

First record of *Myxobolus problematicus* from gills of *Carasobarbus luteus* fish from tigris river, Al-Shawwaka region in Baghdad city, Iraq

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Abstract:

A total of 35 specimens of the fish *Carasobarbus luteus* (Heckel, 1843) were collected from Tigris River in Al-Shawwaka region in Baghdad city. The results showed that fish were found to be infected with five species of parasites, these parasites were *Myxobolus chondrostomi*, *M. problematicus*, *Dactylogyrus bocageii*, *D. lenkorani* and *Procamallanus viviparus*. In addition which were *M. problematicus* considered as a first record in Iraq, as well as *C. luteus* as a new host in Iraq for these five species of parasites.

Keywords: *Myxobolus problematicus*, *Myxobolus chondrostomi*, Tigris River, Baghdad, Iraq.

التسجيل الأول للطفيلي *Myxobolus problematicus* من غلاصم سمك الحمري

Carasobarbus luteus من نهر دجلة منطقة الشوافة بمدينة بغداد، العراق

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المستخلص:

تم جمع ما مجموعه 35 عينة من سمك الحمري *Carasobarbus luteus* (Heckel, 1843) من نهر دجلة بمنطقة الشوافة في مدينة بغداد. اشارت النتائج الى ان السمك الذي وجد في تلك المنطقة كان مصابا بخمسة أنواع من الطفيليات وهي *Myxobolus chondrostomi*، *M. problematicus*، *Dactylogyrus bocageii*، *D. lenkorani* و *Procamallanus viviparus*. فضلاً عن ذلك يعد الطفيلي *M. problematicus* تسجيلاً لأول مرة في العراق بالإضافة الى ان سمك الحمري *C. luteus* يعد عائل جديد للأنواع الطفيلية الخمسة في العراق.

Introduction:

All myxozoans are very common in freshwater and marine fish, and can infect every organ (17). Most infections in fish create minimal problems, but heavy infections become serious, especially in young fish. Myxozoans are parasites affecting a wide range of tissues (12). Parasites are usually observed in wild fish only when they are so obvious that they lead to the rejection of fish commercially by fishermen or consumers (5).

Myxosporean life cycles are very complex, which include alternation of generations or stages of growth and reproduction (18; 13).

Myxozoans are one of the economically important groups of microscopic metazoan parasites as they infest edible fish. New myxosporean pathogens are continually emerging and threatening the development of pisciculture all over the world. They cause production losses and some fish have to be discarded because they are unsightly and not considered to be fit for human consumption. Myxozoans undergo a complex, multicellular development, culminating in the formation of a multicellular spore that is resistant to the external environment (11). Although myxozoans are best known for the infestation they cause in teleost (bony fish) but a small number of species have also been found parasitizing bryozoans, platyhelminths, annelids, amphibians, reptiles and birds (8).

The myxozoans infect fins, skin, operculum, buccal cavity, nasal chamber, eye ball, gall bladder and wall of the alimentary canal (11).

Developmental stages were also found in water fowl, in nervous system of mammals and were even detected in human faces (16), but no myxozoan has been known to be hazardous to human health. Most myxozoans cause little harm, a few have become recognized as serious pathogens, especially in aquaculture situations (9).

Herzog (1969) (10) recorded the first occurrence of three myxosporeans from fish of Iraq. Later on, researches up to date revealed the presence of 55 species of this group (14). Some of these parasites, such as *Myxobolus pfeifferi* infecting *Planiliza abu* caused different degrees of petrification and degeneration in fish ovaries (15). In the present study, we are reporting and give description of *Myxobolus prohlematicus* from the gill of *C. luteus* in Tigris River, Baghdad.

The aim of this investigation is to know the parasites that infected *C. luteus*, which have little attention and this study is one in a series of trials aiming to put some light on the parasitic fauna of fish in this river.

Materials and Methods:

A total of 35 specimens of *C. luteus*, were collected from different locations along Tigris river near Al-Shawwaka region in Baghdad city. Sampling was done twice weekly during the period from December 2015 to April 2016.

Fish were transported alive, placed in container containing same river water and immediately transferred to the laboratory of Parasitology, College of Education for pure science (Ibn-Al-Haitham). Fish were identified according to Coad (2010) (7). In the laboratory, fish were examined externally for parasites of skin, fins and buccal cavity. Gill arches in both sides were separated, placed in petri dish containing tap water and examined for ectoparasites. Pieces of gill filaments were tiered by needle. Smears from the skin, gills and buccal cavity were examined under a compound microscope. Upon fish dissection, muscles and all internal organs were examined according to Amlacher (1970) (4). Parasite identification was done according to Bykhovskaya-Pavlovskaya *et al.* (1962) (6).

Results and Discussion

Upon inspection of the fish, four ectoparasites were recorded include, two species each of genus *Myxobolus* and *Dactylogyrus* were found on gills of some fish. These parasites were *Myxobolus chondrostomi*, *M. problematicus*, *Dactylogyrus bocageii*, *D. lenkorani*. In addition, one species of endoparasite belong to *Procamallanus viviparus*. The following is a brief discription on these parasites.

