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## **ON THE OCCURRENCE OF FIVE LEECHES *BARBRONIA WEBERI*, *GLOSSIPHONIA ANNANDALEI*, *GLÖSSIPHONIA HETEROCLITA*, *GLOSSIPHONIA RETICULATA* AND *PLACOBDELLA UNDULATA* IN WEST BENGAL, INDIA**

P.K. BANDYOPADHYAY AND C.K. MANDAL\*

*Parasitology Laboratory, Department of Zoology, University of Kalyani,  
Kalyani-741 235, West Bengal, India*

### **INTRODUCTION**

During field survey leeches are collected from different districts of West Bengal [21°25'–26°50' (N) Longitude, 86°–89°58' (E) Latitude]. The lower Gangá plain extending from foot hills of Darjeeling, Himalaya in the north to the Bay of Bengal in south (580 km.) and Chotanagpur high lands in the west to the border of Bangladesh and Assam in the east (200 km.). Out of these leeches, five leeches are unreported in West Bengal. Harding and Moore (1927) provided a comprehensive account of the Indian leeches. Other workers like Blanchard (1923), Bhatia (1930), Baugh (1960), Soos (1965), Mahajan and Chandra (1976), Soota and Ghosh (1977), Nandi and Raut (1987) and Mandal (2004a, 2004b, 2004c) have contributed a lot on the taxonomy of this group. The paper deals with the description of five species of the leech for the first time from West Bengal, India.

**KEY WORDS** : *Survey, Leech, West Bengal, India.*

### **MATERIAL AND METHOD**

In course of survey almost all niches are taken into consideration to find out the leech individuals occurring in the habitat/ecosystem. In case of free living species 5 sites from a selected ecosystem (water body) are taken into consideration to note the number of leeches occurring in the system. From each site/station and area of 1 sq. ft. has been selected at random and the number of leeches occurring there are counted. The mean of such five readings is considered for actual population density per sq. ft.. In case of parasitic and malacophagous leeches attempt are made to note the

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\**Zoological Survey of India, 27, J. L. Nehru Road, Kolkata-700 016, West Bengal, India*

number of leeches attached with the host body. In such case five or more host individuals are taken into account at random and mean would be considered for population density of this external parasite per host. The malacophagous leeches are counted on the basis of samplings of pelagic molluscs from an area of 1 sq. ft. from the concerned water body. In this case also five such sampling sites are taken and the leeches attached/infested with snails are counted and mean of the five readings have been considered for the final data.

The breeding season of the leeches are determined on the basis of observation of the egg, young and mating activities. The leeches are narcotized and preserved (Kapur, 1968).

## DESCRIPTION OF THE MATERIAL COLLECTED FROM WEST BENGAL

### *Barbronia weberi* (Blanchard, 1897)

(Plate 1; Figure 1)

Slender body, tapering anteriorly. Head very small. Circular posterior sucker, mouth small, lip narrow. Colour pinkish white in living. Anterior part whitish but posterior part pinkish. Colour fade up in preservative. Eyes three pairs, one large pair on dorsum of II, two smaller pairs on sides of anterior annulus of IV. Gonopores separated by five annuli. Male pore situated at XII b1/B2. Female pore on the middle of XIII b1. Anus large somites I and II are uniannulate, III biannulate, IV triannulate. Pale yellow colour in preservative.

Two examples of the species were collected by C. K. Mandal on January 23, 1995 from Piasbari Nursery Pond, Malda.

*Remarks* : It is first recorded from West Bengal. Due to pollution the size decreases.

### *Glossiphonia annandalei* Oka, 1921

(Plate 1; Figure 2)

Elliptic lanceolate body, little flattened. Due to devoid of papillae body surface is smooth. Minute dark dots from hair like lines on the dorsal surface. Mouth small. Posterior sucker circular less in diameter than the greatest width of the body. Number of ring 68. Somites I–III and XXVII uniannulate. Somite IV biannulate. Somite VII–XXIV are triannulate. XXV and XXVI biaannulate, Anterior ring about twice as broad as a posterior. Colour grey. White in preservative. Eyes three pairs, occupies a position unique among the family Glossiphonidae. Pigment cups of eyes on ring 4 are directed forward and ring 5 are backward. Male and Female pore separated by two rings. Male pore opens between the furrow of ring 24 and 25 (Somites XI and XII) Female pore opens between rings 26 and 27. Crop six pairs, first pair simple and unbranched. The anus opens behind the last ring.

