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Rhabdochona indusi new species (Nematoda: Rhabdochonidae) in *Rita rita* (Siluriformes: Bagridae) from Sindh, Pakistan

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Key words: Fish nematodes, Catfish, Khaggo, Indus river, Pakistan

Abstract

Nematodes of genus *Rhabdochona* Railliet, 1916 were collected from intestine of the catfish *Rita rita* and identified as new species *Rhabdochona indusi*. During current study on helminth parasites of *Rita rita* host, 125 nematodes (70 ♀ & 55 ♂) belong to the genus *Rhabdochona* were collected from 23 positive fishes out of 67 samples. Fishes were dissected and parasites were processed through the standard method and temporary slide were made. On the basis of differential diagnostic characteristics such as large striated body, greatest width in posterior region of male and anterior half of the female, 19 pairs of papillae, spicule size and shape, large spicule rounded anteriorly with small groove at lateral side and pointed posteriorly with curved ventrally without uniform thickness, smaller spicule rounded anteriorly and pointed posteriorly, shape of genital structures vulva marginal, anterior vulvar lip hook shape and posterior vulvar lip pointed, vagina muscular directed posteriorly and shape and size of eggs, such nematodes proposed as new species. The name of new species refers to the Indus River from where the host fishes were collected.

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Introduction

Rita rita Hamilton, (1822) a freshwater catfish locally called as "Khaggo" is found in streams, rivers, canals and ponds, mainly in shallow waters Mirza (2003). Young ones are greenish brown above and silvery brown on back of body. It is extremely slimy when captured Rahman (1986). It is bottom-dwelling carnivorous catfish and feeds on mollusks, small fish, crustacean, and insects as well as decaying organic matter Shrestha (1990). *Rita rita* is an edible and delicious fish distributed in Afghanistan, Pakistan, India, Nepal, Bangladesh and Myanmar (Mirza, 2003).

The catfish *Rita rita* of Indus river infected with large number of helminth parasites but there were not detail study carried out on helminth parasites of *Rita rita* from Indus river Pakistan. *The* reports on helminth parasites of *Rita rita* in Pakistan are limited those of Ahmad *et al*. (2014), Ayaz *et al*. (2013), Khanum *et al*. (2008), Kakar and Bilqees (2008), Shakir and Khan (2006), Soofi *et al*. (2015, 2016a, 2016b, 2016c, 2016d, 2016e, 2017). During current study large numbers of helminths collected from *Rita rita* and present study has great contribution in field of parasitology. One of great contribution is identified as new nematode species *Rhabdochona indusi*.

Genus *Rhabdochona* was proposed by Railliet (1916). The genus on the basis of egg types divided into three subgenera by (Moravec 1972a) and Chabud (1975) including *R. (Globochona)* Railliet (1916), *R. (Rhabdochona)* Moravec (1972) and *R. (Filochona)* Saidov (1953).

Genus *Rhabdochona* Railliet (1916) is commonly found in fishes throughout the world Moravec and Coy Otero (1987), Moravec (1994). These nematodes are found in the intestinal tract of their Piscine host are widely distributed in freshwater fishes Moravec (1998). But *R. praecox* Pionar and Kannangara (1972) from freshwater crab *Paratephusa rugose* from Sri Lanka; *R. puylaerti* Moravec (1983) from snake *Causus rhombiatus* from Uganda; *R. parastromatei* Bilqees (1979), *R. marina* Lakshmi and Sudha (1999) and *R. indiana* Lakshmi (2001) from marine fishes.

Rhabdochona species reported from world *R. papuanensis* Frantisek Moravec *et al*. (2008) from *Melanotaenia affinis* of New Guinea; *R. hellichi turkestanica* Frantisek Moravec *et al*. (2010) from *Schiyothorax* of India; *R. (Globochona) rasborae* Moravec and Kamchoo (2012) from *Rasbora paviana* of Thailand; *R. (Globochona) kurdistanensis* Frantisek Moravec *et al*. (2012) from *Barbel luciobarbus kersin* of Iraq.

