

أول تقرير عن طفيليات سمكة البلطي حمراء البطن (*Tilapia zillii* (Gervais, 1848) في العراق

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الخلاصة

أثناء التحري عن الطفيليات الخارجية والداخلية لأسماك نهر الفرات عند مدينة المسيب، محافظة بابل، وسط العراق خلال المدة من شهر تموز 2006 وحتى نهاية حزيران 2007 إكتشف أحدنا (ب ع السعدي) نماذج من الأسماك بدت جديدة على المجموعة السمكية في العراق. شخصت هذه النماذج من قبل أخصائي مركز بحوث ومتحف التاريخ الطبيعي بجامعة بغداد وتم تأكيد التشخيص من قبل أخصائي المتحف الكندي للطبيعة في أوتاوا على أنها تعود لسمكة البلطي حمراء البطن (*Tilapia zillii* (Gervais, 1848). عند فحص الأسماك، تم تسجيل خمسة أنواع من الطفيليات التي شملت ثلاثة أنواع من الديدان الحيوانية: *Ichthyophthirius multifiliis* و *Trichodina cottidarum* و *T. domerguei* و يرقات الندبة لمحار المياه العذبة *Unio pictorum* و يرقات الدودة الخيطية *Contraecaecum* sp. كل هذه الطفيليات تم تسجيلها من غلاصم الأسماك عدا النوع الأخير الذي وجد متكيسا في جوف الجسم والمساريق. أظهر الإستعراض المرجعي لطفيليات أسماك العراق أن العدد الإجمالي للأنواع الطفيلية المسجلة لحد الآن من سمكة البلطي حمراء البطن في العراق قد وصل إلى 17 نوعا.

THE FIRST PARASITOLOGICAL REPORT ON THE REDBELLY TILAPIA *Tilapia zillii* (GERVAIS, 1848) IN IRAQ

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Abstract

While surveying fishes from the Euphrates River at Al-Musaib city, Babylon province, mid Iraq for ectoparasites and endoparasites during the period from July 2006 till the end of June 2007, one of us (BAA) detected fish specimens which seemed to be new to the fish fauna of Iraq. The specimens were identified by authorities of the Iraq Natural History Research Center and Museum, University of Baghdad and ascertained by authorities of the Canadian Museum of Nature, Ottawa, Canada as *Tilapia zillii* (Gervais, 1848). Upon fish inspection, five parasite species were recorded. These included three ciliated protozoans: *Ichthyophthirius multifiliis*, *Trichodina cottidarum* and *T. domerguei*, glochidia of the freshwater mussel *Unio pictorum* and the nematode larvae of *Contraecaecum* sp. All these parasites were recorded from fish gills while the latter parasite was found encysted in the body cavity and the mesenteries. The literature review

on parasites of fishes of Iraq indicated that the overall number of parasite species, so far recorded from *T. zillii* in Iraq reached to 17 species.

Introduction

According to the first published book on fishes of Iraq (Khalaf, 1961), a total of 124 fish species, belonging to 51 families were known at that time, but the book included no any representative species of the family Cichlidae. According to Coad (2010), the first cichlid species, the Nile tilapia *Oreochromis niloticus* (Linnaeus, 1758) was introduced to the Tigris River basin in Iraq (no date was stated) but did not apparently survive winterkill. While achieving the first survey on fish parasites in Iraq, Herzog (1969) indicated that *Tilapia nilotica*, which is a synonym of *O. niloticus* according to Froese and Pauly (2011) was infected with the fungus *Aphanomyces* sp. in Al-Zaafaraniya fish farm, south of Baghdad.

The second cichlid species reported from Iraq was *Oreochromis aureus* (Steindacher, 1864) by Mutlak and Al-Faisal (2009) from the south of the main outfall drain in Basrah province. In the present article, the formal occurrence of the third cichlid species *Tilapia zillii* (Gervais, 1848) is demonstrated for the first time in Iraq from the Euphrates River at Al-Musaib city, Babylon province. The present article is also intended to provide the results of the first parasitological survey achieved on this fish during the period from July 2006 till the end of June 2007.