One example of the leech was collected by C. K. Mandal on January 23, 1995 from Piasbari Nursery Pond, Malda.

*Remarks* : *Glossiphonia annandalei* or Lanceolate Indo-Burman Leech is first recorded from Malda, West Bengal.

PLATE I

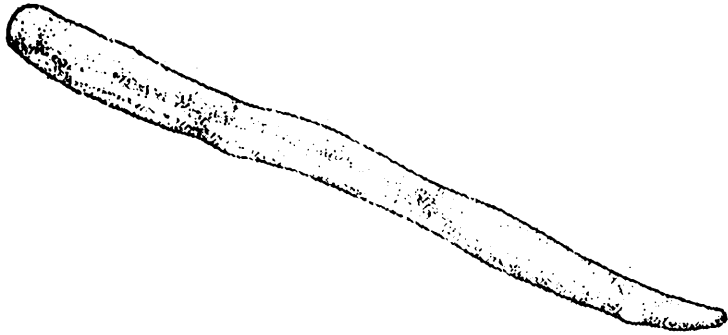


Fig. 1. : *Barbronia weberi* (Dorsal view)

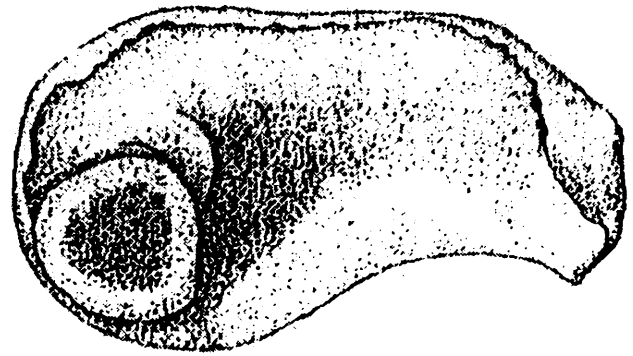


Fig. 2. : *Glossiphonia annandalei* (Ventral view)

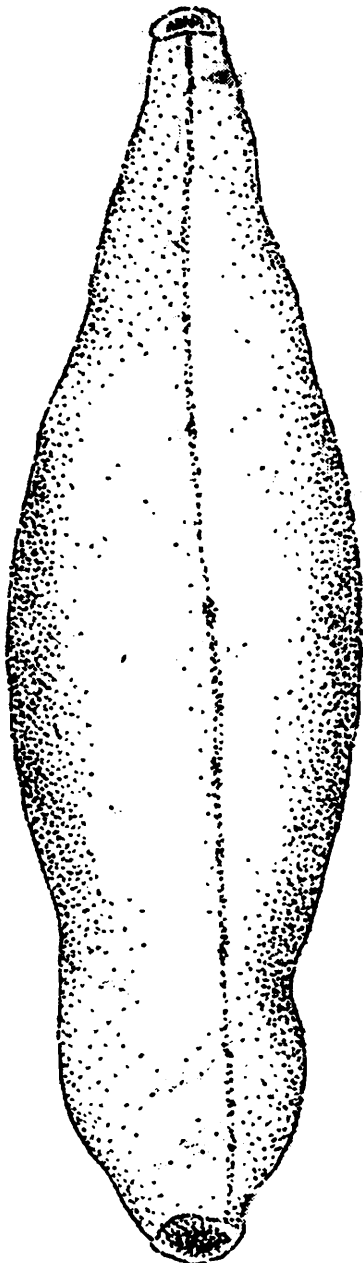


Fig. 3. : *Glossiphonia heteroclita* (Dorsal view)

