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# New records of *Pristina proboscidea* and *P. aequiseta* (Oligochaeta : Naididae) from Iraq

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**Abstract**

Many specimens of both *Pristina proboscidea* Baddard, 1896 and *P. aequiseta* Bourne, 1891 , were collected from shallow water beside shatt Al-Arab River in Al-Garma village in Basrah governorate . Morphological characteristics were studied . The first important of these characteristics is the absence of elongated hair setae in *Pristina proboscidea* and the presence of giant ventral setae in the fourth segment of *P. aequiseta* . This is the first record of these two species of oligochaeta , Naididae in Iraq.

**Key words** : Oligochaeta , Naididae , Pristininae , *Pristina proboscidea* , *P. aequiseta*

## 1- Introduction

Oligochaetes are the most divergent and abundant group of benthic invertebrates in freshwater system including small streams , large rivers , marshes , ponds , lakes , springs and groundwater (Wetzel *et al.* , 2000) . Although oligochaetes are important to the water ecosystem (Fisher and Beeton , 1975) and to the biological studies concerned with pollution (Milbrink , 1983) in addition to their important roles in the food chain (Loteste and Marchese, 1994) and energy flow (Aston , 1984) . There are few studies related to this group , and this means that the presence of insufficient information regarding their distribution and habitats as compared to other groups of invertebrates (Alves *et al.* , 2006) .

The family Naididae (Oligochaeta) is one of the most important of aquatic oligochaetes which is mainly found as true benthos in fresh water (Arslan and Sahin , 2003) . There are 58 species of 21 known

genera widespread in the world which belong to the Naididae (Liang and wang , 2000) . The family has a cosmopolitan distribution but many species are found or known only in specific habitats (Brinkhurst , 1978) . These species usually have well developed prostomium with or without proboscis , eyes present or absent , with an indefinite number of ventral setae per bundle beginning in second segment , bifid or simple pointed crotchets in a few species , Dorsal setae beginning in segments II , III , IV , V or VI , further or totally absent , consisting of an indefinite number of hair setae and various shapes of needle setae , and their asexual reproduction is by budding or fragmentation method (Brinkhurst and Jamieson , 1971).

The studies on the Annelid fauna in Iraq are insufficient at present (Al-Abbad , 2009) and there were no previous detailed studies concerned with the Naididae fauna except the study of Al-Abbad (2009) on *Chaetogaster limnaei* (Oligochaeta : Naididae) as a new record in Iraq from some species of snail of Basrah marshes and its biology . Also Al-Abbad and Al-Mayah (in Press) recorded two other species of Naididae (*P. longiseta* and *P. macrochaeta*) for the first time in Iraq from Al-Assafiya river in Basrah governorate .

The purpose of this paper is to made records of two more species of the family Naididae which are present in the Iraqi waters of the shatt Al-Arab , Basrah .

**2-Material and Methods**

Samples from the surface layer of sediments were collected from a shallow pond beside Shatt Al-Arab river in Al-Garma village during may 2010 . Samples were washed with water and past through sieves of 500 , 250 and 100 μm mesh size , and then brought to the laboratory .

Dissecting microscope was used to isolate the worms , some of which were examined directly under light microscope , while other were preserved in 4% formaldehyde solution for 24 hours then they were transferred to 70% ethylalcohole (Yildiz *et al.* , 2007) . The mounting on slides was by glyceraldehydes . The measurements were taken with the aid of an ocular micrometer fitted in the eye – piece of a compound microscope , and a Camera Lucida was used to draw the worms and their setae .

For identification of the worms , the key of Brinkhurst and Jamieson (1971) was used .

**3-Results**

**Descriptions**

***1-Pristina proboscidea***

Elongate thread-like worms rang in length between 1.1 and 2.8 mm with a width of 0.2 – 0.35 mm . The Eyes are absent , the prostomium is present and elongated , forming proboscis of 0.1 mm in length and forms 4 – 11 % of the total

length of the body of the worm (figure 1 , 9-a) .

The body of the worm consists of 18 – 19 segments which bear setae in both ventral and dorsal sides .

The ventral setae starts from the second segment . It consist of 4 setae per bundle in the anterior segments and 8 setae per bundle in the posterior segments . The ventral setae are bifid , ending in a slightly or crotchet tips , and the upper teeth as long as the lower in the anterior segments (figure 2 , 9c) , it become shorter and thinner than the lower in the posterior segments (figure 3,9d) . In general, the ventral setae range in length from 12 to 38 μm and contain nodules in the middle (figure 9c,d).

