

# New Records of Trematode Parasites (Digenea) in the Banded Frog (*Rana camerani*) and Marsh Frog (*Rana ridibunda ridibunda*) (Anura : Ranidae), from Southwest of Iran

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**Abstract:** Fourteen adult frogs including six banded frog, *Rana camerani* and eight marsh frog, *Rana ridibunda ridibunda* were collected from two sites of Chahar Mahal-o-Bakhtiari province at the southwest of Iran and then were examined for helminth parasites. Only *Dolichosaccus rastellus* (50%) was found in *R. camerani*. *Skrjabinoeces similis* (50%) and metacercarian cysts of *Codonocephalus urniger* (12.5%) were found in *R. ridibunda ridibunda*. This is both the first report of *Dolichosaccus rastellus* in *R. camerani* as a new host for this parasite, and of *Codonocephalus urniger* in Iranian frogs; also a first report of *Skrjabinoeces similis* in south west of Iran.

**KEY WORDS :** Trematode, Parasite, Digenea, Frog, Iran

## Introduction

The banded frog, *Rana camerani* Boulenger, 1886, was reported from north west of Iran (Leviton *et al.*, 1992). Recently a new record of this species is introduced from Chahar Mahal-o-Bakhtiari povince at south west of Iran (Mashaii, 1996). There is no record about helminth parasites of *R. camerani*. The present study is the first helminthological survey on this species. The marsh frog, *Rana ridibunda ridibunda* Pallas, 1771, is the common frog of Iran which can be found all over the country except some small areas at the south east (Anderson, 1963). Combes and Kneopffler (1972-1973) studied the helminth parasite fauna of these frogs in a small area at the north of Iran. Formerly, their work was the only reference about parasite fauna of Iranian frogs. This study presents information about helminth fauna of the *Rana camerani* and *R. ridibunda ridibunda* from south west of Iran and the discription of three species of their digenetic parasites

including *Dolichosaccus rastellus*, *Skrjabenoeces similis* and *Codonocephalus urniger*.

## Materials and Methods

Fourteen adult frogs including six *Rana camerani* and eight *R. ridibunda* were collected with the aid of a dip net or by hand during 1-4 August 1994 from two different sites in Chahar Mahal-o-Bakhtiari Province at the south west of Iran. Collection sites of *R. camerani* [mean Snout Vent Length (SVL) range:  $2.181 \pm 0.001$  cm] and *R. r. ridibunda* (mean SVL range:  $2.678 \pm 0.001$  cm) samples, were different. Frogs were kept in cages during five days after capture to transport to the laboratory. Samples were immediately dissected after being euthanised. Body cavity, peritoneum, muscles and surface of internal organs were examined in regard to cysts of parasites. Then, urinary bladder, lungs, stomach, intestine, rectum and liver of the dissected frogs were examined in separate Petri dishes filled with 6% sodium chloride solution, under a stereo micro-scope at 12X magnification. Parasites were fixed and preserved in 10% formalin, stained in carmine alum and mounted in Canada balsam on microscope slides. Figures were drawn with the aid of a camera lucida. Parasite species were determined based on Skrjabin (1964), Smyth and Smyth (1980), Prudhoe and Bray (1982), works. Determination of the species were confirmed by the Natural History Museum of London.

## Results

Three of six *R. camerani* samples (50%) were infected to *D. rastellus*. Mean density of infection was 3(2,2,5). Also four of eight *R. ridibunda* samples (50%) were infected to *S. similis* and mean density of infection was 2 (1,2,2,3). Only one of eight *R. ridibunda* samples (12.5%) was infected to 11 cysts of *C. urniger*.

### 1) *Dolichosaccus rastellus* (Olson , 1876) Travassos, 1930

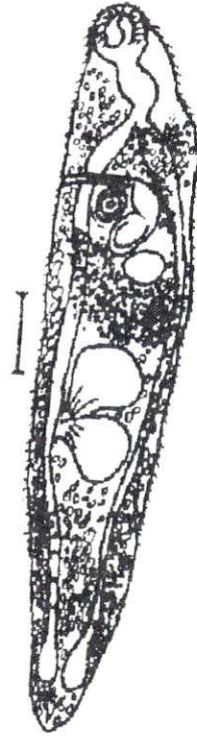
**Host:** *Rana camerani* Boulenger, 1886. Personal collection.

