Asian J. Exp. Sci., Vol. 22, No. 1, 2008; 171-176

Description of A New Species of *Microvelia* Westwood, 1834 from India

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Abstract : *Microvelia* Westwood, 1834, is an important genus of family Veliidae, 1843. It is hitherto represented by nine species viz. *M. repentina* Distant, 1904, *M. singalensis* Kirkaldy, 1903, *M. albomaculata* Distant, 1909, *M. kumaonensis* Distant, 1909, *M. diluta* Distant, 1909 and *M. annandalei* Distant, 1909, *M. douglasi* Scott, 1874, *M. lundbladi* Gupta & Khandelwal, 2002 and *M. andersoni* Gupta & Khandelwal, 2002. One new species of the genus *Microvelia miyamoti* sp.nov. is described from India.

Key words : *Microvelia*, Veliidae, Apterous, Macropterous.

The Veliidae are perhaps the best known of all aquatic Hemiptera of the world and are extremely common in Indian water. The members of the family Veliidae are easily recognized from the related family Gerridae on the basis of hind leg not surpassing beyond the tip of abdomen and the presence of median longitudinal groove on vertex. Microvelia Westwood, 1834 belongs to the sub family Microveliinae China & Usinger, 1949 of the family Veliidae. The genus Microvelia Westwood, 1834 are easily recognized from the members of other genera due to subangular and posteriorly produced pronotum.

Genus - *Microvelia* Westwood, 1834

Type species : *Microvelia pulchella* Westwood, 1834

Type : British Museum, London.

This genus was first described by Westwood, 1834 with the type species *Microvelia pulchella* Westwood, 1834.

Mostly apterous, macropterous, Pronotum somewhat pointed or truncate. Head about 2/3 as long as wide across eyes. Antennae four segmented, relatively short, rostrum reaching apex of anterior coxae. Median longitudinal furrow on vertex obscure. Pronotum covering mesonotum and metanotum except at sides. Pronotal disc with few small punctures along hind margin. Legs relatively short and slender. Tibial comb of pegs short. Abdomen a little less than twice as long as head and pronotum combined together in male but slightly longer in female. Connexivum narrow, obilquely erect. Eighth abdominal segment somewhat constricted in middle. Ninth segment with broadly truncate hind margin; both parameres acute at apex and symmetrically developed furnished with some erect bristles near base. Hemelytra dark brown with white streaks.

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Distribution : The Oriental realm (Burma, Ceylon, India, Java, Malaya, Philippines), Australian realm, Southern Eastern United State into Central Mexico, Japan (Honshu and Kyushu).

The genus is hereto represented in India by ten species including *Microvelia miyamoti* sp.nov. described in the present contribution.

Microvelia miyamoti sp.nov.

(Figs. 1 - 12)

Description

Size : Male, apterous, 1.6 - 1.7 mm long and 0.57 - 0.63 mm wide at the metathorax; **Female,** apterous, 1.7 - 1.8 mm long and 0.72 - 0.80 mm wide at the metathorax; **Male,** macropterous, 1.96 mm long, 0.75 mm wide between humeri, **Female,** macropterous, 1.8 - 1.92 mm long, 0.77 - 0.83 mm wide across humeri.

Colour : Apterous form blackish or sometimes brownish with legs yellowish. Median furrow of vertex shining black and nearly reaching the base of vertex. Eyes raddish or dark brown; antennae dark brown excepting base of 1st segment broadly pale; rostrum yellowish with blackish apical segment. Pronotal transverse band yellow, interrupted by a brownish longitudinal median line, a little wider than basal width of vertex, the band not touched with anterior margin of the disc, that is slightly pale towards base. Apical part of femora, entire tibiae infuscate and tarsi much darker. Dorsal surface of abdomen pruinose and greyish except for brownish anterior half of first tergite, blackish sides of the second to seventh tergites, a black median triangular patch on the base of second, a black median fascia of the third, most of the fourth and sixth, whole of the fifth and median polished black striae on the fifth to seventh. Ventral side blackish with underside of head and acetabulae yellow. Gegnital segments dark brown dorsally, Paler ventrally. Macropterous form blackish, darker.

Structural Characteristics

Head : Some what elongate, head with about 2/3 as long as wide (28 : 45) median longitudinal furrow narrow but distinct, reaching near base; eyes prominent, the width about ½ as long as introcular distance (11.5 - 24); antenniferous tubercle poorly defined, clypeus with basal margin not well marked. Mandibular and Maxillary plates not clearly separated from each other; rostrum relatively short, reaching apex of anterior coxae; antennae long or a little longer than half the length of body and slender, 1st antennal segment the thickest but shorter than the 3rd and about a half as long as the fourth; relative lengths of antennal segments Ist : IInd : IIIrd : IVth : : 18 : 14.5 : 21 : 36, and of female Ist : IInd : IIIrd : IVth : : 19.5 : 15 : 20 : 37. Body minutely pubescent, mixed with longer hairs.

