Pristina species (oligochaeta: naididae) in tigris river within baghdad city / Iraq

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Abstract:

A total of 72 individuals of *genus Pristina* were sorted from aquatic plant, *Ceratophyllum demersum* L., and filamentous algae collected from three sites on Tigris River at Baghdad including: Al-Sarafiya area (S1), Al- Jadiriyah area (S2), and Al- Za´afaraniya area (S3). Four species were identified including *P. longiseta, P. aequiseta, P. proboscidea* and *P. foreli*, with percentags of 51.7 , 36.4, 1.1, and 10.5 % respectively. The first two species found in all sites , while , *P. proboscidea* found only in S1 and *P. foreli* only in S2.

Key words: Naididae, *Pristina*, Tigris River, aquatic oligochaetes.

Introduction:

Pristina is an aquatic annelid genus, of class Clitellata subclass oligochaeta, order Haplotaxida, family Naididae, subfamily Pristininae. This genus characterizes by the dorsal chaetal bundles beginning in segment II (1). Timm (2) excluded genus *Pristina* from family Naididae as recommended by Envall *et al*. (3), arranged them in a separate family named as family Pristinidae, which are defined as very small worms have a dorsal setae beginning in segment II as in Tubificidae, and consisting of hair and needle. Breeding mostly by budding (paratomy) like Niadidae ; sexually mature individual, which occur seldom, expresses forward position of reproductive system, with male pores and clitellum mostly in VIII, and spermathecae in VII; living on bottom surface and water plants, but never swimming (2).

According to Brinkhurst& Jamieson, (1) Genus *Pristina* consist of 23 species (with and without Proboscis) with *P. longiseta,* Ehrenberg , 1828 as a type species. Timm (2) divided genus *pristina* into two subgenus: 1- subgenus *Pristina*, have prostomium with proboscis. 2- subgenus *Pristinella,* which have simple prostomium ,without proboscis, while Myers *et al,*(4) referred to each of them as separate genus, including 21 species as *Pristina* and 7 species as *Pristinella.*

In Iraq little information about aquatic oligochaetes in general is available, and about *Pristina*, only Al-Abbad & Al-Mayah (5) recorded two species, *P. longiseta* and *P. macrochaeta.* Other two species were previously recorded by Al-Abbad (6) from Iraqi marshes , including *P. proboscidea* and *P.aequiseta*. In this study we try to investigate the abundance of *Pristina* species within the aquatic plants in the middle sector of Tigris River at Baghdad City .

Material and Methods:

Samples of aquatic plants *Ceratophyllum demersum* L., accompanied with filamentous algae were collected from three sites in the west bank of Tigris River at Baghdad for the period from September 2010 to June 2011. Site 1 (S1), located in Al-Sarafiya area, S2 in Al-Jadiryah area,

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and S3 in Al-Za'afaraniya area. The collected plants were kept with river water in special containers until reach to the laboratory where put in aquaria of 40X20X20 cm dimension, supplied with air by an electrical air pump, and left for about 7- 10 days before sorting the worms.

Sediment in the base of aquarium was collected carefully by dropper to Petri dishes of 10 cm diameter and carefully examined under dissecting microscope. The sorted worms, transferred to a clean Petri dish containing clean tap water. Few drops of 4% formalin were added to kill the worms before they transferred to clean vials contain 70% alcohol for preservation.

To prepare a permanent slides, each worm was placed on microscopic slide and a drop of polyvinyl-lactophenol was added, covered with cover slip, and left for about 1hour before examination under compound microscope. Microscopic digital camera was used to photograph the identification characters. All specimens were identified to species level depending upon (1,2, and 7). The identification results were confirmed, by comparing them with British Natural History Museum specimens.

Results and Discussion:

Four species of *Pristina* was identified, including *P. longiseta, P. proboscidea, P. aequiseta,* and *P. foreli*, represented 51.7%, 1.1% , 36.4%, and 10.5%, of the total sample respectively (fig1) .

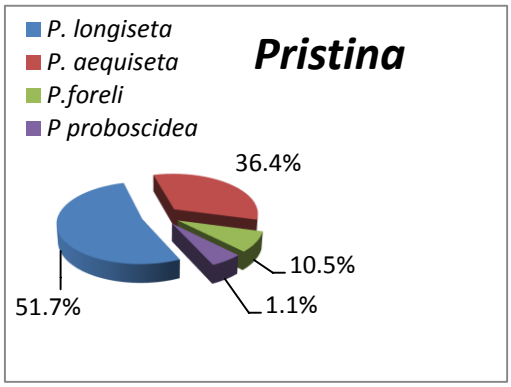

Fig (1): Percentage of different species of genus *Pristina* of total sample of study

The first three species are new records for Tigris River, but previously recorded in the Iraqi southern marshes (Al- Abbad & Al-Mayah 2010) and in Shatt Al-Arab River (6).They are also recorded in Euphrates river (8).

