

Short Communication

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**SOME FRESHWATER OLIGOCHAETES
(CLITELLATA: TUBIFICOIDEA) FROM PUNJAB,
NWFP AND AZAD KASHMIR**

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Freshwater oligochaetes are important source of food for carnivorous fishes. They are a good indicator of water pollution and help in recycling of decaying organic matter. They have been studied by a number of workers [1-16]. Three species have been recorded so far from Pakistan [4]. Present study includes 7 species of which 4 are recorded for the first time.

Freshwater oligochaetes were collected from 13 localities in Pakistan. After fixation in 10% formalin the oligochaetes were treated with glacial acetic acid using technique of Stephenson [4] and studied under a Zeiss standard binocular microscope. Drawings were prepared using a camera lucida. Representative specimens have been lodged at the Pakistan

Museum of Natural History (Table 1).

SYSTEMATIC ACCOUNT

Superclass : Clitellata
Class : Oligochaeta
Superorder : Microdrili
Order : Tubificida
Suborder : Tubificina
Superfamily : Tubificoidea

KEY TO THE FAMILIES OF THE TUBIFICOIDEA

1. Asexual reproduction forming chains of individuals; usually less than 2 cms. long; pectinate dorsal setae rarely present; posterior gills may be present, proboscis may be present; male pore between IV and VIII.....*Naididae*

Asexual reproduction by fission or absent; usually more than 2 cms. long; pectinate dorsal setae frequently present; male pore normally on XI*Tubificidae*

KEY TO THE GENERA OF NAIDIDAE

1. Gill process and a pair of filiform palps at the anal extremity present; dorsal setae begin in V (Fig. 1 ..*Dero* (*Aulophorus*).

Gill process absent; dorsal setae beginning in II; pro-

Table 1.

PMNH No.	Specimen	Replicates	Locality	Collection details
9	<i>Dero (Aulophorus) furcata</i>	2	Ishaque Ice Factory, Rawalpindi, Punjab	S. R. Ali, 9-VII-1975, 2mm mesh dipnet; gravel, sand and silty bottom; 0.5m depth.
8	<i>Pristina breviseta</i>	10	Chur Pond, Rawalpindi Punjab	S. R. Ali; 17-IV-1975; Area: 2 acres; 6" Square Ekman Dredge; bottom with silt and gravel; 2-3 feet depth near the edge.
8	<i>P. longiseta</i>	3	Chur Pond, Rawalpindi Punjab	S. R. Ali; 17-IV-1975; -do-
2	<i>P. longiseta</i>	4	Hajira fast riffles, Azad Kashmir	S. R. Ali; 13-IV-1969; 1 Sq. ft. Sampler, 0.2mm mesh; sandy gravel bottom; 1 foot depth.
5	<i>L. claparedianus</i>	1	Rawal Dam, Rawalpindi Punjab	S. R. Ali, 27-II-1975; 6" square Ekman Dredge; silt and muddy bottom; 3 feet depth.
6	<i>L. claparedianus</i>	1	Rawal Dam, Rawalpindi Punjab	S. R. Ali, 9-IV-1975 -do-
1	<i>L. hoffmeisteri</i>	2	Sultan Pura Pond, Rawalpindi, Punjab	S. R. Ali; 19-V-1965; 6" Sq. Ekm. Dredge; silt and muddy bottom; 3 feet depth.
3	<i>L. hoffmeisteri</i>	2	Tank outside Hilal Tanneries, Lahore Punjab	S. R. Ali; 25-IX-1974; 6" Sq. Ekm. Dredge; silt and muddy bottom; 2 feet depth.
4	<i>L. hoffmeisteri</i>	1	Chur Pond 2, Rawalpindi, Punjab	S. R. Ali; 15-II-1975; 6" Sq. Ekm. Dredge; silt and gravel bottom; 2-3 feet depth.
5	<i>L. hoffmeisteri</i>	2	Canal below Rawal Dam;	S. R. Ali; 27-II-1975; 6" Sq. Ekm. Dredge;

(Continued

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(Table 1 continue)

