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The First Record of Two Species of *Dactylogyrus* (Monogenetic Trematodes) in Iraq From Diyala River Fishes, Diyala Province

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Abstract

Two species of monogenetic trematodes of the genus *Dactylogyrus* were recorded in the present paper for the first time in Iraq from two freshwater fishes from Diyala river, Diyala province. The first species, *D. bocageii* Alvarez Pellitero, Vicente *et* Gonzalez Lanza, 1981 was recorded from gills of *Aspius vorax*, the second species, *D. lenkorani* Mikailov, 1967 was recorded from gills of *Barbus sharpeyi*. The descriptions and measurements of these parasites as well as their illustrations were given.

Introduction

The flukes which attack skin and gills of fish**es** and cause different signs and symptoms are unsegmented flat worms of the phylum Platyhelminthes belong to the class Trematoda, order Monogenea [1]. Skin flukes feed on the epithelial cells, and in doing so, they cause considerable damage to the skin of the fishes. Symptoms caused by gill flukes include increase breathing frequency, whilst the gill covering are stretched open widely. The gills are expande and very pale. Parts of the gills often become protuberant and look like a small pale fleece outside the cover. Parts of the gill sheets on which flukes have settled are covered with a cloudy film, consisting of slime and destroyed epithelial cells [2]. There are many species of gill flukes to be found on fishes. Most of the gill flukes belong to the family Dactylogyridae. The most well known belongs to the genus *Dactylogyrus* [1].

The *Dactylogyrus* fauna from freshwater fishes of Iraq is rich and represents the major group of the monogenetic trematodes. The first record in Iraq was *D. cornu* on five freshwater fish species from Diyala river by Ali *et al.* [3]. Many surveys were done during the following years from different water bodies which brought additional new *Dactylogyrus* species [4, 5, 6, 7, 8, 9]. The checklist of the parasites of fishes from Iraq includes 80 species of *Dactylogyrus* [10]. So, more surveys of fish parasites are needed to recognize more species and increasing information of parasitic fauna of freshwater fishes of Iraq. The present paper deals with the record of two species of *Dactylogyrus* for the first time in Iraq.

Materials and Methods

During February and March 2010, a total of 23 fishes belonging to five species (*Aspius vorax*, *Barbus luteus, B. sharpeyi*, *B. xanthopterus* and *Silurus triostegus*) were collected from Diyala river Diyala province, at Ba'Quabah city (it is sitiuated between 33°-34° north latitude and 44°-45° east longitude). They were examined for ectoparasites. Skin, buccal cavity and gill smears were prepared and microscopically examined. Care was taken to isolate and flatten the parasite specimens, which were then stained with aqueous neutral red. Permanent slides were then prepared with glycerin. Measurments of parasites were done by using micrometer, and drawing was done by using a camera lucida. The parasites were identified according to Gussev [11].

Results and Discussion

The present study showed the existence of two species of monogenetic trematodes belonging to the genus *Dactylogyrus*. The following is an account of their measurements (in mm). The measurements were based on six specimens of each species.

Dactylogyrus bocageii Alvarez Pellitero, Vicente *et* Gonzalez Lanza, 1981 (Fig. 1):

Among the examined fishes, one specimen (out of three) of *A. vorax* with total length 35cm and total weight 400 gm was infected with many specimens of this parasite. Worm had a moderate size, length 0.6-0.75 (0.67), width 0.1-0.12 (0.11). Length of marginal hooks (hooklets) 0.023-0.03 (0.026). Overall length of median hook 0.033-0.04 (0.036), spike 0.01-0.02 (0.011), total length of median hooks 0.04-0.05 (0.045), length of external process 0003-0.005 (0.004), internal process 0.012-0.017 (0.014). Connecting bar 0.025-0.03 (0.027)x0.003-0.006 (0.0045), supplementary bar 0.022-0.028 (0.025)x0.0025-0.005 (0.003). Total length of copulatory organ 0.04-0.045 (0.042). The present measurements of *D. bocageii* are similar to those reported by Gussev [11].

Dactylogyrus lenkorani Mikailov, 1967 (Fig. 2):

The gills of one *B. sharpeyi* (out of four) was infected with this parasite. The infected fish was male with a total length of 39 cm and a total weight of 750 gm. Worm of moderate size, length 0.05-0.06 (0.055), width 0.09-0.1 (0.095). Length of marginal hooks 0.018-0.025 (0.041). Overal length of median hook 0.038-0.05 (0.044), spike 0.01-0.012 (0.011), total length of median hooks 0.048-0.062 (0.055), length of external process 0.005-0.007 (0.006), internal process 0.015-0.017 (0.016). Connecting bar 0.027-0.032 (0.029)x0.006-0.01 (0.008), supplementary bar 0.021-0.025 (0.023)x0.003. Total length of copulatory organ 0.027-0.04 (0.033).The measurements of the present *D. lenkorani* are in an agreement with those reported by Gussev [11].The two above-named dactylogyrids can be easily differentiated according to the shape of both connecting and supplementary bars as well as the structure of their copulatory organ. Also, *D. bocageii* has a cartilagenous filament in its median hook while no such filament is present in *D. lenkorani* (Figs. 1 and 2). It is appropriate to mention here that Gussev [11] has considered *D. araxicus* Mikailov, 1977 as a synonym of *D. lenkorani*.

