GENUS *FALCCAUTRA* LANE, 1915 RECORDED FROM NEW HOST CATFISH WALLAGO ATTU (SILURIFORMES: SILURIDAE) OF DISTRICT JAMSHORO, SINDH, PAKUSTAN

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خلاصہ

سندھ، پاکستان، سندھ دریا جامشورو، میزبان دریائے سندھ جامشوروں پاکستان سے Wallago attu catfish پر *Helminth* جیون کی اطلاع دینا ہے۔ میزبان Wallago attu catfish کی موجودگی پر موجودہ تحقیق کے دوران، مجموعی (53) نیمیٹوڈ نمونوں کو جمع کیا گیا تھا، جو کہ ارجنٹائن کے انت کے میزبان Odontophrynus barrioi جبکہ موجودہ تحقیق میں نئے میزبان Wallago attu catfish دریائے سندھ جامشوروں پاکستان سے ریکارڈ کیا گیا ہے۔ جبکہ *Falcaustra* جینس کا نیا میزبان ریکارڈ ہے۔

Abstract

The aim of present research study was to report helminth parasites of host catfish *wallago attu* of Indus river Jamshoro, Sindh, Pakistan. A total of (53 ♀) nematode specimens were collected, processed by standard method of nematodes and identified as *Falcaustra sanjuanensis* previously collected from intestine of host *Odontophrynus barrioi* from Argentina. Catfish *Wallago attu* of Indus River Jamshoro, Sindh, Pakistan, however this is a new host record of genus *Falcaustra.*

Introduction

The genus *Falcaustra* created by Lane in (1915) to accommodate *F. falcata* Linstow (1906) collected from *Geoemyda trijuga*. But Yorke and Maplestone (1926) treated the latter on this genus as synonym of other genus *Spironoura* Leidy (1856). In the recent classification of the group by Chabaud (1978) the genus *Falcaustra* has been separated from other genera. The genus *Falcaustra* are parasite of fishes, amphibians and reptiles and has been reported from various hosts and several parts of the world including *F. desilvai* Bursey *et al.* (2009) gathered from intestine of lizard *Cnemaspis tropidogaster* of Sri-Lanka*; F. sinensis* Liu *et al.* (2011) gathered from intestine of turtle *Indotestudo elongate* of China*; F. greineri* Bursey and Kinsella (2003) gathered from intestine of turtle *Orlitia bornennsis* of Malaysia; *F. donanaensis* Hidalgo-Vila *et al.* (2006) gathered from intestine of turtle *Mauremys leprosa* of Spain; *F. washingtonensis* Bursey and Aker (2001) gathered from intestine of salamander *Tigrinum melansticus* of USA; *F. taimoshanensis* Bursey *et al.* (2012) collected from intestine of turtle *Playaternon megacephalum* of China; *F. papuensis* Bursey *et al.* (2007) gathered from intestine of lizard *Sphenomorphus simus* of New Guinea; *F. tannaensis* Bursey *et al.* (2010) gathered from intestine of lizard *Pelagic gecko and Nactus pelagicus* of Vanuatu; *F. barbi* Baylis and Daubney (1922) gathered from intestine of fish *Tor tor* and *Scaphiodon nashi* of Bangladesh, India and Africa; *F. brevicaudatum* Khan and Yaseen (1969) gathered from intestine of fish *Ompok bimaculatus* of Bangladesh; *F. chauhani* Soota (1975) gathered from intestine of fish *Tor tor* of Bangladesh; *F. chiloscyllii* Thwaite (1927) gathered from intestine of fish *Chilosyllium indicum* of Srilanka; *F. kaverii* Karve and Naik (1951) gathered from intestine of fish *Puntius carnaticus* of India; *F. khadrai* Karve (1941) collected from intestine of fish *Puntius dobsoni* of India; *F. leptocephala* Baylis and Daubney (1922) gathered from intestine of fish *Tor tor* of Bangladesh; *F. nilgiriensis* Soota and Chaturvedi (1971) gathered from intestine of fish *Puntius carnaticus* of India; *F. stromateii* Bilqees and Khanum (1971) gathered from intestine of fish *Pampus chinensis* Karachi, Pakistan; *Falcaustra sanjuanensis* Gonzalez, *et al.* (2013) gathered from intestine of frog *Odontophrynus barrioi* of Argentina. Genus *Falcaustra* Lane (1915) reported from various host, but not from catfish host. The present species reported first time from new host *Wallago attu* of Indus river Jamshoro, Pakistan. Catfish *wallago attu* is importance food source in Pakistan. During current research study on nematode parasites of catfish *Wallago attu* important in veterinary and economic point of view. Heavy infection of nematode parasites in fishes cause to decline the value of fish as food source and effect on economy of fishery industry by result of their mortality (Gupta, 1983). Even most nematode parasites have zoonotic importance, which are transmitted to man only through fishes (Dogiel 1964).