The dorsal bundles consist of hair and needle setae (figure 4) . There are 1 – 2 hair setae per bundle . There is no hair setae especially elongate but range from 70 – 110 μm in length . Usually , the hair setae of the anterior segments are shorter than those of the posterior segments , there are 2 needle setae per bundle and ranges in length from 37 to 55 μm , ending in a simple pointed tips (figure 9b) .

2- ***Pristina aequiseta***

The shape of the worm is thread-like and elongate , 1 mm in length and 0.1 mm in width . The Eyes are absent , the prostomium is present and elongated, forming a proboscis of 0.1 mm in length and composes 10 % of the total length of the body of the worm (figure 5 , 9e).

The body of the worm consists of 11 segments , bearing setae in both the ventral and dorsal side .

The ventral setae start from the second segment . There are of 5 setae per bundle in all the segments , except the fourth one which contains 3 setae per bundle . The ventral setae are bifid , ending in a slightly or crotchet tips , and the upper teeth are equal (figure 6 , 9h) or slightly longer than the lower ones (figure 7 , 9g) . In general, ventral setae range in length from 37.5 to 62 μm and contain small nodules in the middle , but the setae of the fourth segment are larger and thicker than the others and called the giant setae (figure 8 ) , in which the upper tooth is twice longer than the lower.

The Giant setae are 65 μm in the length and 5 μm in width as compared to the other setae which are of a width of 1.25 μm and are similar to other setae in having nodules in the middle of the giant setae (figure 9i) .

The dorsal bundles consist of two types of setae ; hairs and needles . The hairs are 2 per bundle , and range in length from 100 to 175 μm while there is one needle setae per bundle and is 15 μm in length , ending with fine bifid end (figure 9f) .

Figure 1. *Pristina proboscidea*: anterior end of the body .

Figure 2. *Pristina proboscidea*: anterior ventral setae (the upper tooth as long as the lower) .

Figure 3. *Pristina proboscidea*: posterior ventral setae (upper tooth is shorter and thinner than the lower.

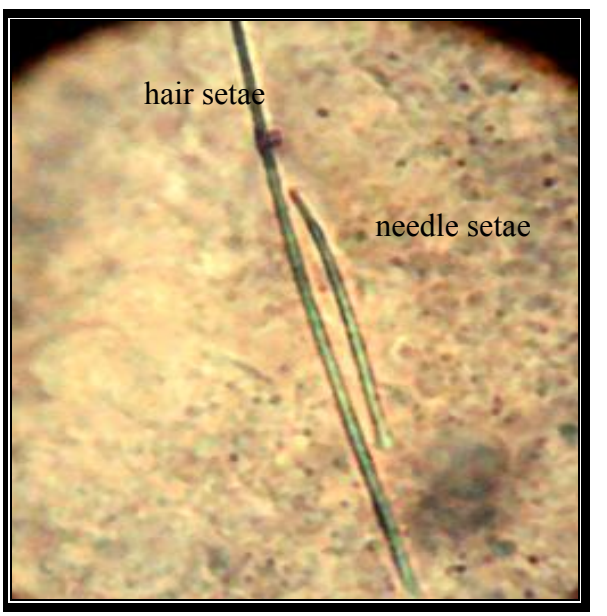


Figure 4. *Pristina proboscidea*: dorsal setae (hair and needle setae ) .


Figure 5. *Pristina aequiseta*: anterior end of the body .

Figure 6. *Pristina aequiseta*: some ventral setae (upper tooth as long as the lower) .

Figure 7. *Pristina aequiseta*: some ventral setae (upper tooth is slightly longer than the lower) .

Figure 8. *Pristina aequiseta*: giant setae (upper tooth is twice as long as the lower one ) .