According to Mhaisen [10], the two parasites of the present study (*D. bocageii* and *D. lenkorani*) represent their first record in Iraq as no previous record was given for these parasites on fishes from Iraq.

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References

1.Duijn, Van Jnr. C. (1973). Diseases of fishes, 3rd ed., Iliffe Books, London: 372pp.

2.Amlacher, E. (1970). Textbook of fish diseases (Engl.Transl.). T. F. H. Publ., Jersey city: 302pp.

3. Ali, N.M.; Al-Jafery, A.R. and Abdul-Ameer, K.N. (1986). New records of three monogenetic trematodes on some freshwater fishes from Diyala river, Iraq. J. Biol. Sci. Res., 17(2): 253-266.

4. Abdullah, S.M.A. (2005). Parasitic fauna of some freshwater fishes from Darbandikhan lake, north of Iraq. J. Dohuk Univ., 8(1): 29-53.

5. Abdullah, S.M.A. and Mhaisen, F.T. (2004). Parasitic infection with monogenetic trematodes on fishes of Lesser Zab and Greater Zab rivers in northern Iraq. Zanco J. Salahaddin Univ., 16(4): 43-52.

6. Al-Nasiri, F.S.; Mhaisen, F.T. and Al-Nasiri, S.K. (2002). First occurrence of the monogenetic trematode *Dactylogyrus capoetae* Jalali, Papp *et* Molnar, 1995 in Iraq on gills of the cyprinid fish *Barbus luteus*. J. Diyala, 13: 421-425.
7. Gussev, A.V.; Ali, N.M.; Abdul-Ameer, K.N.; Amin, S.M. and Molnār, K. (1993). New and known species of *Dactylogyrus* Diesing, 1850 (Monogenea, Dactylogyridae) from cyprinid fishes of the river Tigris, Iraq. Syst. Parasitol., 25: 229-237.
8. Salih, N.E.; Ali, N.M. and Abdul-Ameer, K.N. (1988). Helminthic fauna of three species of carp raised in ponds in Iraq. J. Biol. Sci. Res., 19(2): 369-386.
9. Balasem, A.N.; Mhaisen, F.T.; Asmar, K.R.; Al-Jawda, J.M. and Adday, T.K. (2009). Record of two species of the monogenetic trematodes genus *Dactylogyrus* for the first time in Iraq on gills of the cyprinid fish *Alburnus caeruleus*. Bull. Iraq Nat. Hist. Mus., 10(4): 11-16.
10. Mhaisen, F.T. (2010). Index-catalogue of parasites and disease agents of fishes of Iraq. (Unpublished data: mhaisenft@yahoo.co.uk).
11. Gussev, A.V. (1985). Parasitic metazoans: Class Monogenea. In: Bauer, O.N. (Ed.) Key to the parasites of freshwater fish fauna of the U.S.S.R. Nauka, Leningrad, 2: 1-424 (In Russian).

Fig.(1): Dactylogyrus bocageii (Scale bar = 0.02mm .)

Fig.(2): Dactylogyrus lenkorani (Scale bar = 0.02mm .)Mh: Median hook, cb: connecting bar, Sb: Supplementary bar, Co:Copulatory organ , HI:Hooklet, Es:Eye spots, T:testes, O:Overy, U:Uterus.

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التسجيل الأول لنوعين من المخرّمات أحادية المنشأ من الجنس *Dactylogyrus* في العراق من أسماك نهر ديالى، محافظة ديالى

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الخلاصة

سجل في هذا البحث نوعين من المخرّمات أحادية المنشأ من الجنس *Dactylogyrus* من أسماك نهر ديالى في محافظة ديالى، النوع الأول هو *D. bocageii* Alvarez Pellitero, Vicente *et* Gonzalez Lanza, 1981 من غلاصم أسماك الشلك *Aspius vorax*، والنوع الثاني هو *D. lenkorani* Mikailov, 1967 من غلاصم أسماك البني *Barbus sharpeyi*. تم إعطاء وصف وقياسات بالإضافة إلى رسم توضيحي لكل من هذين النوعين من الطفيليات.