6	<i>L. hoffmeisteri</i>	1	Canal below Rawal Dam, Rawalpindi, Punjab	water clean fast running; bottom with vegetation; 2 1/2 feet depth. S. R. Ali; 9-IV-1975; -do-
7	<i>L. hoffmeisteri</i>	3	Chur Pond 1, Rawalpindi, Punjab	S.R. Ali; 9-IV-1975; Area 2 Acres; 6" Sq. Ekman Dredge; bottom with silt and gravel; 2-3 feet near the edge. S.R. Ali; 17-IV-1975; -do-
8	<i>L. lihoffmeisteri</i>	3	Chur Pond III, Rawalpindi, Punjab	
9	<i>L. hoffmeisteri</i>	2	Ishaque Ice Factory, Rawalpindi, Punjab	S.R. Ali; 9-VII-1975; 6" Sq. Ekm. Dredge; silt and muddy bottom; 3 feet depth.
10	<i>L. hoffmeisteri</i>	2	Said Pur stream, Rawalpindi, Punjab	S.R. Ali; 16-VII-1975; Surber 1 Sq. Ft. Sampler, .2mm mesh; silt and gravel bottom; Aquatic plants, <i>Hydrilla</i> sp. and <i>Potamogeton</i> sp. widely distributed; 1 foot depth.
12	<i>L. hoffmeisteri</i>	3	Rushakai Nullah, N.W.F.P.	S.R. Ali; 24-IV-1976; 6" Sq. Ekm. Dredge; silt and gravel bottom;
13	<i>L. hoffmeisteri</i>	1	Lch Nullah St. 5. Rawalpindi, Punjab	S. R. Ali; IX 1978; 6" Sq.Ekm.Dredge; silt and muddy beneath debris, colour blackish, polluted with organic matter (soap and detergent); 2 1/2 ft. depth.
14	<i>L. hoffmeisteri</i>	10	Lch Nullah St. 5, Rawalpindi, Punjab	S. R. Ali; VII, 1979; 6"Sq. Ekm. Dredge; silt and muddy beneath debris, highly polluted with organic matter' (soap and detergent); 2 1/2 ft. depth.
15	<i>L. hoffmeisteri</i>	1	Lch Nullah St. 6, Rawalpindi, Punjab	S. R. Ali, 12-VIII-1979 -do-
16	<i>L. hoffmeisteri</i>	1	Takht Pari, Rawalpindi Punjab	S. R. Ali; 15-XI-1980; 6" Sq. Ekm. Dredge sand and silt and gravel bottom; 5 feet depth.
18	<i>L. hoffmeisteri</i>	6	Kabul River, Nowshera, N. W. F. P.	S. R. Ali; X 1979; 6" Sq. Ekm. Dredge; sand and silt bottom; 3 feet depth.
19	<i>L. hoffmeisteri</i>	1	Lch Nullah St. 5, Rawalpindi, Punjab	S. R. Ali; 15-XI-1979; 6" Sq. Ekm. Dredge silt and muddy beneath debris, colour blackish, highly polluted with organic matter (soap and detergent); 2 1/2 ft depth
15	<i>L. udekemianus</i>	2	Lch Nullah St. 6 Rawalpindi, Punjab	S. R. Ali; 12 VIII-1979; 6" Sq. Ekm. Dredge silt and muddy beneath debris, colour blackish, highly polluted with organic matter (soap and detergent); 3 feet depth.
11	<i>T. tubifex</i>	2	Lakerhay, N. W. F. P.	S. R. Ali; 28-VIII-1975; 1 Sq. ft. Sampler 2mm mesh; silt and gravel bottom; 1 feet depth.
17	<i>T. tubifex</i>	3	Islamabad, Punjab	S. R. Ali; 24-IX-1986; 1 Sq. ft., .2mm mesh; silt and muddy bottom, 1 1/2 feet depth.

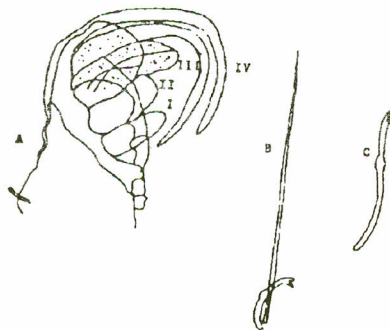


Fig. 1. *Dero (Aulophorus) furcata*. (A). Branchial fossa, I, II, III pairs of gills, IV. filiform appendages, (B). Dorsal needle with hair seta, (C) Ventral seta.