Materials and Methods

The sampling area of the present study is the Euphrates River at Al-Musaib city (32°47'N, 44°17'E). Fish specimens were collected during the period from July 2006 till the end of June 2007. Fishes were caught with the aid of a cast net and were directly transported to the laboratory where they were measured, weighed and sexed.

Skin and gill smears, eye lenses, body cavity, musculature and all internal organs were inspected according to Amlacher (1970). Mhaisen's (2012) index-catalogue of parasites and disease agents of fishes of Iraq was followed to indicate the number of previous host records for each parasite species in order to minimize number of references for each parasite. Prevalence of infection as well as the mean intensity of infection was calculated as defined by Margolis *et al.* (1982). Parasite identification was done according to Bykhovskaya-Pavlovskaya *et al.* (1962).

Results and Discussion

In the present study, a total of 29 specimens of *T. zillii* (Fig. 1) were captured from the sampling area of Euphrates River at Al-Musaib city. According to the authorities of the Iraq Natural History Research Center and Museum, University of Baghdad and the Canadian Museum of Nature, Ottawa, Canada, this is the first record of *T. zillii* in Iraqi waters. It is appropriate to mention here that Beckman (1962), Mutlak and Al-Faisal (2009), Al-Janae'e (2010) and Coad (2010) had erroneously reported *T. zillii* as *T. zilli* but the corrected name is *T. zillii* according to Froese and Pauly (2012). It is also appropriate to mention here that Hamadi *et al.* (2011) used the common name green tilapia for *T.*

zillii, but according to Froese and Pauly (2012) the common name of this fish is the redbelly tilapia. The common name green tilapia is not found among the 84 common names known for this fish worldwide (Froese and Pauly, 2012).

Coad (2010) gave the following statement on page 267 of his book on freshwater fishes of Iraq: "A recent report by Bashar Abdul Hosein Ellewi Alsa'adi (*in litt.*, 10 October 2006) of a cichlid at Al Musayyib on the Euphrates River in Iraq may well be this species". So, Salih's (2007) claiming of his first record of *T. zillii* in Iraq is invalid. In addition, a letter dated 7th September 2006 from the Technical College/ Al-Musaib, a letter dated 17th September 2006 from Iraq Natural History Research Center and Museum, University of Baghdad as well as an e-mail dated 3rd April 2007 from Dr. Brian W. Coad of the Canadian Museum of Nature, Ottawa, Canada indicated that the first record of *T. zillii* was achieved by Mr. Al-Sa'adi and not by Salih (2007). Above all, it is reliable to state here that Salih was a member of the examining committee which discussed Al-Sa'adi's M. Sc. thesis and he showed no objection on what was stated in that thesis (Al-Sa'adi, 2007) in connection with Al-Sa'adi's priority of recording *T. zillii* in Iraq.

According to Beckman (1962), three species of *Tilapia* are found in the Syrian waters. These are *T. galilaea*, *T. nilotica* and *T. zillii*. Coad (2010) stated that *T. zillii* specimen was caught in the Khabour River, just north of the Iraqi border, presumably a fish farm escape and are now established in the Syrian Euphrates. So, the source of *T. zillii* of the present article came probably through Syrian waters of Euphrates River.

Later reports of *T. zillii* from Iraq included those from south of the main outfall drain in Basrah city (Mutlak and Al-Faisal, 2009), from a local fish market in Qarmat Ali River, 10 km north of Basrah city by N. R. Khamees (Coad, 2010), from Ibn Najim marsh in Al-Najaf Al-Ashraf province (Al-Azebawe, 2010; Hamadi *et al.*, 2011) and from Qarmat Ali region, north of Basrah (Al-Janae'e, 2010).

When inspecting *T. zillii* of the present investigation for both external and internal parasites, five parasite species were recorded. These included three ciliated protozoans, glochidia of a freshwater mussel and nematode larvae. The following is a brief account on the occurrence of these parasites.

The ciliated protozoan *Ichthyophthirius multifiliis* Fouquet, 1876 was detected from the gills with a prevalence of 10.3% and a mean intensity of 50.7. This parasite was recorded for the first time in Iraq by Herzog (1969) from *Mugil dussumieri* from Tigris River at Baghdad city. It causes the white spot disease in fishes (Duijn, 1973) and it has, so far, 30 fish hosts in Iraq inclusive of *T. zillii* of the present study (Mhaisen, 2012).

