

Addition of four new records of Naidid (Oligochaeta) to the Iraqi fauna

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Abstract- The present study is concerned with the new records of oligochaete species to the Iraqi fauna. The oligochaete specimens were collected from shallow water of six sites on the bank of Shatt Al-Arab river, southern Iraq, during the period from March to August 2011. These oligochaetes were isolated from the surface layer of sediment and submerged plants. The species are *Dero cooperi* Stephenson, 1932, *Dero sawayai* Marcus, 1943, *Pristinella idrensis* (Sperber, 1948), and *Pristinella notopora* (Cernosvitov, 1937), they were recorded for the first time from Iraq. Measurements and the most important diagnostic features of these species were presented.

Key words: New records, Naididae, Oligochaeta, Shatt Al-Arab, Iraq.

Introduction

The Oligochaeta is the largest subclass of the class Clitellata-Annelida. It includes many families living mainly in freshwater habitats (Timm, 2009). The Naididae is one of the most important family of the Oligochaeta. It includes the naidid and tubificid worms, the naidids include the taxa in the subfamilies Naidinae and Pristininae (Erséus *et al.*, 2008). The naidid worms, were regarded as a family (Naididae) by Brinkhurst and Jamieson (1971) and comprised of 22 genera (including the genus *Pristina*) widely distributed through the world. Timm (2009) included the different species of *Pristina* in a separate family, Pristinidae, which constitutes of a single genus, *Pristina* with two subgenera, *Pristina* in which the prostomium elongate into proboscis and *Pristinella* which had no proboscis.

Identification of live individuals of Oligochaeta is most affective because the transparency of the tissues and visibility of the internal organs (Timm, 2009). In general, the naidids include *pristina* species and can be identified by the proboscis, eyes, chaetae and gills. The proboscis is present in many genera such as *stylaria* and *Pristina* (Brinkhurst and Jamieson, 1971). The eyes are present in several genera like *Stylaria*, *Slavina*, *Uncinails* and are very usual in *Nais* (Brinkhurst and Jamieson, 1971 and Timm, 2009). The chaetae are varying in form and number (Brinkhurst and Gelder, 2001), and these variations used as key characters (Chapman and Brinkhurst, 1987). The gills present at the posterior end of the body of *Dero* in a gill chamber (Brinkhurst and Jamieson, 1971 and Timm, 2009). In the naidid worms, the dorsal bundles of chaetae (with or without hair chaetae) are missing in the anterior segments of the body and started at segments III, VI, or V, while in Pristinidae species the dorsal bundles chaetae starting at segment II and always constitute of either hair chaetae and needle chaetae (Timm, 2009).

There are many factors play an important role in the presence and distribution of the naidid species such as the type of substrate and presence and blooming of different aquatic plants (Radhi, 2012). Al-Abbad (2010) and Jaweir and Radhi (2012) reported on individuals associated with bryophyte, and other scientists recorded several naidid species associated with sponges (Righi, 1984 and Gorni and Alves, 2008), filamentous algae (Armendariz, 2000), molluscs (Gorni and Alves, 2006), and briophytes (Gorni and Alves, 2007).

There are few reports on Naididae of Iraq (Radhi, 2012) and there are only 37 naidid species previously recorded by several workers (Al-Abbad, 2009; Al-Abbad, 2010; Al-Abbad and Al-Mayah, 2010, Nashaat, 2010; Al-Abbad, 2012; Jaweir *et al.*, 2012; Radhi, 2012 and Jaweir and Al-Janabi, 2012), 17 species of which were reported from Shatt Al-Arab river (Al-Abbad, 2009; Al-Abbad, 2010; Al-Abbad and Al-Mayah, 2010 and Al-Abbad, 2012). The aim of the present study is to make records of some fore species of naidids from Shatt Al-Arab river which were not reported before.

Materials and Methods

Thirty six qualitative samples of sediments, bryophytes and other submerged plants were collected from six shallow water stations along the bank of Shatt Al-Arab river (between 58° 30' 59,27" N, 28° 47' 75 34" E and 52° 30' 20,58" N, 31° 47' 76,23" E) during the period from March to August 2011. The sediments and the plants sieved through 150 µm and 75 µm mesh-size sieve, then examined under a dissecting microscope. The oligochaetes were killed by 4% formalin for 60 minutes and preserved in 70% ethyl alcohol.

The Oligochaetes were temporary mounted with a few drops of glycerin (Timm, 2009) or ammans lactophenole (Brinkhurst and Gelder, 2001). The slides were left for at least 24 hours, and then examined under a compound microscope. Identification to the species level was conducted with the aid of the keys of Brinkhurst and Jamieson (1971), and Timm (2009). Drawings the features of each species were made by using a camera lucida fixed to the microscope. Measurements of the body (mm) and chaetae (µm) were done with the aid of an ocular micrometer fixed to the eye-piece of the microscope.