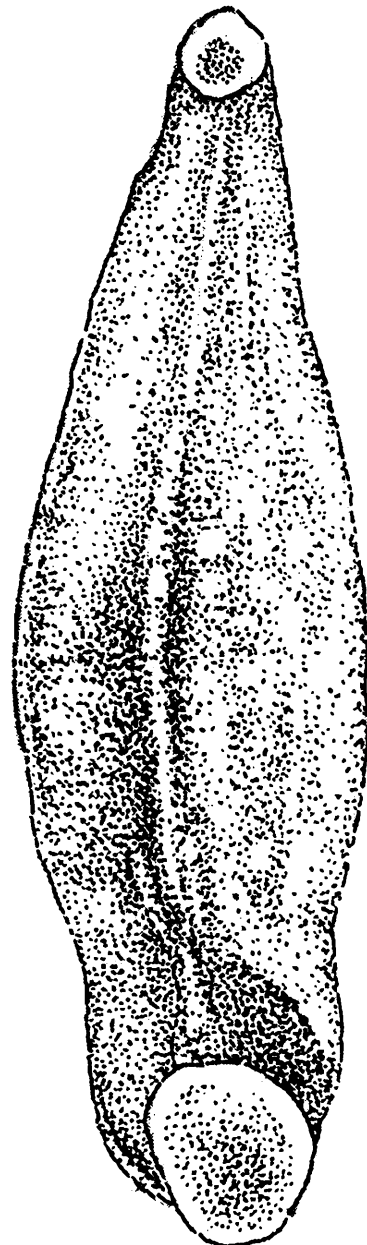


Fig. 4. : *Glossiphonia heteroclita* (Ventral view)

*Glossiphonia heteroclita* Linnaeus, 1971

(Plate 1; Figures 3 &amp; 4)

Ovate acuminate, flattened body. Body colour amber yellow in living and greyish in preserved state. Three pairs of eyes. The first pair lies in ring 5, Second and third pairs situated respectively in rings 7 and 8. Both male and female genital ducts open by a common pore between the first and second rings of Somite XII. Total rings of the body 70. Length 8–12 mm at rest, width 2.5–3 mm. 15 mm. in full extension.

One example of the species was collected by C. K. Mandal on August 10, 1995 from Bhadreswar, Hooghly and twelve examples on March 23, 1995 from Piasbari Nursery Pond Ramkeli, Malda, West Bengal. Some examples are taken from the molluscs and some from beneath the leaves of water hyacinth.

*Remarks* : This species is recorded from West Bengal (Hooghly and Malda districts) for the first time. The population density, feeding behaviour, number of egg of the specimen were also observed successfully for the first time. Due to the pesticides, the number of the specimens decreased.

*Glossiphonia reticulata* Kaburaki, 1921

(Plate 2; Figures 5 &amp; 6)

Slender body, attenuated anteriorly. Rough dorsal surface due to the presence of numerous papillae. Colour olive in living, grey in preservative. Anterior sucker less in diameter than the half the width of the posterior sucker. The circular posterior sucker centrally attached and less than half the greatest width of the body. Total somites 27, Ring number 72, of which three are preocular. Somites I–IV are represented by the first six rings; V–XXIV are complete with three rings; Eyes two pairs; the first pair lie in ring 4 and the second and larger pair in ring 5. Male genital pore situated between the ring 26 and 27 in Somite XI. Female pore situated between the ring 28 and 29 just two ring behind this male pore. Mouth opens within anterior sucker. The anus lies between the ring 70 and 71 just two rings behind the posterior sucker. The crop or stomach has 7 pairs of branching diverticula. Some specimen found attached with *Lymnaea* (Molluscs) and some with the lower part of lotus leaf at Kandi, Murshidabad.

*Remarks* : It is also first recorded from West Bengal. During breeding season, some leeches of this species gave birth in the month of March-April and some in June-July of the year.

*Placobdella undulata* Harding, 1924

(Plate 2; Figures 7 &amp; 8)

Elliptic lanceolate body. A constriction is seen at this 30 ring just behind the female pore. Dorsal surface rough due to the presence of papillae on each ring. Distinct head region. Posterior sucker circular and slightly oval, equal in width to half on the greatest width of the body. Colour greyish white in preserved state alcohol. Ring number 71. Somites V–XXIV complete with three annuli, XXV and XXVI biannulate. XXVIII uniannulate. Presence of one preocular ring single