The ciliated protozoan *Trichodina cottidarum* Dogiel, 1948 was detected from the gills with a prevalence of 6.9% and a mean intensity of 65. This parasite was recorded for the first time in Iraq by Abdul-Ameer (2004) from the common carp *Cyprinus carpio* in a manmade lake in Baghdad. This parasite has, so far, six fish hosts in Iraq inclusive of *T. zillii* of the present study (Mhaisen, 2012).

The ciliated protozoan *Trichodina domerguei* (Wallengren, 1897) was detected from the gills with a prevalence of 3.4% and a mean intensity of 100. This parasite was recorded for the first time in Iraq by Shamsuddin *et al.* (1971) from eight different freshwater fishes from several fish markets in Baghdad. This is the commonest

ectoparasite of freshwater fishes of Iraq as it has been recorded from 37 hosts in Iraq inclusive of *T. zillii* of the present study (Mhaisen, 2012).

The glochidia of the freshwater mussel *Unio pictorum* Zhadin, 1938 were detected from the gills with a prevalence of 41.4% and a mean intensity of 7.3. This parasite was recorded for the first time in Iraq by Ali *et al.* (1987) from eight different freshwater fishes from Diyala river and now it has been recorded from 24 hosts in Iraq inclusive of *T. zillii* of the present study (Mhaisen, 2012).

The nematode larvae of *Contracaecum* sp. were found encysted in the body cavity and the mesenteries with a prevalence of 17.2% and a mean intensity of 1.6. This parasite was recorded for the first time in Iraq by Herzog (1969) as larvae of *Contracaecum* spp. from three fish hosts species as well as larvae of *Contracaecum rudolphii* from seven other fish species from different inland waters of Iraq. Adult worms of *C. rudolphii* are known from fish-eating birds (Al-Moussawi and Mohammad, 2011). *Contracaecum* spp. larvae are the commonest endoparasites of freshwater fishes of Iraq as they have been recorded from 38 hosts in Iraq inclusive of *T. zillii* of the present study (Mhaisen, 2012).

Three surveys were later done on the parasitic fauna of *T. zillii* in Iraq. Al-Janae'e (2010) reported metacercariae of *Ascocotyle coleostoma* (Looss, 1896) as well as three species of the crustaceans: *Ergasilus ogawai* Kabata, 1992, *Ergasilus rostralis* Ho, Jayarajan & Radhakrishnan, 1992 and *Ergasilus sieboldi* Nordmann, 1832 from Qarmat Ali region, north of Basrah. Al-Azebawe (2010) reported two monogeneans (*Dactylogyrus vastator* and *Gyrodactylus* sp.), metacercariae of three trematode species: *Clinostomum complanatum* (Rudolphi, 1819), *Clinostomum phalacrocoracis* Dubois, 1931 and *Diplostomum* sp. as well as the crustacean *Ergasilus mosulensis* Rahemo, 1982 from Ibn Najim marsh in Al-Najaf Al-Ashraf province. Hamadi *et al.* (2011) reported the flagellated protozoan *Costia necatrix* (Henneguy, 1884), the monogenean *Gyrodactylus* sp., metacercariae of both *C. complanatum* and *Diplostomum* sp. in addition to the crustacean *Argulus foliaceus* (Linnaeus, 1758) from Ibn Najim marsh in Al-Najaf Al-Ashraf province also. So, the number of parasitic species so far recorded from *T. zillii* in Iraq reached a total of 17 species.

As the case with other exotic fishes in Iraq (Coad, 2011), especially *Carassius auratus*, *Ctenopharyngodon idella*, *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Heteropneustes fossilis* and *Gambusia holbrooki*, we expect the detection of more parasitic species on/ in *T. zillii* in the near future in Iraq as *T. zillii* will soon establish itself in the inland waters of Iraq. Al-Sa'adi (2007) demonstrated that annual fluctuations in temperature, pH, turbidity and salinity of the water of the Euphrates River at Al-Musaib city are favorable for the living of *T. zillii*.

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Fig. (1): Two photographs documenting the first record of *T. zillii* in Iraq.