Materials and Methods

Host catfish *Wallago attu* of Indus River, Jamshoro, Sindh, was collected from different aquatic habitats of study area. Live fishes brought to the Department of Zoology, University of Sindh, Jamshoro, Pakistan. Host fishes were anesthetized in killing jar and cut longitudinally on the dissecting tray. The entire alimentary canal, viscera and gills were separated in pitery dishes in saline solution and examined thoroughly under Stereo-Dissecting Microscope. A total of (53 ♀) nematode specimens of genus *Falcaustra* Lane, 1915 collected. Live specimens killed in hot 70% ethanol and preserved in alcohol-glycerol solution in glass vials. Temporary mounts in glycerol and lacto-phenol made for the detailed study. Diagrams were made with the help of camera Lucida. Measurements of the body and other structures were taken in millimeters (mm), whereas those of eggs in micrometer (µm).

Results

Systematic position:
Family Kathlaniidae Lane, 1914
Subfamily Kathlaniinae Lane, 1914
Genus *Falcaustra* Lane, 1915
Falcaustra sanjuanensis Cynthya E. Gonzalez, Eduardo A. Sanabria and Lorena B. Quiroga, 2013 (Fig. 1-2)
Status: New host record
Number of specimen recovered: 53 (53 ♀)
Number of host infected: 29
Host: *Wallago attu*
Site of infection: Intestine
Locality: River Indus Jamshoro, Sindh, Pakistan

Description

Body of worm elongate, narrow, curved and covered with fine striated cuticle measured 12.76-14.19X 1.17-1.23. Anterior end rounded and posterior end conical. Widest at post-equatorial region of body. Oral opening rounded, surrounded by 3 lips with flanges, posterior lip with a pair of papillae, each subventrolateral lips with a pair of papillae and a pair of amphids. Excretory pore at anterior region of body, nerve ring encircle anterior half of esophagus measures 0.55-0.65. Esophagus elongate, curved measures 2.3-2.23 × 0.14-0.19, end with rounded posterior region and separated rounded bulb present at the end measures 0.15-0.21 × 0.17-0.33, which open into intestine by valve. Vulva post-equatorial measures 7.37-7.68, eggs rounded to oval in shape. Tail with pointed tip measures 0.06-0.09 mm in size.

Discussion

The species of genus *Falcaustra* Lane in (1915) reported from different host and localities of world morphometrically compare with present species in detail and shown following differences (Table. 1) such *F. desilvai* Bursey *et al.* (2009) gathered from intestine of lizard *Cnemaspis tropidogaster* of Srilanka varies from present species in having smaller in length; cuticle with irregular striations; oral opening triangular; dorsal lip with one single and one pair of papillae; cervical alae; esophageal bulb spherical; eggs oval, *F. sinensis* Liu *et al.* (2011) gathered from intestine of turtle *Indotestudo elongate* of China varies from present species in having larger in length; moth triangular in shape; cervical alae present; esophageal bulb spherical; nerve ring encircle anterior region of esophagus; eggs oval in shape; *F. greineri* Bursey and Kinsella (2003) gathered from intestine of turtle *Orlitia bornennsis* of Malaysia varies from present species in having larger in length; cuticle with striations; oral opening triangular; esophageal bulb spherical; eggs oval; *F. donanaensis* Hidalgo-Vila *et al.* (2006) gathered from intestine of turtle *Mauremys leprosa* of Spain varies from present species in having cuticle with striations; oral opening triangular; cervical alae; esophageal bulb spherical; tail cylindrical; eggs oval; *F. washingtonensis* Bursey and Aker (2001) gathered from intestine of salamander *Tigrinum melansticus* of USA varies from present species in having larger in length; cuticle with striations; oral opening triangular; a pair of cervical papillae; esophageal bulb spherical; eggs oval; *F. taimoshanensis* Charles R. Bursey *et al.* (2012) collected from intestine of turtle *Playaternon megacephalum* of China differs from present species in having larger in length; cuticle with striations; oral opening triangular; lips with papillae at margin; esophageal bulb spherical; vagina directed anteriodorsally; eggs oval; *F. papuensis* Charles R. Bursey *et al.* (2007) gathered from intestine of lizard *Sphenomorphus simus* of New Guinea varies from present species in having smaller in length; cuticle with striations; oral opening triangular; cervical papillae present; eggs oval; *F. tannaensis* Charles R. Bursey *et al.* (2010) gathered from intestine of lizard *Pelagic gecko and Nactus pelagicus* of Vanuatu varies from present species in having larger in length; cuticle with striations; oral opening triangular; cervical papillae

