INTESTINAL PARASITES OF THE MARSH FROG RANA RIDIBUNDA FROM BASRAH MARSHES, SOUTH IRAQ

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Rana ridibunda is the most common frog in the Basrah marshes. The incidence and intensity of intestinal parasites of frogs Rana sp. from three areas of the Basrah marshes, in the southern part of Iraq were studied during March-May 2012. The examination of Rana ridibunda showed presence of two digenetic trematodes (Prosotocus confusus and Pleurogenoides gastroporus) and two nematodes (Cosmocerca ornate and Cosmocerca commutate). Site of infection and rates of infection and parasite burdens have been presented in this paper.

In the Middle East, there are many studies about parasitic amphibian infections. In trials from Jordan literature provides some data about frog parasites. A total of 220 specimens were examined of the green toads Bufo viridis, 65 of the tree frog Hyla savignyi and 185 of the Levantine frog Rana bedriagae for helminth parasites. On the other hand, Hasssan isolated two trematodes from Bufo regularis in Egypt while Fernando recovered two adult digenetic trematodes from Rana ridibunda in Saudi Arabia. In Iraq, Rana ridibunda is one of the most common amphibians among eight species of the Iraqi amphibian Anna, specially among the marshes of the Basrah.

In Iraq, from two studies, two species of digenetic trematodes have been recorded from the frog Rana esculenta, collected from Basrah, south of Iraq. There are some studies about the digenetic trematodes, haemoflagellated and helminthes parasites in frog Rana ridibunda from North regions, in Iraq and from Baghdad Province, central of Iraq. The aim of this study is to know the intestinal parasites which infected the marsh frog Rana ridibunda in Basrah marshes.

MATERIALS AND METHODS
A total of 95 (50 males and 45 females) Rana ridibunda, were captured from three areas belonging to Basrah marsh area of the south Iraq and brought to laboratory of Marine Science Center-Basrah University in plastic aquariums during the period March-May 2012. All frogs were selected having nearly the similar body weights for both sexes. Specimens were anesthetized with ether and dissected. The gastrointestinal tract was separated and transferred to a Petri-dish containing saline. Then it was cut into small pieces transversely as well as longitudinally and examined under a dissecting microscope for the presence of intestinal parasites (Fig. 1).

The nematodes were washed, separated in saline and examined alive under a dissecting microscope. (Fig. 2). Then, these nematodes were fixed in 70% alcohol and cleared in lactophenol. Digenetic trematodes were fixed in 4% formol saline for 24 hours, kept pressed between two glass slides, stained with acetocarmine and permanent slides made as per standard methodology. Observations were made for specific characterizations and definite identifications were made in conformity with the published morphological descriptions.

RESULTS AND DISCUSSION
Frogs show variations of infection with intestinal parasites (Digenea and nematode). Table 1 summarizes the results of examined the intestinal parasites of the marsh frog Rana ridibunda which collected from Basrah marshes regions. A total of 95 (50 males and 45 females) specimens of the frogs were examined in this study. A total prevalence of intestinal parasites infection 36 (37.89%) were found infected with one or more species of either Digenea or nematodes or both. The prevalence intestinal parasites infection of males and females were 20 (40%) and 16 (35.55%) respectively.

Prosotocus confusus (Looss, 1894): The results of the present
study show the prevalence of infection with *P. confusus* in female frogs *Rana ridibunda* is more than among the male frogs, as also found by Saeed et al.\(^4\). The infection with the *P. confusus* was reported in the intestine of the Levantine frog *Rana bedriagae* in Jordan\(^15\) and in the intestine of *Rana ridibunda* in Turkey\(^16, 17, 18\).

**Pleurogenoides gastroporus** (Luhe, 1901): *P. gastroporus* was first recorded in Iraq by Saeed et al. from *Rana ridibunda*\(^14\). Genus *Pleurogenoides* have a number species inhabiting in small intestine of *Rana ridibunda*. Three species of this genus *P. gastroporus*, *P. stromi*, *P. medians* were reported by Saeed et al. From *Rana ridibunda*\(^14\), which differs from, *P. gastroporus* species. This difference between two studies may be due to the difference in sample size (n=95) compared with their study (n=320). Also, maybe related to eco-biological differences between the two collection sites, the northern and south marshes of Iraq\(^19\). In the present study the prevalence of infection in male frog was more than among females.

**Cosmocerca ornate** (Dujardin, 1845): This species of nematode is found in the population of marsh frog *Rana ridibunda*. The adult of *C. ornate* was found in higher number in the rectums of their hosts than in their intestines. The prevalence of infection in this study was (40%) and (35.55%) for males and females frogs, respectively, again being more among males as compared to females, as also observed by Saeed who reported that, *C. ornate* is prevalent among the population of the toad *Bufo viridis* in north Iraq\(^14\). But it was not reported from *Bufo viridis* in Baghdad area of central Iraq\(^19\). In Turkey, many studies were reported the *C. ornate* in some amphibians viz. *Bufo viridis*, *H. arborea* and *R. ridibunda*\(^16, 20, 17\).

**Cosmocerca commutata**: (Diesing, 1851): The prevalence of infection with *C. commutata* is (32%) and (24.44%) for males and female frogs respectively. In comparison with other study, this observation is more than for *C. commutata* infecting *R. ridibundain* from the north Iraq\(^14\) and *Bufo viridis* in Baghdad, central Iraq\(^19\). Here again males of *R. ridibunda* had higher infestation than their females, in contrast to Mohammad et al.\(^19\) who reported that females of *Bufo viridis* from Baghdad had higher infestation of *C. commutata* than the females. The worm *C. commutata* was reported in green toads *Bufo viridis* from Turkey and Iran\(^21, 22\) and marsh frog *R. ridibunda* from Turkey and Uzbekistan\(^16, 23, 24\).

### Table 1. Prevalence and intensity of helminthes parasites in the marsh frog *Rana ridibunda*

<table>
<thead>
<tr>
<th>Parasites species</th>
<th>Site of infection</th>
<th>Male n=50</th>
<th>Female n=45</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of infect.</td>
<td>%</td>
<td>Mean</td>
</tr>
<tr>
<td><strong>Digenea</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Prosotocus confusus</em></td>
<td>Small intestine</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><em>Pleurogenoides pas</em></td>
<td>Small intestine</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td><strong>Nematode</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cosmocerca ornate</em></td>
<td>Intestine &amp; rectum</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td><em>Cosmocerca commutata</em></td>
<td>Intestine</td>
<td>16</td>
<td>32</td>
</tr>
</tbody>
</table>

### REFERENCES


17 Yildirimhan, H.S., Karadeniz, E., Gurkan, E. and Koyun, M. (2005). In: Metazoan parasites of the marsh frog (Rana ridibunda Pallas 1771; Anura) collected from the different regions in Turkey.


Fig. 1. The examination of dishes under a dissecting microscope for the presence of intestinal parasites.

Fig. 2. The examination of live nematodes under a dissecting microscope.