**Site:** Intestine.

**Locality:** Dimeh spring ( $50^{\circ}13' E$ ,  $32^{\circ}32' N$ ), north west of Chahar Mahal-o-Bakhtiari province, south west of Iran.

**Synonyms:** *Distomum rastellus* Olsson, 1876; *D. endolobum* Linstow, 1888 nec Dujardin, 1845; *Opisthioglyphe rastellus* Loss, 1907; *O. hystrix* of Nicoll, 1926; *Lecithopyge rastellus rastellus* Perkins, 1928; *L. rastellus subulatum* Perkins, 1928; *L. rastellus cylindriforme* Perkins, 1928

(Fig. 1).



**Fig 1 :** *Dolichosaccus rastellus* (Scale bar: 0.5 mm)

**Description:** Body oval, tapering a little posteriorly; spinose exceptionally at the latest fifth. 24.7 mm length and 0.45-0.90 mm width. Ventral sucker larger than oral sucker, situated after the first fourth of body. Pharynx large; oesophagus short; prepharynx perfectly distinct in some specimens. Intestinal bifurcation at about midway between suckers; caeca long, reaching a little behind posterior end of body. Genital pore between ventral sucker and intestinal bifurcation, median to marginal. Sirtus sac long, perfectly curved, extending from anterior to much posterior margin of ventral sucker; containing a long curved cirrus, pars prostatica and an expanded seminal vesicle. Testes spherical, a little former to transversal median line, one obliquely behind other. Ovary rounded, situated posteriorly to ventral sucker, left to median line, closed to posterior end of sirtus sac. Vitelline follicles small and numerous, distributed from pharynx to posterior end of body. Uterine coils lying between former testis and posterior end of ventral sucker, always laterally extending to margins of body wall. Eggs broadly oval, 0.25-0.30 mm length.

**Remarks:** There was not any report about *D. rastellus* either in Iranian frogs or in *R. camerani* from other distributional areas of this frog. So, *R. camerani* is reported as a new host for *D. rastellus*. In one of the *D. rastellus* specimens, genital pore was located on the right margin of body and in another specimen it was sub marginal. In other *D. rastellus* described previously (Prudhoe and Bray, 1982 ; Vojtkova, 1974 ; Combes, 1967), genital pore was median or sub median.

2) *Skrjabinoeces similis* (Loos, 1899) Sudarikov, 1950

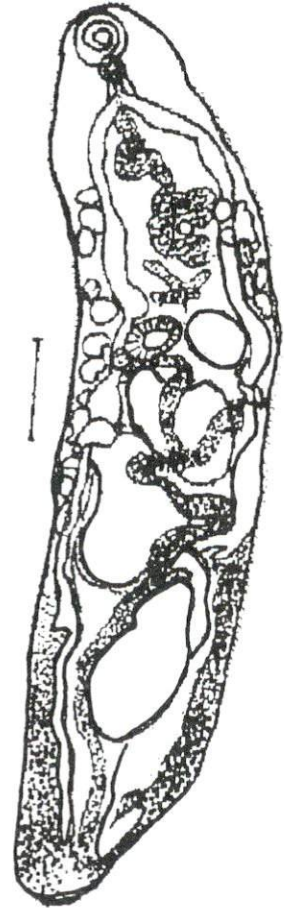
**Host:** *Rana ridibunda ridibunda* Pallas, 1772.  
Personal collection.

**Site:** Lungs.

**Locality:** Sooleghan pond (50°55' E, 31°56' N), east of Chahar Mahal-o-Bakhtiari province, south west of Iran.

**Synonyms:** *Haematoloechus similis* Loos, 1899 ; *H. similigenus* Stiles et Hassal, 1902 ; *Pneumonoeces similis* (Loos, 1899) Klein, 1905 ; *P. similigenous* (Stiles et Hassal, 1902 ; *Pneumo-noeces similis* (Loos, 1899) Klein, 1905 ; *P. similigenus* (Stiles et Hassal, 1902) Cort, 1915 ; *H. (skrabinoeces) similis similis* (Loos, 1899), Odening, 1958 (Fig. 2).