present; esophageal bulb spherical; eggs oval; *F. barbi* Baylis and Daubney (1922) gathered from intestine of fish *Tor tor* and *Scaphiodon nashi* of Bangladesh, India and Africa varies from present species in having globular head; neck present; esophageal bulb spherical; tail with sucker; eggs oval; *F. brevicaudatum* Khan and Yaseen (1969) gathered from intestine of fish *Ompok bimaculatus* of Bangladesh varies from present species in having only male specimen; cuticle without striations; each lip with large lobe and small lobes; each main lobe with a pair of papillae; buccal capsule with 3 teeth; esophagus club shape; tail with spike and sucker; *F. chauhani* Soota (1975) gathered from intestine of fish *Tor tor* of Bangladesh varies from present species in having only male specimen; esophageal bulb spherical; tail with sucker; *F. chiloscyllii* Thwaite (1927) gathered from intestine of fish *Chilosyllium indicum* of Srilanka varies from present species in having lateral alae present; lips with lobes; buccal capsule teeth; cervical papillae present; esophagus club shape; tail with suckers; *F. kaverii* Karve and Naik (1951) gathered from intestine of fish *Puntius carnaticus* of India varies from present species in having cephalic end rounded neck present; cervical alae present; esophagus spherical shape; tail with sucker and a pair of papillae; *F. khadrai* Karve (1941) collected from intestine of fish *Puntius dobsoni* of India varies from present species in having cephalic end rounded neck present; cervical alae present; esophagus spherical shape; tail with sucker and a pair of papillae; *F. leptocephala* Baylis and Daubney (1922) gathered from intestine of fish *Tor tor* of Bangladesh varies from present species in having larger in length; head narrow rounded; cervical papillae present; esophagus spherical shape; tail with a pair of papillae; *F. nilgiriensis* Soota and Chaturvedi (1971) gathered from intestine of fish *Puntius carnaticus* of India varies from present species in having smaller in length; head rounded; buccal capsule elongate; esophagus spherical shape; *F. stromateii* Bilqees and Khanum (1971) gathered from intestine of fish *Pampus chinensis* of Karachi, Pakistan varies from present species in having only male specimen; smaller in length; buccal capsule with 3 lips and 3 teeth; glandular structure present at anterior region of body; esophageal bulb spherical. But present species similar in all diagnostic characteristics with previously reported species *Falcaustra sanjuanensis* Gonzalez *et al.* (2013) gathered from intestine of *Odontophrynus barrioi* of Argentina, and identified as such. However, presently genus *Falcaustra* reported first time from catfish *Wallago attu*, so this is being new host record.

Table: 1. Comparison of previously recorded species of genus *Falcustra* with present species.