Results

Four species were recognized in the present study, two of which were belonging to the subfamily Naidinae (*Dero cooperi* Stephenson, 1932 and *Dero sawayai* Marcus, 1943,) and two the other belong to the subfamily Pristininae (*Pristinella idrensis* (Sperber, 1948) and *Pristinella notopora* (Cernosvitov, 1937)).

***Dero cooperi* (Stephenson, 1932) (Fig. 1):**

Diagnosis: Body of 37-40 segments. Prostomium short and rounded. Bundles of dorsal setae started at segment VI onwards, each bundles with one smooth hair and one bifid needle. Needles with short equal teeth and weak distal nodulus. Ventral setae 3-4 per bundle in segments II-IV and 4 per bundle in posterior segments.

Ventral setae of segments II-IV with different shape from those of rest of segments, with upper tooth 1.5 times as long as lower one and with uniform thickness, segments V and rest of segments, with upper tooth slightly shorter and thinner. Nodulus proximal in segments II-V, and median in the rest of segments. Branchial fossa with posterior prolongation and 4 pairs of gills, first smaller than the rest.

Measurements: Body 4-4.3 mm long, 0.17-0.24 mm wide. Hairs 170-220 μm long, needles 55-65 μm long. Ventral setae 80-85 μm long in segments II-V and 70-75 μm long in rest of segments.

***Dero sawayai* (Marcus, 1943) (Fig. 2):**

Diagnosis: Body of 32 segments. Prostomium short and bluntly triangular. Dorsal setal bundles start from segment VI onwards, and consist of single smooth hair and 1-2 bifid needles. Needles with upper tooth shorter and thinner than lower one, and distal nodulus. Ventral setae with 3-4 setae per bundle. Ventral setae of segments II-V of different shape and longer than those of rest of segments, with upper tooth much longer than lower one and uniform thickness and proximal nodulus, while ventral setae in the follow segments with upper tooth slightly shorter and thinner than lower one, and distal nodulus. Branchial fossa not prolonged, with 2 pairs of gills.

Measurements: Body length 2.8 mm, width 0.2 mm wide. Hairs 113-225 μm long, needles 37.5-62.5 μm long. Ventral setae 50-75 μm long.

***Pristinella idrensis* (Sperber, 1948) (Fig. 3):**

Diagnosis: Worms naked, with 25 segments. Dorsal setal bundles each with a single hair, and 1-2 bifid needles. Hairs smooth; needles, curved at distal end, with distal nodulus and parallel long unequal teeth. Ventral setae bifurcated, 3 per bundle, nodulus distal and teeth equal in length at all segments. Setae in anterior segments slightly thinner than those in following segments.

Measurements: Body 2.8 mm long, 0.17-0.22 mm wide. Length of hairs from 150 and 158 μm , length of needles from 58-90 μm . Ventral setae of anterior and median segments longer (70-77.5 μm) than those following segments (52.5-62.5 μm).

***Pristinella notopora* (Cernosvitov, 1937) (Fig. 4):**

Diagnosis: Worms naked, transparent, body with 17-20 segments. Dorsal setal bundles of 1-2 serrate hairs and usually 1-2 but rarely 3 bifid needles (with divergent fine teeth). Ventral setae bifurcate, 3-6 per bundle, those of anterior segments longer than rest. Upper tooth of anterior segments longer than lower one, equally long in middle segments and shorter in rest of segments. Nodulus median in all segments.

Measurements: Body length 1.57-1.7 mm, width 0.11-0.15 mm. Hairs 70-210 μm long, needles 20-62 μm long. Ventral setae of segment II-V 50-75 μm long while following setae ranged in length from 50 to 55 μm .

Ecology: Locally the 4 species recorded in the present study were collected from fresh water.