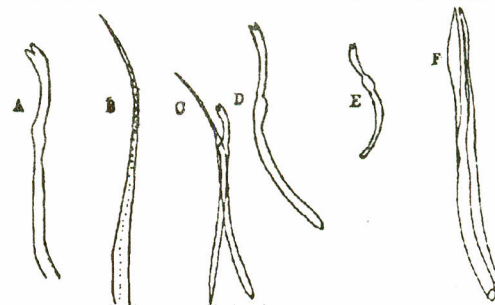


Fig. 2. *Pristina breviseta*. (A). dorsal needle of IV. (B). Dorsal hair seta of IV. (C). Dorsal needle and hair seta of V. (D). Anterior ventral seta. (E). Posterior ventral seta. (F). Giant genital seta enlarged.

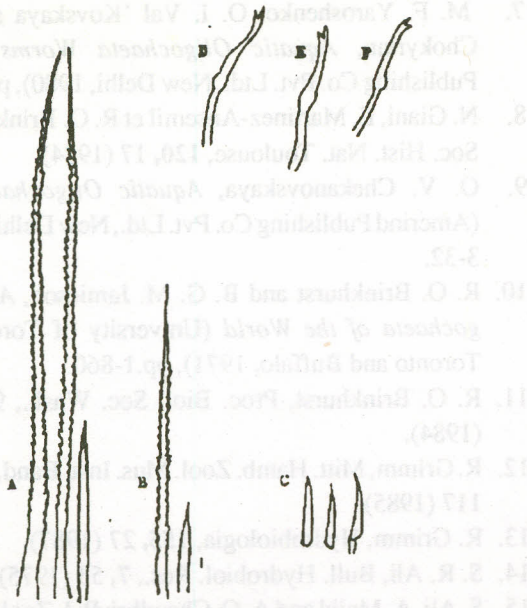


Fig.3. *Pristina longiseta* (A). Dorsal needle with hair seta, of III. (B). Dorsal needle with hair seta of middle segment. (C). Posterior dorsal seta. (D.E). Anterior ventral seta. (F). Posterior ventral seta.

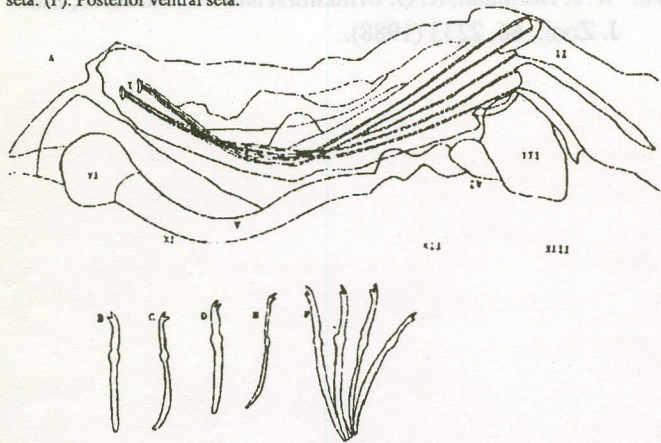


Fig.4. *Limnodrilus claparedianus*. (A). Reproductive organs. I-penis, II-ejaculatory duct, III - prostate gland, IV- atrium, V-vas deferens, VI- spermatheca. (B-C.) anterior dorsal seta. (D). Anterior ventral seta. (E). Posterior ventral seta. (F). Anterior ventral seta.