Species	**Present species**	***F. barbi* Baylis and Daubney, 1922**	***F. Chiloscyllii* Thwaite, 1927**	***F. khadrai* Karve, 1941**	***F. tannaensi* Bursey *et al*., 2010**	***F. sinensis* Liu *et al*., 2011**	***F. taimoshanensis* Bursey *et al*., 2012**
Host	*Fish Wallago attu*	*Fish Tor tor*	*Fish Chilosylliu m indicum*	*Fish Puntius dobsoni*	*Turtle Lizard Nactus pelagicus*	*Turtle Indotestudo elongate*	*Turtle Playsternon megacephal um*
Locality	Sindh, Pakistan	Bangladesh , India, Africa	Srilanka	India	Vanuatu	China	China
Gender	Female	Female	Female	Female	Female	Female	Female
Body	12.76-14.19	7.0-19.6	10.0-12.6	12.4-13.0	16.2	19.46-23.55	14.2
Width	1.17-1.23	0.31-1.0	0.43-0.5	0.57-0.6	640	1.28-1.54	395
Esophagus	2.3-2.23 × 0.14-0.19	1.4-2.8	2.15-2.92	0.16-0.165		2.69-3.07	1.491
Esophagus bulb	0.15-0.21 × 0.17-0.33		0.23 × 0.3		186	323-451 × 372-490	191× 186
Nerve ring from anterior end of body	0.55-0.65			0.34-0.45	344	460-640	220
Vulva from posterior end of body	7.37-7.68	3.2-7.3	4.58-5.7	7.5-7.6	5.1	5.76-6.78	5.3
Tail	0.06-0.09	0.33-0.8	2.77-2.95	0.46-0.61	857	720-920	723