***Myxobolus chondrostomi* Donec, 1962**

The parasite was recorded on gills of one specimens of *C. luteus*, with prevalence of infection 2.9% and the mean intensity was 20. The first report of this parasite in Iraq was from *Arabibarbus grypus* (3), and hence *C. luteus* of this study is considered as a new host record for this parasite in Iraq (14).

***Myxobolus problematicus* Shul'man, 1962**

The parasite was recorded on gills of one specimens of *C. luteus*, with prevalence of infection 2.9% and the mean intensity was 15. This parasite was not record earlier in Iraq (14). The vegetative stage of this parasite is unknown. This parasite has been measured (in mm) and illustrated as follows: spores elongatedly oval, slightly pointed anteriorly. With unequal pyriform capsules. Length of spores 9.0-12.1 (10.6), width 4.9-7.0 (6.0), length of polar capsules 4.1-6.3(5.2) (larger), 3.3- 4.5 (3.9) (smaller), diameter of spore 2.4-3.2(2.8). Figure (1a,1b) the measurement were based on seven specimen:



Figure 1a: Spore of *Myxobolus problematicus* (1000x).

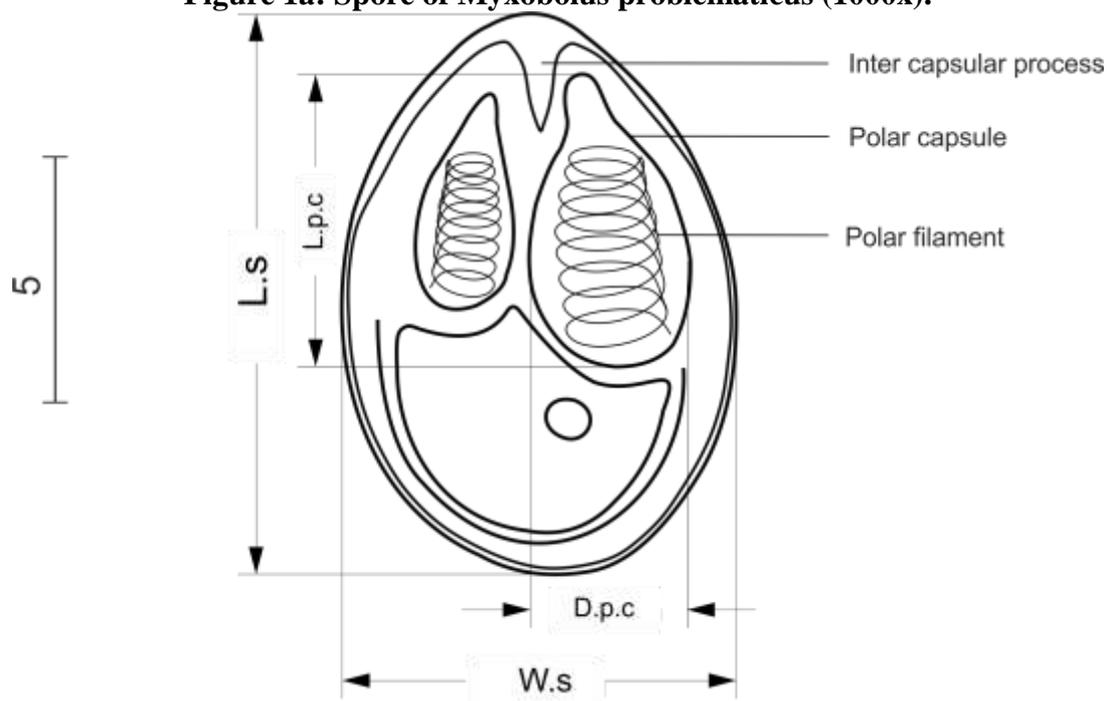


Figure 1b: A camera Lucida drawing spore of *Myxobolus problematicus*

D.p.c: Diameter of polar capsule

L.p.c: Length of polar capsule

L.s: Length of spore

W.s: Width of spore

***Dactylogyrus bocageii* Alvarez-Pellitero, Simon Vicente & Gonzalez Lanza, 1981**

This monogenean was found on gills of one specimens of *C. luteus*, with prevalence of infection 2.9% and the mean intensity was 3. The first report of this parasite in Iraq was from *leuciscus vorax* fish from Diyala river, Diyala province (1). Later, it was reported from three other fish hosts in Iraq (14) but not *C. luteus*. Therefore, *C. luteus* in this study is considered as a new host record for this parasite in Iraq.

***Dactylogyrus lenkorani* Mikailov, 1967**

This monogenean was recorded from gills of one specimens of *C. luteus*, with prevalence of infection 2.9% and the mean intensity was 1. The first report of this parasite in Iraq was from *Mesopotamichthys sharpeyi* fish from Diyala river, Diyala province (1). Later, it was reported from other fish hosts in Iraq (14) but not *C. luteus*. Therefore, *C. luteus* in this study is considered as a new host record for this parasite in Iraq.

3.5 *Procamallanus viviparus* Ali, 1956

This parasite was recorded from intestine of one specimens of *C. luteus*, with prevalence of infection 2.9% and the mean intensity was 1. The first report of this parasite in Iraq was from *Mystus plusius* (12). Later, it was reported from four other fish hosts in Iraq (14) but not *C. luteus*. Hence *C. luteus* on this study is considered as a new host record for this parasite in Iraq.

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