Thorax : Pronotum longer than half the width, broadly rounded on hind margin (36 : 58 in apterous male and 42 : 66 in apterous female). Pronotum slightly more than 2/3 as long as wide in macropterous form (57 : 75), the disc broadly produced behind and the hind margin rounded. Long hairs are present on lateral pronotal transverse band. Intersegmental suture between mesonotum and metanotum indistinct laterally. Legs rather long with femora very thick in male, moderately thick in female. Tibial comb of pegs short, on each ventral apex of anterior and intermediate tibiae in male.

Relative length of leg segments

Apterous male (1.6 - 1.7 mm)

	femur	tibia	tarsus	First tarsal segment	Second tarsal segment
Fore leg	42	34	19	-	-
Mid leg	46	43	34	10.5	14.5
Hind leg	52	57	44	12.5	16

Apterous female (1.7 - 1.8 mm)

	femur	tibia	tarsus	First tarsal segment	Second tarsal segment
Fore leg	44	33	20	-	-
Mid leg	49	42	26	11	15.5
Hind leg	57	62.5	43	13	16.5

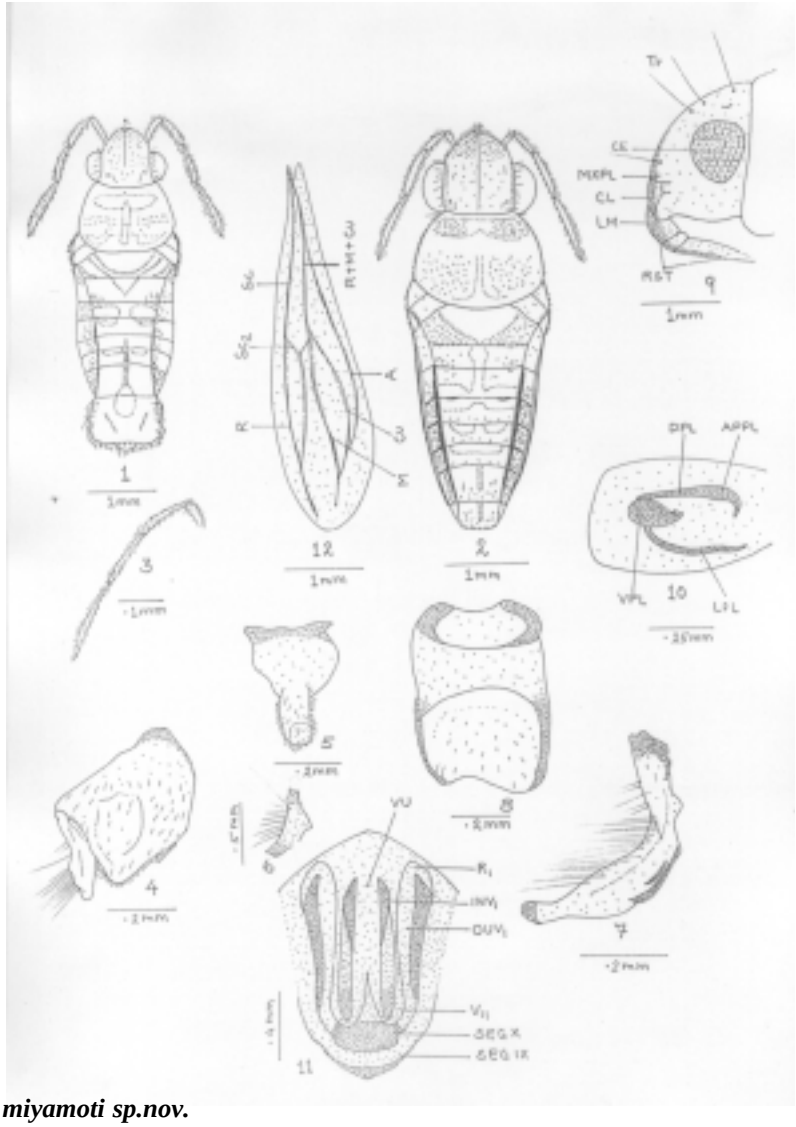
Macropterous male (1.96 mm)

	femur	tibia	tarsus	First tarsal segment	Second tarsal segment
Fore leg	48	35	21	-	-
Mid leg	52	56	28	12	16.1
Hind leg	62	65.1	50	15	17.2