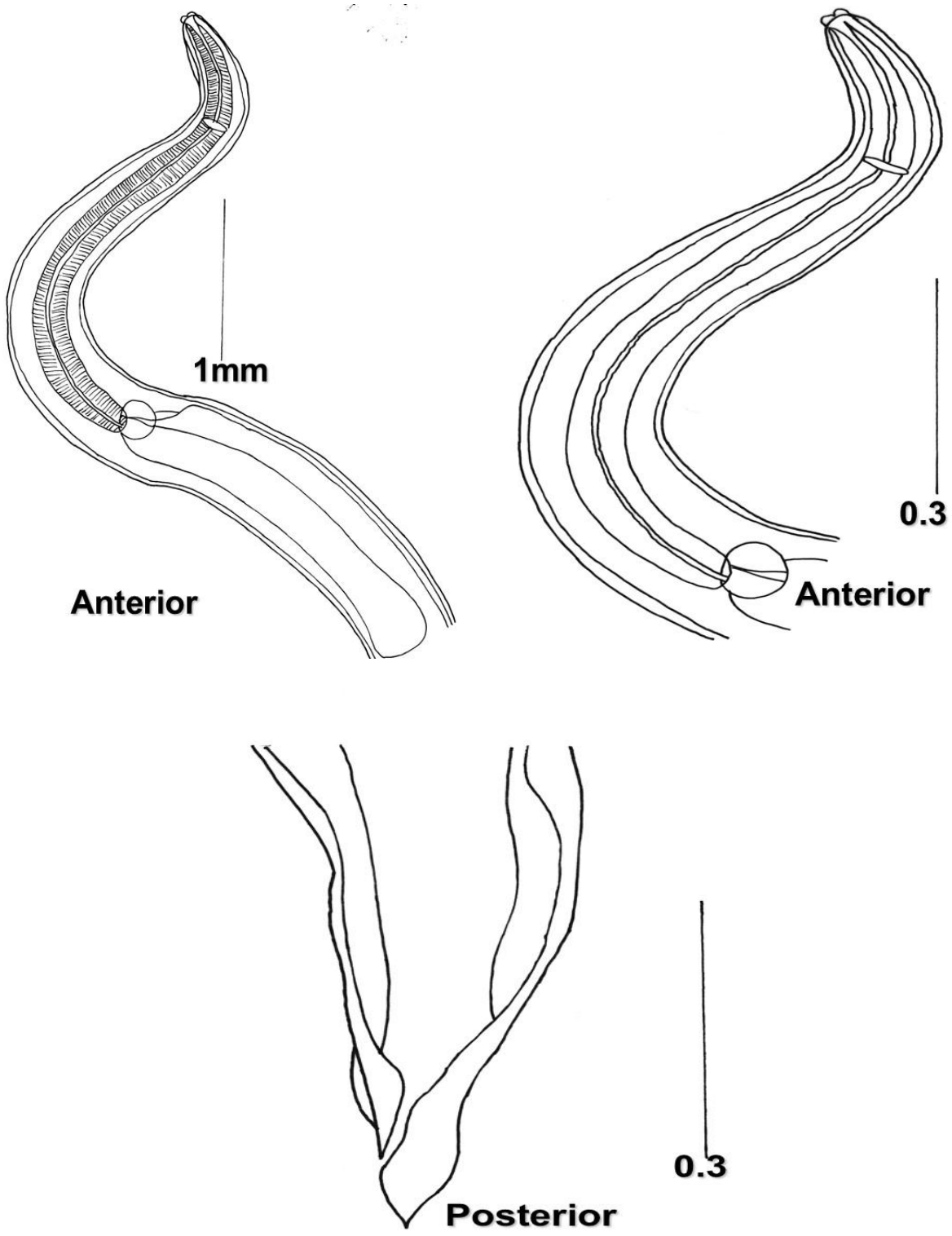

Fig.1. ***Falcaustra sanjuanensis.*** **Diagrams of anterior and posterior end of female worm. Scale bar: in mm**

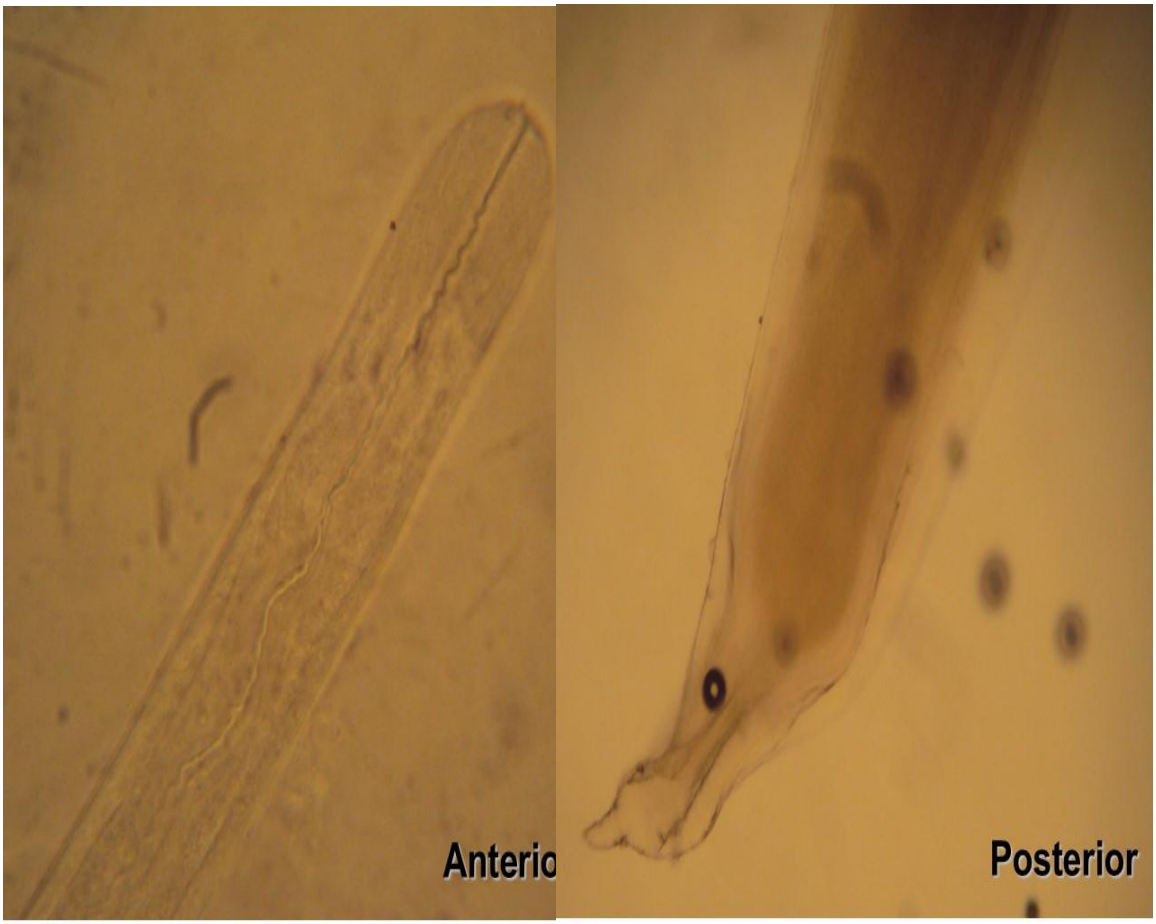

Fig.2. *Falcaustra sanjuanensis.* Photographs of anterior and posterior end of female worm.

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