

RECORD OF TWO SPECIES OF THE MONOGENETIC TREMATODES
GENUS *DACTYLOGYRUS* FOR THE FIRST TIME IN IRAQ ON GILLS
OF THE CYPRINID FISH *ALBURNUS CAERULEUS*

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ABSTRACT

For the first time in Iraq, two species of monogenetic trematodes of the genus *Dactylogyrus* were recorded from gills of *Alburnus caeruleus* from Tigris river at Al-Zaafaraniya, south of Baghdad during June 1995. The first species, *Dactylogyrus sphyrna* is characterized by having the seventh pair of marginal hooklets almost twice as large as other marginal hooklets, powerful inner and outer processes of median hooks especially the inner one which is expanded terminally, one connecting bar and long spirally twisted copulatory organ. The second species, *Dactylogyrus phoxini* differs from the first one by having marginal hooklets of the same size, inner and outer processes of median hooks are not powerful, two connecting bars present, the second one of them is T shaped and tube of copulatory organ is curved and C shaped. With the present record, the total number of *Dactylogyrus* species in freshwater fishes of Iraq reached 51 species.

INTRODUCTION

Monogenetic trematodes are ectoparasites of skin, fins and gills of marine and freshwater fishes. They possess one or more acetabuli and hooks for fixation (Amlacher, 1970). Under conditions of intensive fish farming and severe infection, monogeneans are responsible for notable skin opacity, often with inflamed and reddened areas and great damage to gill filaments (Roberts, 1989) which may lead to fish death (Schmahl, 1991).

In Iraq, monogeneans are considered as the major group of parasites of freshwater fishes (Mhaisen, 2006). Since the finding of the first monogenean in fishes of Iraq (*Diplozoon kasimii*) by Fattohy (1975) and its publication (Rahemo, 1980), many surveys were done which brought the total number of monogeneans to 78 species (Abdullah and Mhaisen, 2000). Recent studies on the parasites of freshwater fishes of Iraq (Al-Nasiri et al., 2002; Al-Nasiri, 2003; Asmar et al., 2004; Kritsky et al., 2004; Hussain, 2005; Abdul-Ameer, in press) revealed eight additional monogeneans. To gain information on the parasitic fauna of freshwater fishes of Iraq, more surveys and inspection of fishes are needed. With such task, it is expected to discover more parasites. The present article deals with the record of two monogeneans (*Dactylogyrus sphyrna* and *D. phoxini*) for the first time in Iraq.

MATERIALS AND METHODS

Routine collection of fishes from Tigris river at Al-Zaafaraniya, south of Baghdad city was done during the whole year of 1995 with the aid of cast nets. Fishes were brought alive to the laboratory where they were inspected for parasites. Skin and gill smears were stained with aqueous neutral red and permanent slides were prepared. Parasite identification was done according to Bykhovskaya-Pavlovskaya *et al.* (1962) and Gussev (1985). Mhaisen's (2006)

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index catalogue of parasites and disease agents of fishes of Iraq was followed to make comparison with other related *Dactylogyrus* species so far recorded from fishes of Iraq.

RESULTS AND DISCUSSION

Among the examined fishes for ectoparasites, one specimen of the cyprinid fish *Alburnus caeruleus* Heckel, 1843 with a total length of 12.5 cm and a total weight of 16.6 gm was infected with two gill dactylogyrids which were not previously recorded in Iraq. The following is a brief account on their description and measurements.

Dactylogyrus sphyrna Linstow, 1878 (Fig.1):

Dactylogyridae. Large worms up to 1.4 mm long and 0.2 mm wide. Median hook with powerful processes, particularly the inner process which expanded terminally and larger than the basic portion of the median hook. Basal portion of base only 2-2.5 times as long as outer process. Overall length of median hook 0.055 - 0.069 mm. One connecting bar present, 0.007 x 0.03 mm. Seventh pair of marginal hooklets almost twice as long as others (up to 0.052 mm for the seventh pair and 0.2-0.28 mm for the others). Tube of copulatory organ long, spirally twisted, describing more than two turns. Overall length of copulatory organ 0.052-0.06 mm.

The above description of *D. sphyrna* is in agreement with that of the holotype of this parasite (Bykhovskaya—Pavlovskaya et al., 1962). Two dactylogyrids having median hooks with powerful processes were previously recorded from freshwater fishes of Iraq. These were *D. polylepidis* from *Leuciscus lepidus* from Lesser Zab and Greater Zab rivers, north of Iraq and *D. vistulae* from *Chondrostoma regium* of the same localities (Abdullah, 2002). However, *D. sphyrna* of the present investigation is characterized by having the seventh pair of marginal hooklets almost twice as large as other marginal hooklets while in both *D. polylepidis* and *D. vistulae* the seventh pair is frequently not more than one and a half times as large as rest marginal hooklets (Bykhovskaya—Pavlovskaya et al., 1962; Gussev, 1985).