Macropterous female (1.8 - 1.92 mm)

	femur	tibia	tarsus	First tarsal segment	Second tarsal segment
Fore leg	49.6	36	22	-	-
Mid leg	53	58	27.1	12	17.2
Hind leg	65	65.8	50	15	19.1

Abdomen : Abdomen about one and a half times as long as head and pronotum put together (65 : 105 in apterous male and 72 : 106 in apterous female) large portion of abdominal tergum a little concavely sinuate; seventh abdominal tergite distictly longer than others in male and somewhat longer than the first in female. Connexvum moderately broad, suberect in male, almost vertically erect in female. Hemelytra of macropterous form dark with relatively large white markings and a little surpassing tip of abdomen.



Microvelia miyamoti sp.nov.

(Figs 1 - 12)

Fig.1. : Apterous male *Microvelia miyamoti sp.nov.*, legs omitted, Fig.2. : Apterous female *Microvelia miyamoti sp.nov.*, legs omitted, Fig.3. : Antennae of female., Fig.4. : ninth abdominal segment of male, ventral view., Fig.5. : Suranal plate with 10th segment of male., Fig.6. : Left hand side paramere of male., Fig.7. : Right hand side paramere of male., Fig.8. : Eighth abdominal segment of male, ventral view., Fig.9. : Head in lateral view., Fig.10. : Apical segment of endosoma., Fig.11. : Female genitalia., Fig.12., Wing of macropterous male.

Key to Abbreviated Lettering of Figures

ANTT = Antenniferous tubercle, APPL = Apical Plate, ANT = Antennae, BPL = Basal Plate, CL = Clypeus, CE = Compound eye, Co = Ventral Collar, DPL = Dorsal plate, INV = Inner lobe of valvula, LM = Labrum, LPL = Lateral plate, MPL = Mandibular Plate, MXPL = Maxillary Plate, OVN = Outer lobe of valvula, RST = Rostrum, SEG = Segment, TR = Trichobothria, V = Valvula, VF = Valvifer, VU = Vulva, VPL = Ventral Plate

Wing venation : Hemelytra with Sc connected to R of R + M beyond the point of bifurcation by an oblique vein Sc_2.

Male genitalia : Eighth abdominal segment large, assymetrical, with large posterior aperture and the hind margin of dorsal wall shallowly concaved. Ninth abdominal segment strongly assymetrical, the right side distinctly produced in middle; suranal plate also assymetrical; right hand paramere well developed; curved and narrowed in middle; widened beyond middle, furnished with a series of long erect bristles and with obtuse apex; left handed one triangular in lateral view, furnished with a few long suberect hairs. Endosoma with dorsal plate loosely joined with paired large somewhat rounded apical plate on apical margin; ventral plate small; completely membranous, directly supported by base of dorsal plate; lateral plate slender, elongate.

Female genitalia : Seventh segment without connexival spine, well developed both dorsally and ventrally. First valvula with inner lobe simply narrowed apically, reaching nearly middle of outer lobe; outer lobe well sclerotized on inner half. Ninth segment with second valvulae sclerotized along lateral and apical margins, apical lobe rounded, a little extending beyond apical margin of intervalvular membrane. Vulva largely membranous.

Material examined : *Holotype* one apterous male, *allotype* one apterous female, *paratypes* 2 apterous male, one macropterous male, one macropterous female on pins. Himachal Pradesh, Manali from stagnant water of hill stream 28.xi.2006 (Y.K. Gupta). Other material examined INDIA: U.P., Chakrota, Haldwani, Chakata, macropterous 8 males, 3 females, apterous 7 males, 11 females, 5.viii.2006 (Y.K. Gupta).

Distribution : INDIA : Himachal Pradesh & Uttar Pradesh.

Remark : This species is closely related to *Microvelia genitalis* Lunblad (134) but readily distinguishable from it by relatively longer tibiae and tarsai in posterior legs, and a little shorter 8th abdominal segment in male. There are also some differences in colour.

The new species is named after the name of S. Miyamoto in recognition of his outstanding contribution in taxonomy of fresh water bugs.

Acknowledgement

The authors are greatful to Dr. Virendra Mishra, Principal, B.S.A. College, Mathura and Dr. R.S. Gangwar, Principal, Ganjdundwara College, Ganjdundwara for providing necessary laboratory and library facilities. Thanks are also due to Dr. G.K. Srivastava, Additional Director, Z.S.I., Calcutta for valuable suggestions.

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