Species of the genus *Rhabdochona* Rilliet (1916) reported from Pakistan *R. cavasius* Rehana and Bilqees (1973) from *Mystus cavasius*; *R. magna* (Khan and Yaseen, 1969) Zaidi and Khan (1975) from *Rita rita*; *R. chanawensis* Zaidi and Khan (1975) from *Eutropiihthys vacha*; *R. megasacculata* Ghazi and Rahimi (1999) from *Bridius vagra*; *R. kharani* Kakar *et al*. (2006) from *Lebeo gedrosicus zugmayer*; *R. higoli* Kakar and Bilqees (2007c) from *Cyprinion milesi*; *R. bifidum* Kakar and Bilqees (2007c) from *Tor putitora*; *R. uvaginus* Kakar and Bilqees (2007) from *Tor putitora*; *R. magnavesicula* Kakar and Bilqees (2008) from *Schizocyprus brucci*; *R. milesi* Kakar *et al*. (2008) from *Cyprinion milesi*; *R. mujibi* Kakar and Bilqees (2009) from *Tor putitora*; *R. annai* Kakar *et al*. (2012) from *Tor putitora*; *R. pakistanica* Kakar *et al*. (2012) from *Cyprinion watsoni*; *R. nushkiai*, *R. watsoniai* Kakar and Bilqees (2007) from *Tor putitora*. Present work record the new species of nematode *Rhabdochona indusi* from *Rita rita* of Indus river Pakistan.

Materials and methods

Study area

During current studies between May 2015 to October 2016 total of 67 samples of *Rita rita* host fishes were collected for examination of helminth parasites. Live fishes were collected from different study areas of Indus river Jamshoro, Sindh, Pakistan and brought to the Parasitology Laboratory Department of Zoology University of Sindh, Jamshoro, Pakistan.

Dissection of host fishes

Fishes were set on dissecting tray and cut longitudinally. Viscera were separated in Petri dishes and examined under stereo dissecting microscope.

Collection of helminths

During examination of helminths, 125 nematodes (70 ♀ & 55 ♂) belonging to the genus Rhabdochona Railliet, 1916 were collected from 23 infected host fishes out of 67.

Processing of helminths

Live Nematodes were killed in hot 70% ethanol, cleared in lacto-phenol and glycerol solutions and preserved in alcohol-glycerol solution. Temporary slide made with stander method for further examination of parasites with help of Slide Binocular microscope Kyowa BIOlux-12.

Drawing and identification

Diagrams were made with the help of camera Lucida. Photographs taken with Camera Olympus DP12. Measurements are given in millimeter (mm). Identification was made with nematodes keys. Specimens are deposited in the Department of Zoology, University of Sindh, Jamshoro, Pakistan.

Result

Taxonomic summary:

Family: Rhabdochonidae Wigdor, 1916

Genus: *Rhabdochona* Railliet, 1916

Species*: Rhabdochona indusi* n.sp.

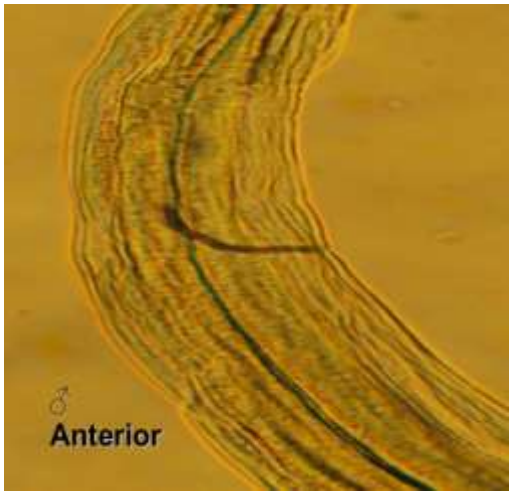
Site of infection: Intestine

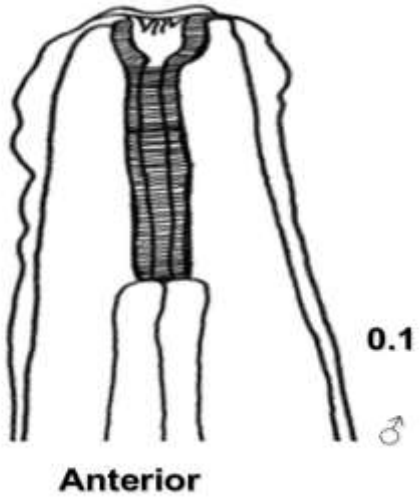
Locality: River Indus at Jamshoro, Sindh, Pakistan

Number of specimen: 125 (70 ♀ & 55 ♂)

Number of host infected: 23 from 67 hosts

Etymology: Name of new species refers to the river Indus from where the host fish was collected.