Fig. 2 : *Skrjabinoeces similis* (Scale bar : 1 mm)



**Description:** With an elongate oval body; spinose exceptionally at the latest fourth of body 5.0-8.2 mm length and 1.2-1.7 mm width. Oral sucker is a little larger than ventral sucker; ventral sucker is situated at the beginning of the second forth of body. Pharynx expanded; oesophagus is short. Intestinal bifurcation close to oral sucker; caeca is long, reaching nearly to posterior end of body. Genital pore is median, ventrally to intestinal bifurcation; seminal

vesicle is large, in front of anterior testis and behind ventral sucker. Testis is oval, with marginal swellings and swallowing in some specimens, one obliquely behind the other which locates at the posterior half of body. Ovary rounded is a little larger than ventral sucker and left to it. Vitelline follicles are large and sparse and also spherical to petal form, distributed from midway between suckers to nearly posterior end of anterior testis. Uterus with an ascending limb extended to intestinal bifurcation, and a descending limb passing to left of anterior testis at the right of posterior testis, reaches to hinder end of body and lies laterally to the caeca. Eggs are very small and numerous; with 0.06-0.07 mm. length.

**Remarks:** *S. similis* was reported in *R. ridibunda ridibunda* from Bandar Pahlavi (Bandar Anzali), (Combes and Kneopffler, 1972- 1973) at the North of Iran. This is the first time that this parasite is observed in south west of Iran.

In five of eight *S. similis* specimens, testes were large and each of them was longer than 1/6 body length. Also, ovary was laterally to ventral sucker with an interval between them. However, in *S. similis* described by Prudhoe and Bray (1982), ovary is fronto-laterally contacted to ventral sucker. Volna Nabelkova (1964), Vojtkova and Vojtek (1975) find ovary behind ventral sucker and attached to it. One of the hosts of *S. similis* was also infected to *Codonocephalus urniger*.

### 3) *Codonocephalus urniger* (Rudolphi, 1819) Luhe, 1909

**Host:** *Rana ridibunda ridibunda* Pallas, 1772. Personal collection.

**Site:** Metacercarian cysts on surface of ovary and kidneys, peritoneum, between muscle fibers of left thigh.

**Locality:** Sooleghan pond (50°55' E, 31°56' N), east of Chahar Mahal-o-Bakhtiari province, south west of Iran.

**Synonyms:** *Amphistomum urnigerum* Rudolphi, 1819 ; *Holostomum urnigerum* (Rud.) Diesing, 1836; *Codonocephalus mutabilis*, Diesing, 1850 (Fig. 3).

**Description:** Relatively large meta-cercarian cysts are yellow and spherical. Body divided into a floriform fore-body and a cylindrical hind-body tapered gradually to the post. 3.0-4.3 mm length and 0.41-0.63 mm width. Ventral sucker a little larger than oral sucker, both in fore-body. Pharynx is large.

Bifurcation of caeca between suckers is a little closer to ventral sucker; caeca is long, extending to nearly posterior end of the body. Testes oval, with a swelling on posterior margin of each testis is at the posterior half of body, one directly behind the other. Ovary which is in front of anterior testis is very smaller than it. Vitelline follicles are small and distributed in second third of the body.

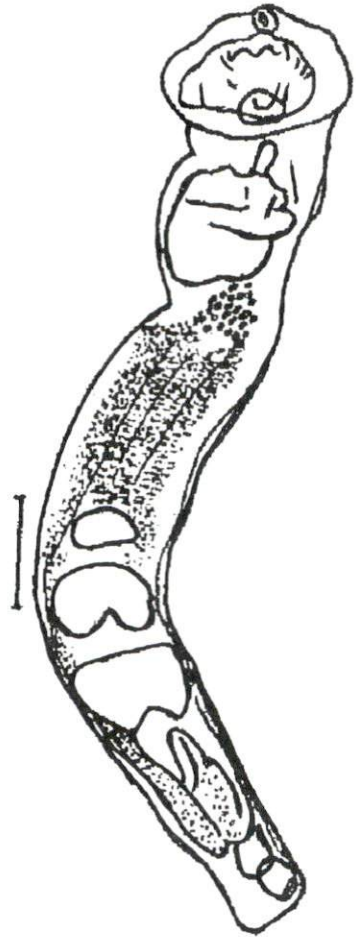


Fig. 3 : *Codonocephalus urniger* (Scale bar: 0.5 mm)



**Remarks:** This is the first report about *C. urniger* in Iranian frogs. The only *R. ridibunda ridibunda* hosted of *C. urniger* was also infected to *S. similis*.

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