A total of 72 individuals were identified to species level, 38 were identified *Pristina longiseta*, 24 individuals were *P. aequiseta*, six individuals of *P. foreli* were sorted from S2, and only four individuals of *P. proboscidea* were found in S1. Regarding their distribution through the study sites, three species were recorded in each of S1 and S2, 20 & 14 individuals respectively, while in S3, 28 individuals were sorted, 16 individuals belong to, *P. longiseta* and 12 individuals of *P. aequiseta*. (Fig 2).

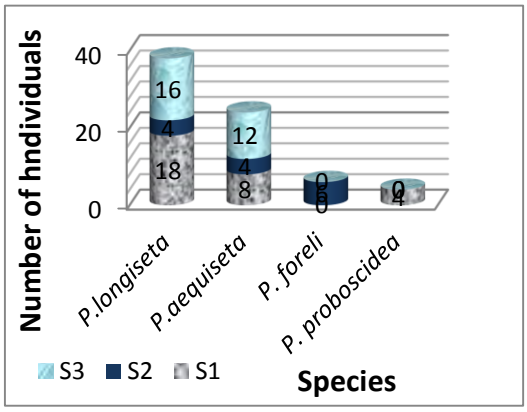

Fig (2): Number of individuals of *Pristina spp.* collected from different study sites

1- *Pristina longiseta* Ehrenberg, 1828
Prostomium with proboscis (plate 1a), dorsal bundles include 2-3 hair chaetae per bundle, in III extremely elongated, non-serrated, and 1-3 fine and straight simple pointed needle setae, without nodulus (plate 1b). Ventral bundles with 4-8 chaetae per bundle, with median nodulus. In II , ventral setae slightly longer than the rest, and in III slightly longer and thicker than in the following segments, with upper tooth 2-3 times as long as lower(plate 1c). In the rest, nodulus distal and upper tooth less than twice as long as lower(plate 1d). Length ranged between 2.5-5mm, No. of segments 15-35. This species is cosmopolitan and recorded in different places of Asia, Africa , Europe , north & South America and Australia (1), it was also recorded by (9) in china, in Turkey (10& 11). (7 & 12) recorded this species in Australia. In Iraq it was recorded in south of Iraq by (5).(8) referred to its occurrence in Euphrates river at Al-Musayab City , and (13) in the Iraqi southern marshes.

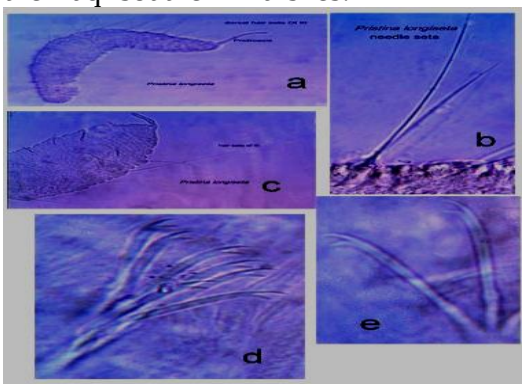

Plate 1: *Pristina longiseta,* a: Whole worm ;b: dorsal bundle; c: anterior ventral bundle of II ; d: Posterior ventral bundle

2- *Pristina aequiseta* Bourne, 1891
Prostomium with proboscis (plate 2a) ; dorsal setae 1-2 long, finely serrated hair, and 1-2 needles, with two tiny teeth and slightly curved distally , but without a nodulus(plate 2b); ventral setae in most segments 2-6 per bundle, those of II longer and thinner than the rest, with nodulus slightly proximal, and with upper tooth twice as long as lower; In III-VII shorter and slightly thicker, with nodulus distal , and with upper tooth slightly longer than lower, in IV, enlarge setae, much thicker than the rest, with upper tooth more than twice as long as lower,(plate 2C), behind VII, setae thicker, more curved, with equally long teeth. No mature individual were detected, but budding individual was common. (Plate 2a)
Average Length about 2-7 mm; average Number of segments 12-25. It is cosmopolitan species (2), it was recorded in the America (14), in Indonesia (15) , in Argentina (16), in Australia (7& 12), in Brazil (17) and in Turkey by (10 and 18). In Iraq this species was recorded by (19) in shatt-Al- Arab , south Iraq and (20) in Euphrates river.