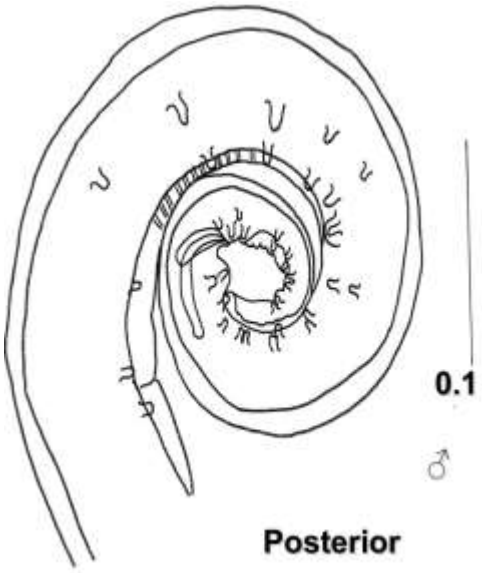
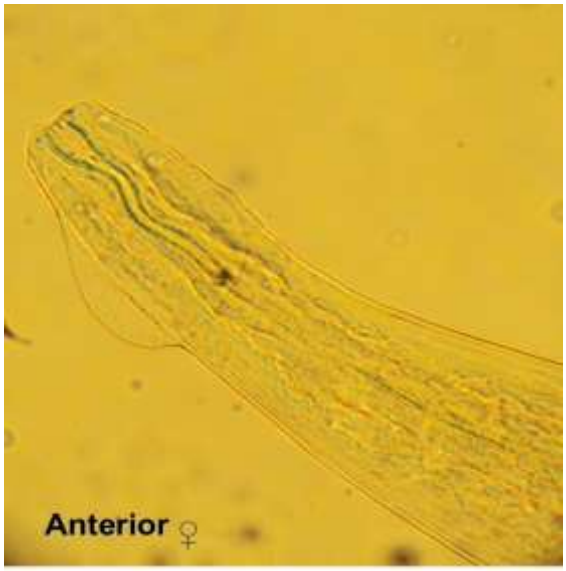
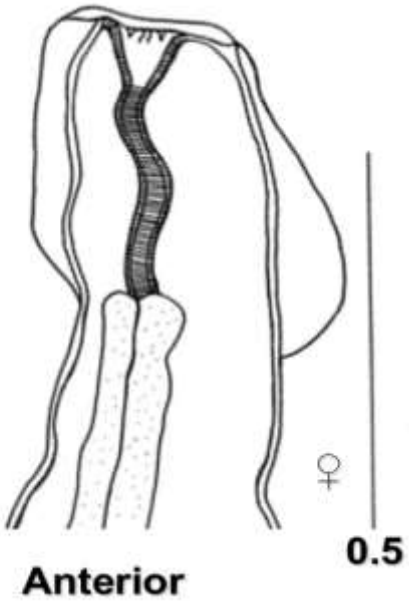
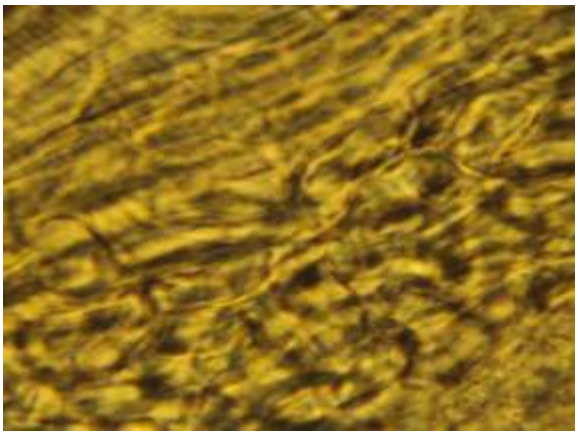
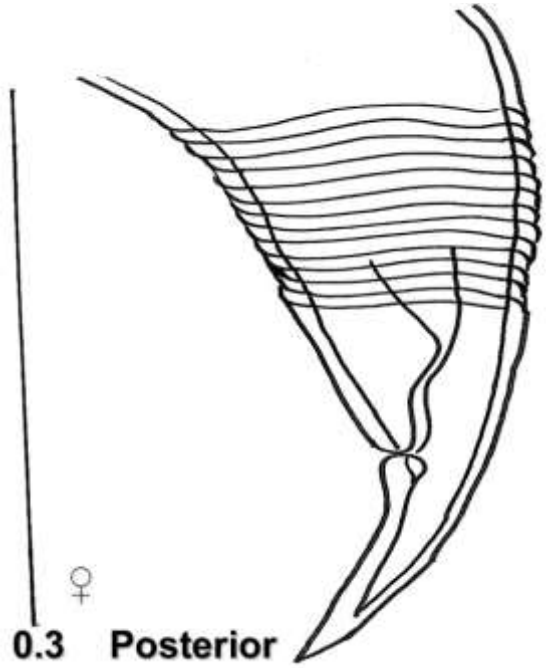