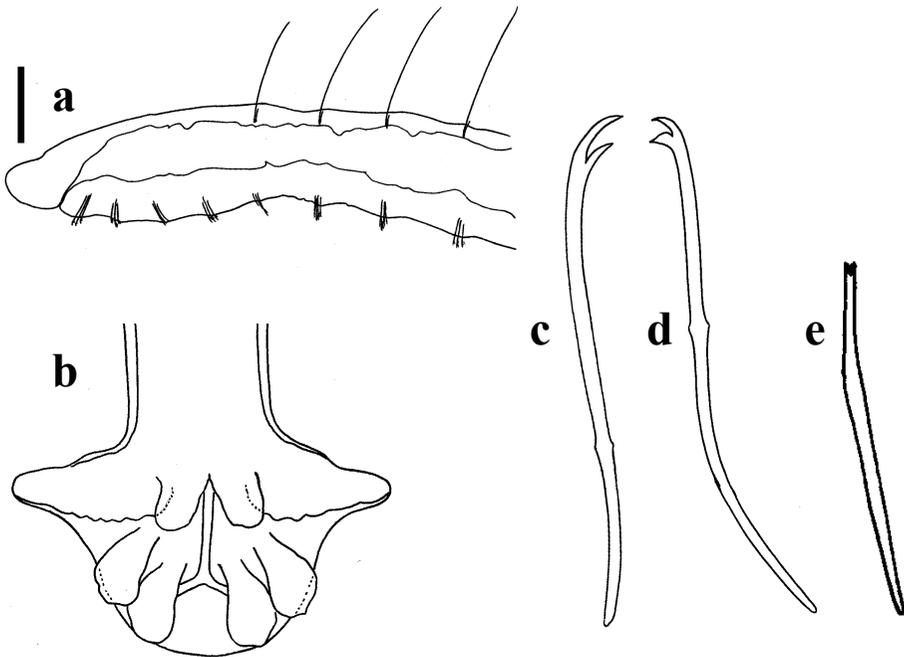


Fig. 1. Dero cooperi. a-anterior of body, b-branchial fossa, c-anterior ventral seta, d-posterior ventral seta, e-bifid needle seta. Scale: a= 130 μm ; b= 100 μm ; c, e= 12.5 μm ; d= 11 μm .

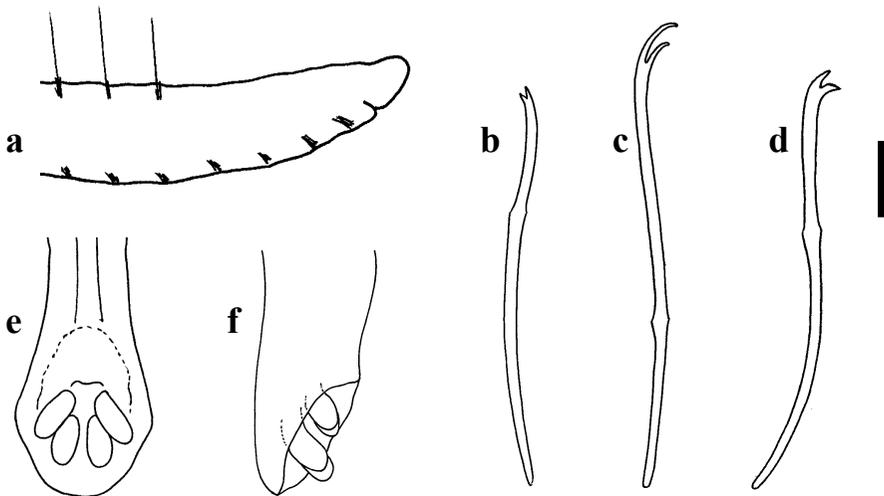


Fig. 2. Dero sawayai. a-anterior of body, b-dorsal seta, c-anterior ventral seta, d-posterior ventral seta, e-branchial fossa face view, f-gills, side view. Scale: a, e= 166 μm ; b, c, d= 11 μm ; f= 140 μm .

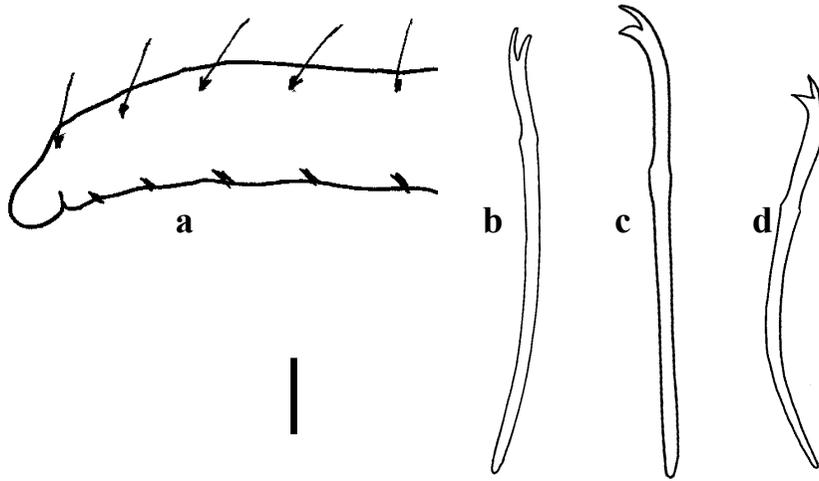


Fig. 3. *Pristinella idrensis*. a-anterior of body, b-dorsal seta, c- ventral seta of segment II, d-ventral seta in posterior segment. Scale: a= 140 μm ; b, c, d= 12 μm .