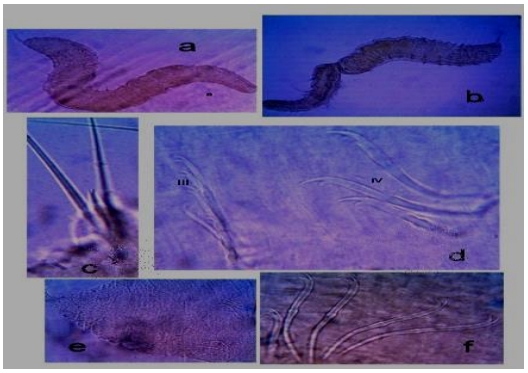

Plate 2: *Pristina aequiseta,* a: Whole worm ; b: paratomic worm ; c: dorsal needle chaeta; d &e: ventral chaetae of segment III & IV; f : posterior ventral bundle

3- *Pristina foreli* Piguet, 1906
Prostomium with small proboscis (Plate 3a), dorsal bundles with 1-2 very finely serrated hair setae, and 1-2 needles finely bifid, slightly curved distally , without nodulus(plate 3b), ventral setae all of one type, 2-6 per bundles, with thin , more or less equal teeth. In II-VII slightly longer than the rest, with nodulus proximal, the

nodulus distal in all other bundles. (Plate 3c)

Timm (2) indicated that form of *P. aequiseta*, which devoid of enlarge setae has been treated as a separate species *P. foreli* , and he considered both as synonyms of a single species *P. aequiseta.*

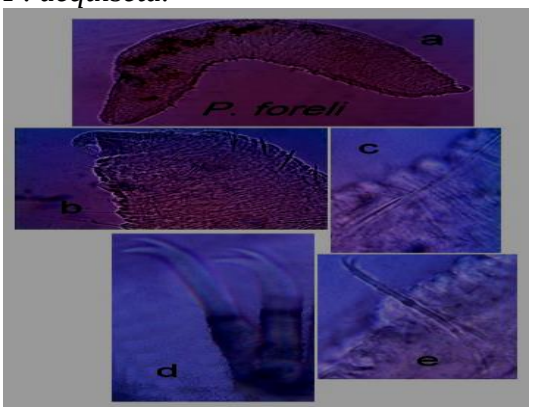

Plate 3: *Pristina foreli,* a: Whole worm; b: anterior end c: dorsal dundle ; d &e : ventral chaetae

4- *Pristina proboscidea* Beddard, 1896

Prostomium with proboscis (plate 4a), dorsal setae of 1-3per bundle, serrated hair setae, and 2-3 hair-like needles with unequal lengths, simple pointed or very finely bifid (plate 4b), Hair from VIII backwards to 2/3 of body length very long (plate 4a). Ventral setae of II -VIII slightly longer and thinner than the rest. (Plate 4c)

Grimm (21) indicated that *P. proboscidea* is synonymous to *P. longiseta* Ehrenberg, 1828. The result of the present study agrees with Grimm (21) since only four specimens were detected within the population of *P. longiseta*. This species was recorded in Iraq (6).

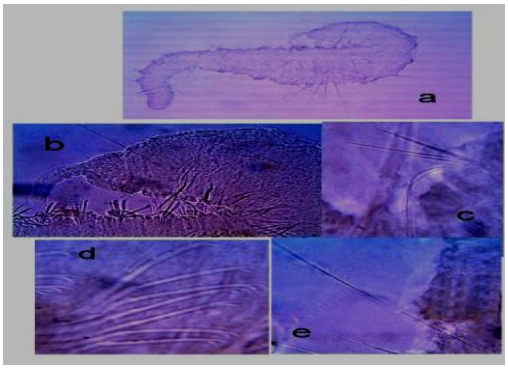

Plate 4: *Pristina proboscidea* a: Whole worm ; b: anterior end; c: dorsal bundle d: Posterior ventral bundle; e: hair seta

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تسجيل جديد لانواع الجنس *Pristina* في نهر دجلة عند مدينة بغداد /العراق

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الخلاصة:

عزل72فرد من الجنس Pristina مرتبط بالنبات المائي نوع Ceratophyllum demersum والطحالب الخيطية والتي جمعت من ثلاثة مواقع على نهر دجلة في مدينة بغداد شملت (S1) في منطقة الصرافية و(S2) في منطقة الجادرية و(S3) في منطقة الزعفرانية. شخصت أربعة أنواع ضمت الانواع P.longiseta و P. aequisetaو P. proboscidea و النوع P. Foreli وبنسب مئوية 51.7 و 36.4 و1.1 و 10.5 % على التوالي. وجد النوع الاول والثاني في جميع المواقع بينما وجد النوع P. proboscidea في الموقع S1 و النوع P. foreli في الموقع S2 فقط.