Fig. 1. *Rhabdochona indusi* new species. Anterior and posterior Photographs and Diagrams of male worm. Scale bar in mm.









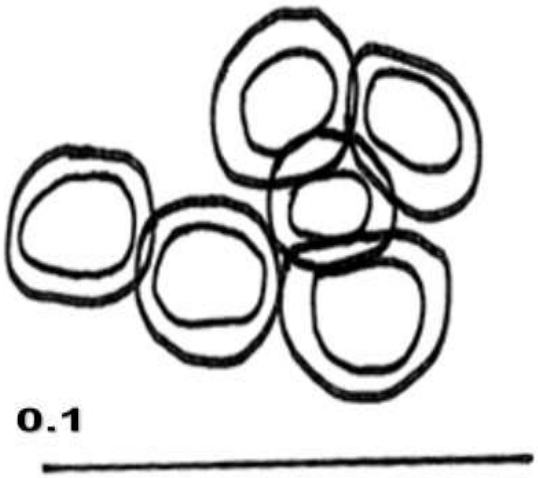


Fig. 2. *Rhabdochona indusi* new species. Anterior, posterior and eggs Photographs and Diagrams of female worm. Scale bar in mm.

Description

General: Body of the nematodes is delicate, very long, elongated, with pointed posterior extremity. Cuticle with striations in both male and female worms. Anteriorly at lateral side cuticle enlarged, forming cup like structure in female worms. Greatest body width almost in posterior region of male and anterior half of the female. Male is smaller in size as compared to the female. Buccal capsule is rounded, large, funnel shape. 8 prostomal teeth (2 dorsal, 2 ventral, 2 at each lateral side). All teeth are spiny in shape. Esophagus consist of two parts; anterior larger, narrow having double lined stripped pattern and posterior glandular is smaller and wider leading into intestine. Esophagus is straight in males. In female worms, the muscular part of esophagus is curved and glandular esophagus is straight. Excretory pore in posterior extremity of body. Two unequal and dissimilar spicules are present. Larger spicule rounded anteriorly, with small groove at lateral side, pointed posteriorly with curved ventrally, without uniform thickness. Smaller spicule rounded anteriorly and pointed posteriorly. Caudal papillae are 19 pairs. Out of 19 pairs, 6 postanal and 13 preanal. Genital opening post-equatorial in position; vulva marginal; anterior vulvar lip hook shape and posterior vulvar lip pointed, vagina muscular directed posteriorly. Eggs are double walled, almost round to oval in shape. Tail of the worms is strongly curved in male and slightly curved in female.

Male: Body of the worm measuring 9.121–10.167 X 0.126–0.248 in size. Maximum width at posterior region. Prostome measuring 0.01–0.04 X 0.006–0.008 in size. Mesostome measuring 0.014–0.017 X 0.005–0.008 in size. Muscular esophagus is smaller, measuring 0.06–0.09 X 0.006–0.007 in size. Glandular esophagus is large, measuring 4.151–5.791 X 0.077–0.092 in size. Larger spicule measures 0.03–0.06 X 0.004–0.008 in size. Smaller spicule measures 0.022–0.040 X 0.016–0.020 in size. Tail is 0.07–0.11 in size.

