorsal lip-like projection and along lateral margins of oral sucker; acetabulum large and deep cup-shaped lumen; pharynx globular; esophagus slightly wavy; ceca of medium width and straight to slightly wavy; cerebral ganglion conspicuous ventrally; excretory pore terminal; excretory vesicle simple and tubular; flame cells pattern 2 [(2+2+2)+(2+2)]; vasa efferentia arising from anteromedial margin of the testes and passing anteriorly and medially to unite at the entrance of cirrus sac; cirrus sac elongated containing a convoluted small vesicle; ejaculatory duct surrounded by prostate gland cells and eversible cirrus usually lies in front of acetabulum; seminal receptacle globular and located dorsal or posterior to the caudal margin of ovary; mehlis gland situated medially to seminal receptacle; laurer's canal present.

*C. macrorchis* Denton and Bryad<sup>[6]</sup> recorded in *Corvus brachyrhynchos* of Texas and differs from *C. quratulaini* in having retractile sensory papillae, which are visible only on the margin of preacetabular region of the body; oral sucker containing lip like projection; acetabulum cup-shaped and situated at the junction of anterior; pharynx globular; esophagus larger; ceca fairly wide, slightly sinuous and passing dorsal to lateral margin of testes; excretory system similar to that of *C. icteridorum*; vasa efferentia arising from anterior margin of testes and passing anteriorly and medially to unite at entrance of the cirrus pouch; cirrus sac elongated, oval and containing convoluted seminal vesicle and ejaculatory duct surrounded by prostatic gland cells and eversible cirrus; seminal receptacle small and located just posterior to the ovary at one side of seminal receptacle; laurer's canal present.

*C. murtazae* S. Bakhtawar<sup>[10]</sup> *et al.* recorded in *Acridotheres tristis* of Pakistan and differs from *C. quratulaini* in having tapered posterior; esophagus tubular narrow to broad diverticulating into intestinal ceca at the region between oral and ventral sucker; ceca run in the lateral fields of body, not reaching up to the posterior extremity with slight constriction on lower level located into between two testes; both testes bean shaped located side of the ventral sucker. Ovary bean shaped and sub median located behind the ventral sucker and right testis.

## 5. Conclusion

Present recorded trematodes differ from their congeners in body shape; size; presence of shoulderly outgrowths; wrinkled shaped appearance; distribution of uterus and post-testicular space and shape of testis. On the basis of such disparity this species; *Conspicuum quratulaini* is treated as a new species. However, it is new addition to the taxonomic studies.

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