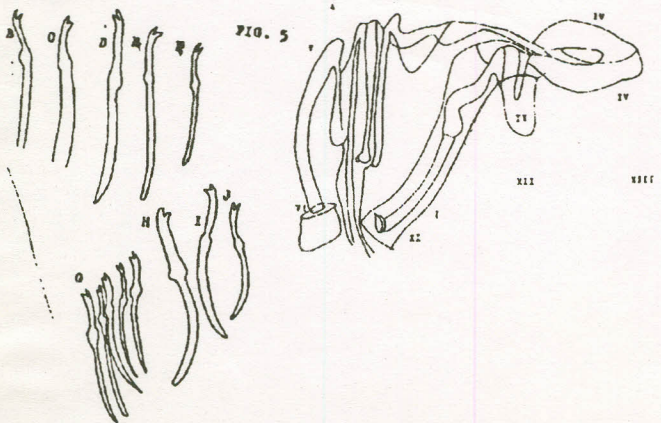


Fig.5. *Limnodrilus hoffmeisteri*. (A). Reproductive organs, I-penis, II-ejaculatory duct, III- prostate gland, IV- atrium, V- vas deferens. VI-spermatheca (B-D). Anterior dorsal seta. (E-F). Posterior dorsal seta. (G). Anterior ventral seta. (H-J) Posterior ventral seta.

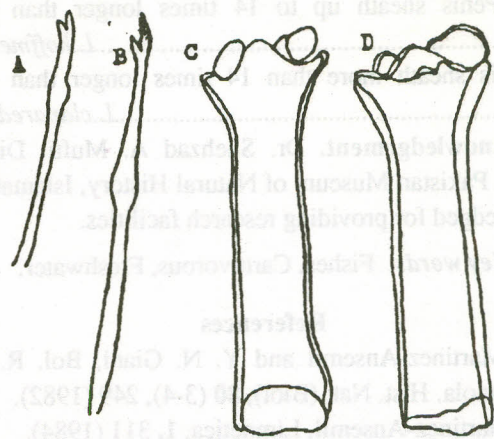
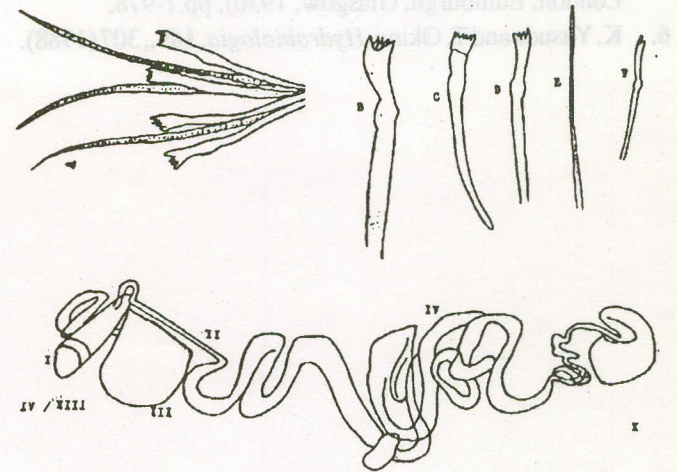


Fig.6. *Limnodrilus udekemianus*. (A). Dorsal seta. (B). Anterior ventral seta. (C-D). Penis sheath.

Fig.7. *Tubifex tubifex*. (A). Dorsal pectinate needle and hair seta. (B-D). Dorsal needle. (E). Dorsal hair seta. (F). Ventral seta. (G) Reproductive organs, I-penis, II-atrrium, III-prostate gland, IV- vas deferens, V- spermatheca.



boscis present.....*Pristina*.
KEY TO THE SPECIES OF PRISTINA
 1. Needles simple pointed; hairs of III longer than the rest, hair seta serrated (Fig. 3)..... *P. longiseta*.
 Needles bifid; hairs of III not longer than the rest, hair seta nonserrated (Fig. 2)*P. breviseta*.

KEY TO THE GENERA OF TUBIFICIDAE
 1. No hair setae in dorsal bundles; all dorsal needles bifid.....*Limnodrilus*.
 Hair setae present; anterior dorsal setae pectinate (Fig. 7).....*Tubifex*

KEY TO THE SPECIES OF LIMNODRILUS
 1. Penis sheath upto 4 times longer than broad (Fig. 6).....*L. udekemianus*.
 Penis sheath more than 4 times longer than broad.....2.

2. Penis sheath up to 14 times longer than broad (Fig. 5).....*L.hoffmeisteri*.

Penis sheath more than 14 times longer than broad (Fig.4).....*L.claparedianus*.

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Key words: Fishes, Carnivorous, Freshwater.

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