Female: Body of the female worm is comparatively very long, measuring 38.081–43.020 X 0.312–0.428 in size. Maximum width at pre-equatorial region. Prostome measuring 0.064–0.069 X 0.04–0.06 in size. Mesostome measuring 0.052–0.060 X 0.032–0.040 in size. Muscular esophagus measuring 0.288–0.380 X 0.024–0.030 in size**.** Glandular esophagus measuring 5.04-5.35 X 0.275-0.483**.** Genital pore from anterior extremity measures 23.49–24.80 and from posterior extremity 17.32–19.53. Vulva measuring 0.012–0.015 X 0.028–0.030 in size. Anterior vulvar lip measures 0.08–0.09 X 0.016–0.018 in size. Posterior vulvar lip 0.048–0.049 X 0.012-0.014 in size. Vagina measures 0.16–0.019 X 0.06–0.07 in size. Eggs measure 0.04–0.07 X 0.088–0.090 in size. Tail length 0.378–0.40 X 0.066–0.070 in size.

Table 1. Matrical comparison of various species of genus *Rhabdochona* with new species.

Species	*R. indusi* n.sp.		*R.magna* (khan and Yaseen,1969) Zaidi and Khan,1975		*R.kharani* (Asmatullaha kakar *et al*,2006)		*R.uvaginus* (Kakar and Bilqees,2007)		*R.magnavesicula* (Kakar and Bilqees,2008)		*R.mujibi* (Kakar and Bilqees,2009)		*R.annai* (Asmatullaha kakar *et al*,2012)	
Host	*Rita rita*		*Rita rita*		*Lebeo gedrosicus zugmayer*		*Tor putitora*		*Schizocyprus brucci*		*Tor putitora*		*Tor putitora*	
Locality	Pakistan		Pakistan		Balochistan, Pakistan		Balochistan, Pakistan		Balochistan, Pakistan		Balochistan, Pakistan		Balochistan, Pakistan	
Gender	Female	Male	Female	Male	Female	male	Female	Male	Female	Male	Female	Male	Female	Male
Teeth	8	8	3		8	8	8	8	10	10	8	8	8	8
Body length	38.081–43.020	9.121–10.167			8.5-9.2	3.5-4.3	6.05	3.04	12.54-15-.72	7.86-9.15	3.3-3.6	4.4-4.6	4.43-6.56	3.68-4.55
Greatest width	0.312–0.428	0.126–0.248			0.025-0.027	0.20-0.4	0.013	0.012	0.268-0.324	0.15-0.2	0.1-0.12	0.13-0.13	0.13-0.15	0.09-0.12
Prostome	0.064–0.069 X 0.04–0.06	0.01–0.04 X 0.006–0.008	0.036×0.02		0.020×0.022	0.020×0.021	0.001×0.005	0.001×0.05	0.012-0.014×0.011-0.013	0.07-0.09×0.006-0.007	0.004-0.005×0.006-0.008	0.003-0.004×0.005-0.006	0.006-0.009×0.004-0.007	0.003-0.005×0.005-0.007
Mesostome	0.052–0.060 X 0.032–0.040	0.014–0.017 X 0.005–0.008	0.04×0.016		0.022-0.025×0.021-0.022	0.020-0.024×0.011-0.012	0.01×0.08	0.001×0.001	0.024-0.026×0.029-0.034	0.015-0.018×0.018-0.021	0.006-0.007×0.007-0.009	0.012-0.014×0.009-0.01	0.007-0.01×0.008-0.011	0.008-0.11×0.007-0.01
Muscular esophagus	0.288–0.380 X 0.024–0.030	0.06–0.09 X 0.006–0.007	0.052×0.016		0.090-0.093×0.012-0.013	0.016-0.064×0.011-0.014	0.07×0.006	0.08×0.01	0.09-0.11×0.031-0.033	0.063-0.065×0.009-0.012	0.05-0.07×0.005-0.006	0.081-0.086	0.05-0.08×0.005-0.008	0.042-0.067×0.003-0.005
Glandular esophagus	5.04-5.35×0.275-0.483.	4.151–5.791 X 0.077–			0.24-0.26×0.25-0.027	0.170-0.175×0.016-0.018	0.23×0.025	0.09×0.03	0.2830.287×0.043-0.045	0.263-0.268×0.035-0.037	0.169-0.173×0.023-	0.198-0.227	0.12-0.28×0.011-0.025	0.14-0.25×0.008-0.016