PLATE II

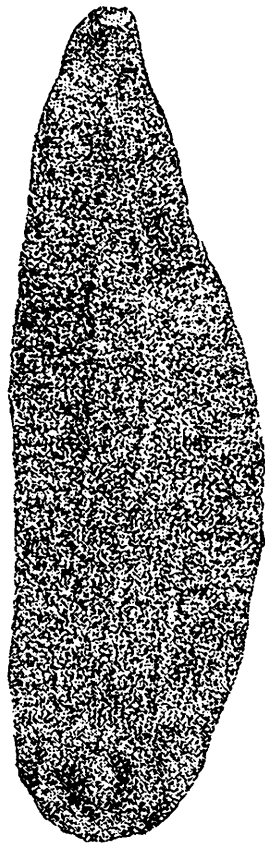


Fig. 5. : *Glossiphonia reticulata* (Dorsal view)

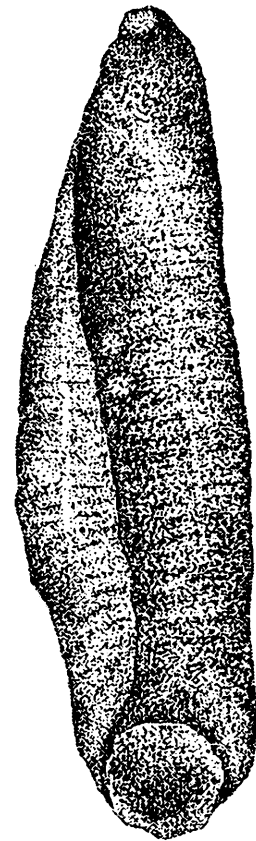


Fig. 6. : *Glossiphonia reticulata* (Ventral view)

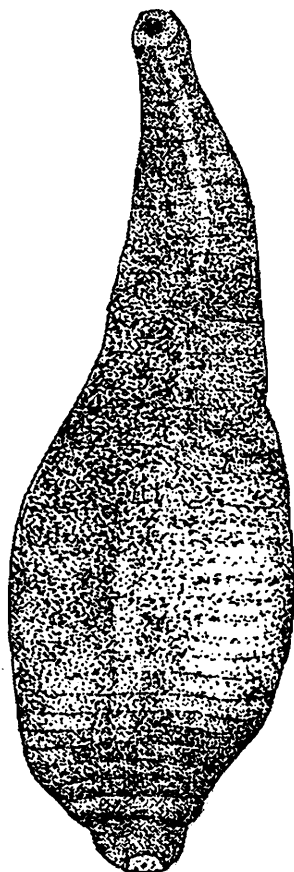


Fig. 7. : *Placobdella undulata* (Dorsal view)

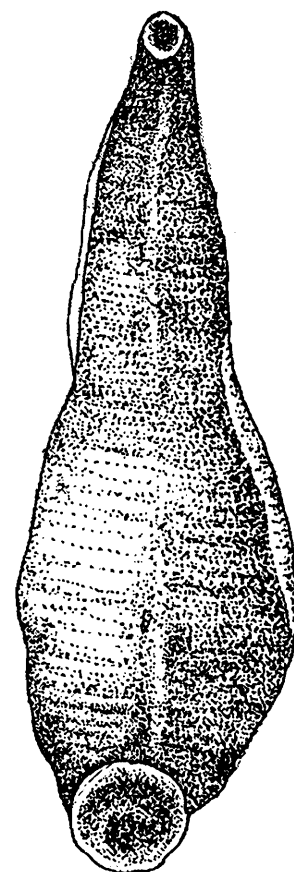


Fig. 8. : *Placobdella undulata* (Ventral view)

pair of eyes lie in the second ring. Male genital pore between ring 27 and 28 between somites XI and XII. Female pore between rings 29 and 30. The anus opens between rings 70 and 71. The mouth opens in the terminal position. Gastric caeca seven pairs, lobate.

Two examples of the species were collected by C. K. Mandal on July 18 and 20, 1995 from Galshi, Burdwan and Krishnagar, Nadia, one attached with mollusca (Length 5 mm, width 1.5 mm).

*Remarks* : *Placobdella undulata* or leech of undulated head is found first time from West Bengal (Nadia and Burdwan).

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**Table 1.** : Difference between past and present collected *Barbronia weberi*.