Dactylogyrus phoxini Malevitskaya, 1949 (Fig. 2):

Dactylogyridae. Small or moderately sized worms, length up to 0.54 mm. Outer process of median hook no more than two thirds as long as inner process. Two connecting bars present. Primary connecting bar 0.004 x 0.022- 0.028 mm. Supplementary bar in form of inverted T, 0.003-0.006 x 0.015 — 0.02 mm. Overall length of median hook 0.04 — 0.047 mm. Marginal hooklets of the same size, with a length of 0.016 — 0.031 mm. Tube of copulatory organ C shaped and smoothly curved. Overall length of copulatory organ 0.021 — 0.026 mm.

The above description of *D. phoxini* of the present study is in agreement with that of Bykhovskaya-Pavlovskaya *et al.* (1962). *D. phoxini* is most similar to *D. porpinquus* which was recorded for the first time in Iraq by Al-Zubaidy (1998) from *Cyprinus carpio* of Al-Furat fish farm, Hilla, mid Iraq. However, they differ in the shape of the tube of copulatory organ: being C-shaped in *D. phoxini* and inverted L-shaped in *D. porpinquus* (Bykhovskaya-Pavlovskaya *et al.*, 1962; Gussev, 1985).

Previously, two dactylogyrid species were reported from *A. caeruleus* in Iraq. These were *D. vastator* from Tigris river at Al-Zaafaraniya, south of Baghdad (Balasem *et al.*, 1993) and *D. intermedius* from a private sector fish farm at Al-Madaen, south of Baghdad (Asmar *et al.*, 2004). So, the present study added two additional dactylogyrids for this fish in Iraq and increased the total number of *Dactylogyrus* species in Iraq to 51 species (Mhaisen, 2006). As *A. caeruleus* is known to enter some fish farms of Iraq via inlet water (Mohammad—Ali *et al.*, 1999; Asmar *et al.*, 2004), the danger of parasite transmission by this fish from rivers to fish farms is expected. Hence, the importance of the present record strengthen previous conclusion that wild fishes may represent a threat to farm fishes in Iraq in this respect (Mhaisen, 1993).

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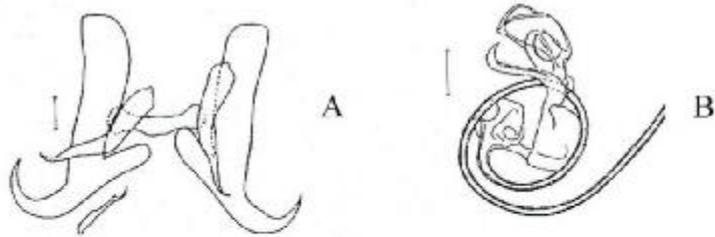


Fig. (1): *Dactylogyrus sphyrna* Linstow, 1878.
A- Median hook, B- Copulatory organ.
Bar = 0.01 mm.

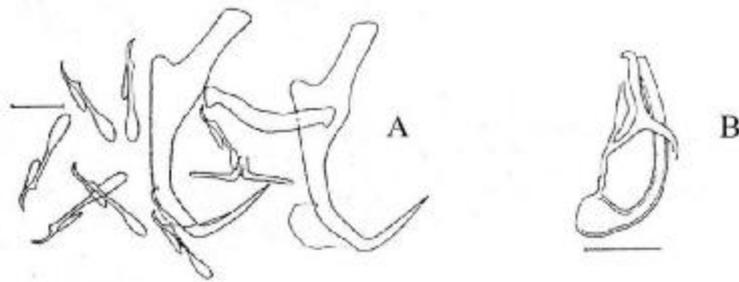


Fig. (2): *Dactylogyrus phoxini* Malevitskaya, 1949.
A- Anchor complex, B- Copulatory organ.
Bar = 0.01 mm.

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بل بيجه تن يعون لت ابحم لالن مة يدخلن بنم لشمم ا *Dactylogyrus* لولأبي فرم
تيطويش امة مة اشمشا يخى ع قارمدا *Alburnus caeruleus*

لمض بحر فو ميه بي جاز ايع مينه يبح* وم تدج و مة أمسه قك رما ثوقويج ا. يلدع

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الخلاصة

لولأت بله شان مين و بل جيسه تم قرع افي قرمة يدالمحلجلاية با تبا *Dactylogyrus*
ن مة تيطويش امة كمم اشمشا يبح *Alburnus caeruleus* من ر دجلة في منطقة الزعفرانية جنوب
العراق خلال شهر حزيران ١٩٩٥.

يمتاز النوع الأول *Dactylogyrus sphyrna* بكون حجم الزوج السابع من الكليبات الطرفية
يبلغ ضعف الكلايب الحافية الاخرى وضخامة البروزات الداخلية والخارجية، الكليبات الوسطية
ولاسيما الداخلية منها والتي تمتد طرفياً وبوجود حاجز رابط واحد وبكون عضو الجماع طويل
حلزوني الشكل وذو تخصصات.

أما النوع الثاني *Dactylogyrus phoxini* فانه يختلف عن النوع الأول بكون الكليبات
الطرفية لها نفس الجسيم وان البروزات الداخلية والخارجية للكليبات الوسطية غير متضخمة
وبوجود حاجزين رابطة ويكون الثاني فيها بشكل حرف T ويكون أنبوب عضو الجماع منحنى
على شكل حرف C.

يصل عدداً أنواع جنس الـ *Dactylogyrus* في اسماك المياه العذبة العراقية ٥١ نوعاً بضمنها
التسجيل الجديد.