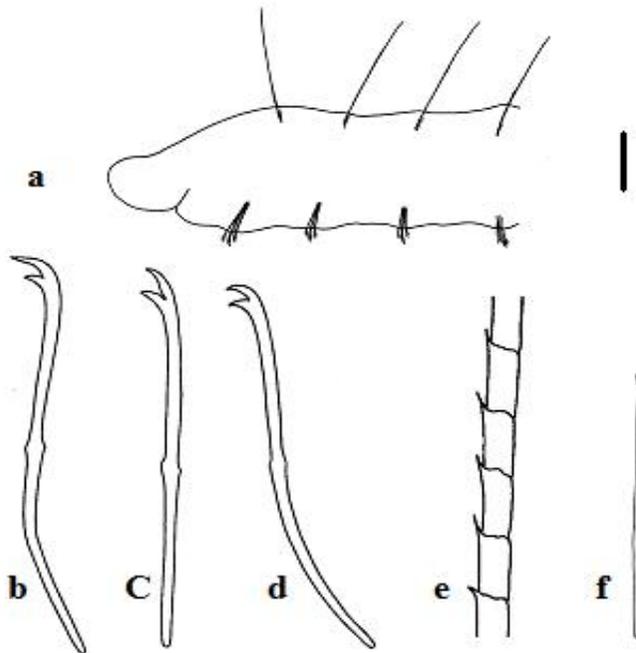


Fig. 4. *Pristinella notopora*. a-anterior of body, b-ventral seta in segment II. c-ventral seta in middle segment, d-ventral seta in posterior segment, e-serrate hair seta, f-bifid needle setae. Scale: a= 75 μm ; b, c= 10 μm ; d= 8 μm ; e= 3.3 μm ; f= 6 μm .

Remarks:

Some of the identification characters may vary according to the environmental factors. Such as the chaetae which may vary in form or/and number per bundle (Brinkhurst and Gelder, 2001). These variations are very important taxonomic features, on the other hand the variations in the details of chaetae can be affected by the environmental variables (Loden and Harman, 1980 and Chapman and Brinkhurst, 1987).

***Dero cooperi* (Stephenson, 1932):**

D. cooperi was recorded from Abyssinia (Brinkhurst and Jamieson 1971). Brinkhurst and Jamieson (1971) reported a length of 3.4-4.3 mm; numbers of segments 33-46, ventral setae of segments II-IV were 3-5 per bundle, which are quite consistent with those of the present study.

***Dero sawayai* (Marcus, 1943):**

The genus *Dero* is cosmopolitan, and the species *D. sawayai* is reported from South America (Brazil), and India (Brinkhurst and Jamieson, 1971). Brinkhurst and Jamieson (1971) reported specimens having a length (3-6 mm) greater than that recorded by the present study, and number of hair setae (2) more than that of the present specimens.

***Pristinella idrensis* (Sperber, 1948):**

The species recorded from Europe, New Zealand and North America (Brinkhurst and Jamieson 1971), they reported worms longer and have fewer segments than the present specimens, and with more number of hair setae (1-2) per bundle compared with the present specimens, while the number of needles in each bundle are similar (1-2).

***Pristinella notopora* (Cernosvitov, 1937):**

The species is distributed in South America (Brinkhurst and Jamieson 1971; Timm 2009) France, Spain, Italy, and Africa (Timm 2009).

The present specimens have the same number of hairs and needles per dorsal bundles as those reported by Brinkhurst and Jamieson (1971) and Timm (2009), except that some segments contain more needles (3). The genus *Pristina* is cosmopolitan, and the species *Pristinella notopora* (*Pristina notopora* according Brinkhurst and Jamieson, 1971) was recorded from different parts around the world (Brinkhurst and Jamieson, 1971; Timm 2009).

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إضافة أربعة أنواع من ديدان النايدد *naidid* (قليلة الأهلاب *Oligochaeta*) كتسجيل جديد للمجموعة العراقية

مرتضى يوسف العباد

كلية التربية للعلوم الصرفة، جامعة البصرة، البصرة - العراق

المستخلص - اهتمت الدراسة الحالية في البحث عن تسجيل أنواع جديدة يمكن إضافتها إلى المجموعة العراقية الخاصة بالديدان الحلقية قليلة الأهلاب. جمعت عينات قليلة الأهلاب للدراسة الحالية من المياه الضحلة لستة مواقع تقع على جرف شط العرب-جنوب العراق، خلال المدة بين آذار و آب 2011، إذ عزلت الديدان من الطبقة السطحية لطين القاع ومن النباتات المائية الغاطسة. عزلت خلال الدراسة العديد من عينات تعود لأربعة أنواع من قليلة الأهلاب سجلت لأول مرة في العراق هي: *Dero cooperi* Stephenson, 1932 و *Dero Pristinella idrensis* و *sawayai* Marcus, 1943 و *Pristinella notopora* (Sperber, 1948) قدمت الدراسة الحالية الخصائص التشخيصية وقياسات كل نوع من الأنواع الأربعة المسجلة.