Large spicule		0.092 0.03–0.06 X 0.004–0.008			2.9-3.1		0.21×0.012	0.284-0.017×0.017-0.019	0.025	0.37-0.39×0.01-0.02		0.38-0.53 ×0.008-0.014
Small spicule		0.022–0.040 X 0.016–0.020			0.08-0.09		0.091×0.031	0.1-0.13×0.003-0.005		0.084-0.087 ×0.017-0.019		0.07-0.12 ×0.02-0.034
Caudal papillae		19 pairs			17-18 pairs		13 pairs	9 pairs		15 pairs		15 pairs
Genital pore distance from anterior	23.49–24.80			5.8-6.3								
Genital pore distance from posterior	17.32–19.53								1.14-1.32		2.27-2.87	
Vulva	0.012–0.015 X 0.028–0.030		0.018× 0.024				0.12-0.13×0.07-0.09		0.037-0.045 ×0.02-0.03		0.022-0.035 ×0.010.014	
Anterior vulvar lip	0.08–0.09 X 0.016–0.018		0.034×0.024	0.06-0.063 ×0.037-0.039		0.04	0.06-0.07×0.04-0.05		0.039-0.042 ×0.014-0.016		0.017-0.023 ×0.003-0.005	
Posterior vulvar lip	0.048–0.049 X 0.012-0.014		0.018 × 0.018			0.04	0.05-0.06×0.03-0.04		0.03-0.04 ×0.013-0.014		0.018-0.024 ×0.004-0.006	
Vagina	0.16–0.019 X 0.06–0.07		0.18 ×0.066	0.16-0.17 ×0.030-0.031		0.024×0.031	0.68-0.74×0.14-0.152		0.021-0.23 ×0.043-0.045		0.19-0.27 ×0.020.031	
Egg	0.04–0.07 X 0.088–0.090		0.03× 0.024	0.040-0.059 ×0.019-0.021		0.003×0.003	0.041-0.052 ×0.003-0.004		0.034-0.042 ×0.024-0.033		0.009-0.21 ×0.005-0.012	
Tail	0.378–0.40 X 0.066–0.070	0.07–0.11	0.036× 0.024	0.17-0.19	0.25-0.28	0.03	0.02	0.5-0.6	0.18-0.2	0.09-0.1	0.20.3	0.1-0.25	0.09-0.2

Discussion

The congener's species of *Rhabdochona* genus can be distinguished from *Rhabdochona indusi* new species on the basis of metrical data of *Rhabdochona* spp (Table. 1) and detail comparisons below.

R. cavasius Rehana and Bilqees, 1973 collected from small intestine of fish *Mystus cavasius* of Pakistan differs from *Rhabdochona indusi* in having prostome surrounded by cuticle, formed rounded structure; glandular esophagus in male highly curved; 3 teeth; 14 pairs of caudal papillae of 9 preanal and 5 postanal in position; larger spicule rounded anteriorly. Pointed posteriorly; smaller spicule pointed at both ends; genital pore pre-equatorial in position; vagina curved ventrally; eggs rounded to oval; tail of male highly curved and straight in female.

R. magna (Khan and Yaseen, 1969) Zaidi and Khan, 1975 collected from intestine of fish *Rita rita* of Pakistan differs from *Rhabdochona indusi* in having smooth cuticle; buccal capsule oval to funnel shaped; 3 prostomal teeth; a pair of cephalic papillae; genital opening equatorial in position; vulvar lips rounded anteriorly; eggs rounded to oval; tail is straight.

R. chanawensis Zaidi and Khan, 1975 collected from intestine of fish *Eutropiihtys vacha* of Pakistan differs from *Rhabdochona indusi* in having smooth cuticle; buccal capsule surrounded by cuticle anteriorly, formed rounded structure; 4 prostomal teeth; 20 pairs of caudal papillae of 9 postanal and11 preanal in position; both spicules straight anteriorly, pointed posteriorly; tail curved with rounded tip.