	Past Collection	Present Collection
Locality	India : J & K., H.P., M.P. & U.P. Outside India : Java, Sumatra Celebes, Borneo, Phillipines, Pakistan, Nepal	West Bengal (Piasbari Nursery Pond, Dist. Malda)
Date of collection	1997 by Blanchard	January 23rd, 1995
Deposited	Not known	Deposited in Z.S.I. Reg. No. : An 3220/1
Host/Substratum	Under Stone	Lower leaf of water hyacinth
Length	36 mm	11 mm
Width	3.8 mm	1 mm
Colour	Not known in living condition	Pinkish white in living condition
Food	Not known	Molluscs
Breeding season	Not known	5-7
Number of eggs	Not known	May-July
Population density	Not known	1

**Table 2.** : Difference between past and present collected *Glossiphonia annandalei*.

	Past Collection	Present Collection
Locality	Inley Lake, Southern States, Burma	West Bengal (Piasbari Nursery Pond, Dist. Malda)
Date of collection	1921 by Oka	January 23rd, 1995
Deposited	Not known	Z.S.I.; Reg. No. : An 3219/1
Host/Substratum	Found on Snail	Under the leaf of water hyacinth where molluscs were present
Length	6 mm	2 mm
Width	2.8 mm	0.8 mm
Colour	Pale Grey	Grey
Food	Molluscs	Molluscs
Breeding season	Not known	June-July
Number of eggs	Not known	22
Population density	Not known	1

**Table 3. :** Difference between past and present collected Leech *Glossiphonia heteroclita*.

	Past Collection	Present Collection
Locality	Rajasthan (Nagaur), Bihar (Monghyr), North America, Europe and Burma	West Bengal (Bhadreshwar, Hooghly district) (Ramkeli, Malda district)
Date of collection	1922 by Oka from Burma	August 10, 1995 and March 23, 1995
Deposited	Not known	Deposited in Z.S.I.; Reg. No. An 2779/1 and An 2838/1
Host/Substratum	Gastropod <i>Pachylabra maura</i>	From beneath the leaves of water hyacinth in a pond of Bhadreswar station and from beneath the stone of a pond of Ramkeli
Length	10–13 mm at rest 17 mm in full extension	8–12 mm at rest 15 mm in full extension
Width	4.5 mm	2.5–3 mm
Colour	Amber yellow in living state	Grey to white in preserved state
Food	Parasite on molluscs	Parasitic on molluscs and insect larvae
Breeding season	Not known	June–July
Number of eggs	Not known	13–23 eggs
Population density	Not known	1 per sq. ft.

**Table 4. :** Difference between the past and present collected Leech *Glossiphonia reticulata*.

	Past Collection	Present Collection
Locality	Punjab, Himachal Pradesh, Maharashtra, Jammu	W. B. (Mandunir Beel, Kandi, district Murshidabad)
Date of collection	1921 by Kaburaki	March 25, 1995
Deposited	Type deposited : Z.S.I.	General collection : Deposited in Z.S.I. Reg. No. An 2850/1
Host/Substratum	Anodonta (Mollusc)	<i>Lymnaea</i> and Lotus leaf (Mollusc)
Length	11 mm	2.5 mm
Width	2 mm	0.8 mm
Colour	Olive in living	Greyish green in living
Food	Molluscs	Molluscs & Insect larvae
Breeding season	Not known	Mar.–Apr. and some on June–July
Number of eggs	Not known	22–23 eggs
Population density	Not known	2 per sq. ft.



**Table 5. :** Difference between past and present collected *Placobdella undulata*.

	<b>Past Collection</b>	<b>Present Collection</b>
Locality	Rajasthan (Jodhpur), H.P. (Solan), Kathua (J & K), Outside Sri Lanka	W. B. (Galsi, Burdwan; Krishna- nagar, Nadia)
Date of collection	Not known	July 18 and 19, 1995
Deposited	Type deposited : Z.S.I.	Z.S.I. Reg. No. : An 2791/1 and An 2827/1
Host/Substratum	From Fish (Koraliya) Colombo Lake, Cylon	From Mollusc and a stems of water hyacinth
Length	17.5 mm	4 mm
Width	4 mm (Body) 0.75 mm (Head region)	1.5 mm (Body) 0.18 mm (Head region)
Colour	Not known	Greyish in living, white in preserved state
Food	Coraliya Fish	Mollusca
Breeding season	Not known	May~July
Number of eggs	Not known	37-47
Population density	Not known	1