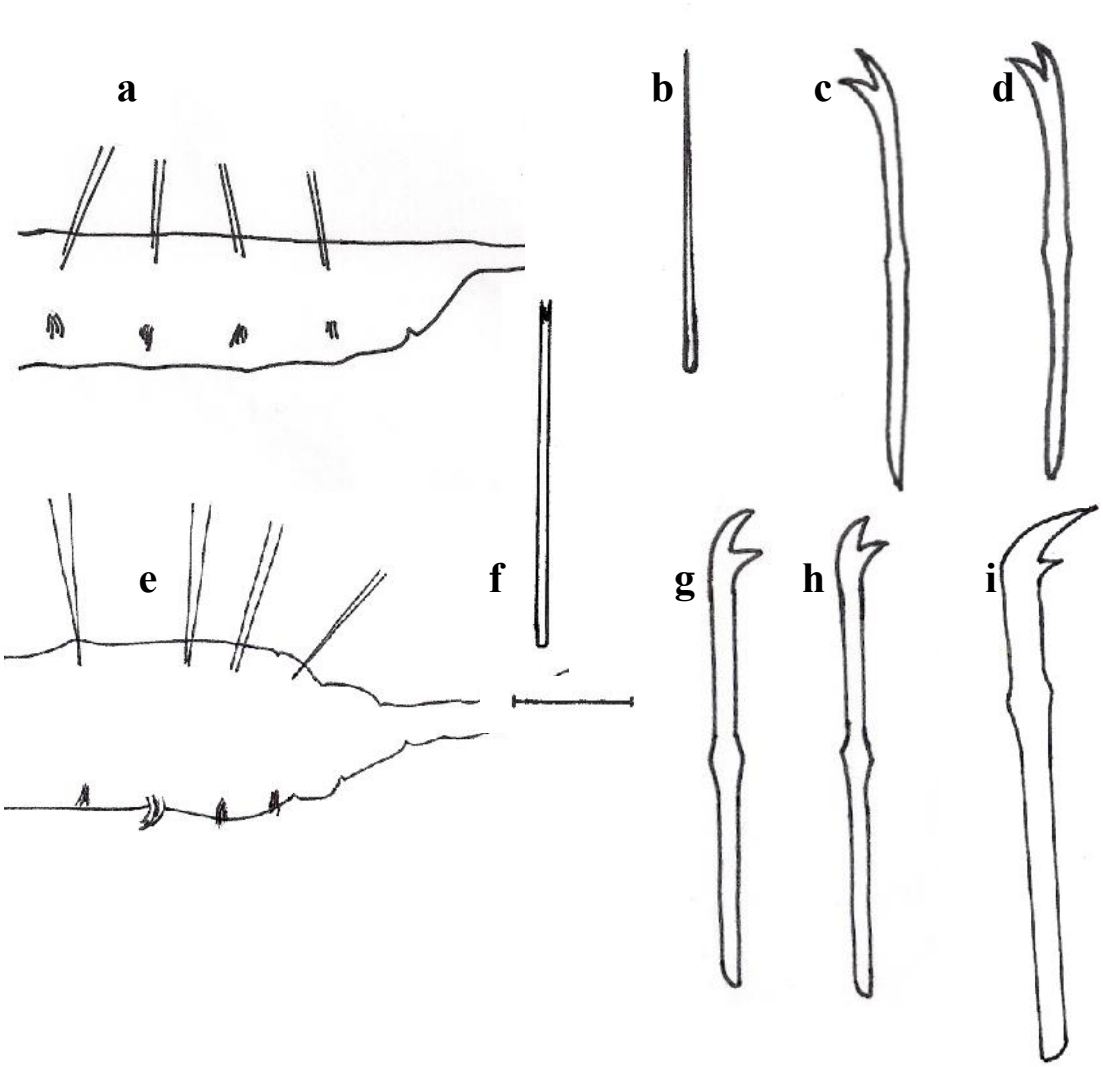


Figure 9 : *Pristina proboscidea* . a-anterior end of the body , b-needle setae , c-anterior ventral setae , d-posterior ventral setae .

*Pristina aequiseta* . e- anterior end of the body , f- needle setae , g and h - ventral setae , i-giant ventral setae .

(Scale Bar : a = 177 µm ; b = 16 µm ; c, f = 5 µm ; d = 6.5 µm ; e = 120 µm ; g, h =12 µm ; i =14 µm )

**Table 1: Comparison between *P. proboscidea* and *P. aequiseta* reported by this study and those reported from the United State of America (Brinkhurst and Jamieson, 1971)**

| Characteristics | *P. proboscidea* | | *P. aequiseta* | |
|---|---|---|---|---|
| | **Iraqi specimens** | **United States specimens** | **Iraqi specimens** | **United States specimens** |
| **Length (mm)** | 1.1 -2.8 | 2-5 | 1 | 2-5 |
| **No. of segments** | 18 -19 | 18 - 36 | 11 | 13 – 20 |
| **No. of ventral setae** | 4 anterior<br>8 posterior | 2-4 anterior<br>Up to9 posterior | 5 in all segment<br>3 giant setae | 4–6 in all seg.<br>1 giant setae |
| **No. of hair setae** | 1–2 per bundle | 1–4 per bundle | 2 per bundle | 1 per bundle |
| **No. of needle setae** | 2 per bundle | 1–4 per bundle | 1 per bundle | 1 per bundle |

**References**

Al-Abbad , M. Y. M. (2009) . Identification and Biology of the species *Chaetogaster limnaei* von Baer 1827 (Oligochaeta : Naididae) Isolated from some Basrah marshes snails in the south of Iraq. Ph.D thesis ,university of Basrah , 145 pp .