R. megasacculata Ghazi and Rahim, 1999 collected from the stomach of fresh water fish *Bridius vagra* of Pakistan differs from *Rhabdochona indusi* in having smooth cuticle; wider at level of posterior half of body; buccal capsule funnel shape; smaller in length; 10 longitudinal teeth with vestibule cylindrical structure; nerve ring present; genital pore pre-equatorial in position; muscular and glandular esophagus straight in shape; genital opening open's through wider opening contain voluminous bulbous, elongated sac like structure.

R. kharani Kakar *et al.*, 2006 collected from intestine, stomach and swim bladder of fish *Lebeo gedrosicus zugmayer* of Pakistan differs from *Rhabdochona indusi* in having smaller body size; smooth cuticle; widest at post-esophageal region;

a pair of cephalic spicule with thick cuticle margins throughout its length; 17-18 pairs of caudal papillae of 10-11 pairs preanal, 6-7 pairs postanal and 1 pair adanal in position; anterior vulvar lip triangular; vagina enclosed in glandular structure.

R. higoli Kakar and Bilqees, 2007 collected from the intestine of fish *Cyprinion milesi* of Pakistan differs from *Rhabdochona indusi* in having smaller body size; smooth cuticle; widest at midlevel of body; 6 prostomal teeth; two cephalic papillae on each side of prostome; glandular esophagus line externally with thin membrene; nerve ring and deirids present; genital pore pre-equatorial; larger left spicule curved at both ends; posteriorly ending into a spoon like tip; uniform thickness; smaller right spicule ventrally curved with broader anteriorly; tail conically curved with striations, ending into papillae like tip; caudal papillae 15 pairs of 7 preanal and 8 postanal in position.

R. bifidum Kakar and Bilqees, 2007 collected from stomach of fish *Tor putitora* from of Pakistan differs from *Rhabdochona indusi* in having only male specimens smaller body; widest at level of excretory pore; cuticle striations present posteriorly; buccal capsule cup shape; 6 prostomal teeth present; a pair of cephalic papillae present; genital pore post-equatorial in position; nerve ring and deirids present; large spicule broader, notched at anterior end, with bifid tip posteriorly; smaller spicule ventrally curved, narrow posteriorly with bifid tip; caudal papillae 15 pairs of 9 pairs preanal and 6 pairs postanal in position; tail conical curved ventrally.

R. uvaginus Kakar and Bilqees, 2007 collected from intestine of *Tor putitora* of Pakistan differs from *Rhabdochona indusi* in having smaller body size; a pair of cephalic papillae present; glandular esophagus of female curved laterally overlapping some part of the intestine; larger spicule bent dorsally, narrowing at tip; smaller spicule bent ventrally, rounded at its proximal end; genital pore pre-equatorial in position; 13 pairs of caudal papillae of 8 pairs preanal and 5 pairs postanal in position; vulvar lips elongated; vagina u-shape; eggs smaller, rounded to oval; tail of female worm is broadly pointed whereas of male is sharply pointed.

R. magnavesicula Kakar and Bilqees, 2008 collected from intestine of fish *Schizocyprus brucci* of Pakistan differs from *Rhabdochona indusi* in having smaller body size with smooth cuticle; widest at mid-level of body; buccal capsule oval shape; 10 prostomal teeth present; a pair of cephalic papillae present; nerve ring and deirids present; muscular esophagus larger and thick in female whereas it is much narrower in male worms; female contain circular, sucker like excretory vesicle with excretory tube; genital pore post-equatorial; larger spicule bent ventrally into a bilobed terminal portion; smaller spicule pointed at distal end, spindle shaped, with thread like proximal portion; caudal papillae 9 pairs of 4 pairs preanal and 5 pairs postanal in position; eggs oval shaped and tail of female straight, with 3 rectal glands.

R. milesi Kakar *et al*.,2008 collected from intestine of fish *Cyprinion milesi* of Pakistan differs from *Rhabdochona indusi* in having body with smooth cuticle, smaller in size; nerve ring and deirids present; larger spicule straight, thick, pointed posteriorly and anterior tip end into rounded chitinous knob; smaller spicule rounded anteriorly, flat posteriorly, with distinctly divided into two portions; 10 prostomal teeth; a pair of cephalic papillae; 13 pairs of caudal papillae of 8 pairs preanal and 5 pairs postanal in position; excretory pore post-equatorial in position; vulva sub-marginal, vulvar lips formed beak of bird like structure; egg rounded to oval in shape.

R. papuanensis Moravec *et al*., 2008 collected from intestine of fish *Melanotaenia affinis* of New Guinea differ from *Rhabdochona indusi* in having smaller body size with striated cuticle; 14 prostomal teeth; 2 pairs of cephalic papillae, a pair of lateral amphaids; nerve ring and deirids present; excretory pore post-equatorial in position; 16 pairs of caudal papillae; larger spicule with expanded distal tip; smaller spicule dorsal barb at distal tip; vulvar lip elevated; vagina directed upward; eggs oval thin walled and tail conical with pointed tip.

R. mujibi Kakar and Bilqees, 2009 collected from intestine of fish *Tor putitora* of Pakistan differs from *Rhabdochona indusi* in having smaller body with smooth cuticle; widest at level of middle region of body; a pair of cephalic papillae present; male glandular esophagus terminates into a vestibule, anchoring the anterior portion of intestine; nerve ring and deirids present; excretory pore post-equatorial in position; larger spicule curved ventrally; smaller spicule rounded anteriorly and curved ventrally; caudal papillae 15 pairs of 9 pairs preanal and 6 postanal in position; genital opening at post-equatorial level; vulva sub-marginal, c-shape in structure; vagina directed upward; tail small curved in male and straight in female.

R. hellichi Skryabin, 1917 (Moravec *et al.* 2010) collected from intestine of fish *Schiyothorax* Sp of India differs from *Rhabdochona indusi* in having smaller body with striated cuticle; buccal capsule hexagonal; 2 pairs of cephalic papillae, a pair of lateral amphid; 14 prostomal teeth; a pair of deirids present;15 pairs of caudal papillae of 9 pairs preanal and 6 pairs postanal in position; larger spicule bifurcated with distal end; smaller spicule with dorsal barb at distal tip; vagina directed posteriorly; eggs oval and tail conical with sharply pointed tip.

R. hospti Thapar, 1950 (Moravec *et al.* 2010) collected from intestine of fish *Tor* sp. (Cyprinidae) of India differs from *Rhabdochona indusi* in having smaller body size with striated cuticle; oral apperture hexagonal; buccle capsule funnel shaped; 4 cephalic papillae, a pair of lateral amphids; a pair of deirids present; 14 prostomal teeth; nerve ring present in female; caudal papillae 17-18 pairs of 7-8 are postanal and 10 are preanal in position; larger spicule with narrowed distal tip; smaller spicule wider; vagina short; eggs with filaments; tail of both sexes conical, sharply pointed, with cuticle spike.

R. annai Kakar *et al.*, 2012 collected from intestine of fish *Tor putitora* of Pakistan differs from *Rhabdochona indusi* in having smaller body size having smooth cuticle with striations posteriorly in male; buccal capsule cup shape in female and triangular in male; a pair of cephalic papillae is present; nerve ring and deirids present; larger spicule anteriorly bent dorsal side, with bilobed tip; smaller spicule bent ventrally, narrower posteriorly; 15 pairs of caudal papillae of 10 preanal, 5 postanal in position; vulva beak shape, vagina bent posteriorly; eggs oval double walled; tail pointed, curved dorsally in males and straight in females.

R. pakistanica Kakar *et al.*, 2012 collected from stomach of fish *Cyprinion watsoni* of Pakistan differs from *Rhabdochona indusi* in having smaller body with smooth cuticle; widest at level of middle in males and at level of vagina in females; a pair of cephalic papillae present; nerve ring and deirids present; excretory pore post-equatorial in position;12 pairs of caudal papillae of 7 preanal, 5 postanal in position; larger spicule tubula, with knob like proximal end and pointed distal end; smaller spicule rounded at proximal end; vulvar lips beak shaped; eggs elongated.

Rhabdochona indusi new species can be distinguished from their congener's species in having largest striated body, greatest width almost in posterior region of male and anterior half of the female, number of papillae, spicule shape and size, shape of genital structures and shape and size of eggs. On the basis of above differences a *Rhabdochona indusi* n. sp. is proposed.

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