Al-Abbad , M . Y . M . and Al-Mayah , S . H . , New record of the two species *Pristina longiseta* and *P. macrochaeta*(Oligochaeta : Naididae) from Iraq with notes on the characteristics and reproduction (in Press) .

Alves , R. G. ; Marchese, M. R. and Escarpinati, S. C. (2006) . Oligochaeta (Annelida , Clitellata) in lotic environments in the state of Sao Paulo. Brazil , Iheringia Ser . Zool . , 96 (4): 431-435 .

Arslan , P . and Sahin , Y . (2003) . Nine new Naididae (Oligochaeta) species from Sakarya River , Turkey . Turk . J . zool . , 27 :27-38 .

Aston , R. J. (1984). The culture of *Branchiura sowerbyi* ( Oligochaeta : Tubificidae ) using cellulose substrate . Aquaculture , 40 ( 1 ) :89-94 .

Barbour , M. T . (1980) . On the question of hybridization and variation in the

oligochaete genus *Limnodrilus* . Aquatic oligochaete Biology , Plenum Press , New York and London : 41-54 .

Brinkhurst , R . O . (1978) . Oligochaeta – In : Illies , J. (ed.) : Limnofauna Europaea. New York , 139-144 .

Brinkhurst , R . O .and Jamieson , B . G . M . (1971) . Aquatic Oligochaeta of the world . University of Toronto Press . Toronto . 860 pp.

Erseus , C . (1980) . Specific and generic criteria in Marine Oligochaeta , with emphasis on Tubificidae . Aquatic oligochaete Biology , Plenum press , New York and London p : 9 -24 .

Fisher , J . A . and Beeton , A . M . (1975) . The effect of dissolved oxygen on the burrowing behavior of *Limnodrilus hoffmeisteri* (Oligochaeta) . Hydrobiologia , 42 : 273-290 .

Harman , W . J . (1980) . Specific and generic Criteria in freshwater Oligochaete , with special emphasis on Naididae . Aquatic oligochaete Biology , Plenum press , New York and London : 1 - 8 .

Liang , Y . L . and Wang , H . Z . (2000) . Annelida , Oligochaeta , Microdrile Oligochaetes . Pictorial Keys to soil Animals of China . Science Press , Beijing : 90-98 .

Loden , M . S . and Harman , W . J . (1980) . Ecophenotypic variation in setae of Naididae (Oligochaeta) . Aquatic oligochaete Biology , Plenum press , New York and London : 33 - 39 .

Loteste , A . and Marchese , M . (1994) . Ammonium excretion by *Paranadrilus descolei* Gavrilov , 1995 and *Limnodrilus hoffmeisteri* Claparede , 1862 (Oligochaeta : Tubificidae) and their role in nitrogen delivery from sediment . Polskie Archiwun Hydrobiologii , 41 ( 2 ) : 189-194 .

Milbrink , G . (1983) . An improved environmental index based on the relative abundance of Oligochaeta species . Hydrobiologia , 102 : 89-97 .

Wetzel , M . J . ; Kathman , R . D . ; Fend , S . and Coates , K . A . (2000) . Taxonomy , Systematic and Ecology of freshwater Oligochaeta . Work book prepared for North America Benthological Society Technical information workshop , 48th Annual Meeting Keystone Resort , Co . 120 p.

Yildiz , S . ; Ustaoglu , M . R . ; and Balik , S . (2007) . The Oligochaeta (Annelida) Fauna of Yuvarlak stream ( Koycegiz – Turkey ) . Turk . J . of Fisheries and Aquatic Sciences , 7 : 1-6 .

# تسجيل جديد للنوعين *Pristina proboscidea* و *P. aequiseta* (Oligochaeta : Naididae) في العراق

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**الخلاصة**

جمعت العديد من عينات *Pristina proboscidea* و *P. aequiseta* من مناطق المياه الضحلة بجانب شط العرب في ناحية الكرمة في محافظة البصرة ، ودرست خصائصهما المظهرية ، وكان من أهم هذه الخصائص عدم وجود أهلاب شعرية متطاولة بشكل مميز أكثر من غيرها في النوع *P. proboscidea* ، وأيضاً وجود الأهلاب البطنية العملاقة في الحلقة الجسمية الرابعة في النوع *P. aequiseta* . وهذا هو التسجيل الأول للنوعين في العراق .