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HITHERTO UNKNOWN AND SOME NEW RECORDS OF SEXUALES OF APHIDS (HOMOPTERA : APHIDIDAE) FROM UTTAR PRADESH, INDIA

By

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(With 2 Text-figures)

INTRODUCTION

The hills of Kumaon range in Uttar Pradesh were further explored for aphids in the cooler months of 1979 and 1980. Examination of the collected samples has resulted in the finding of hitherto unknown apterous oviparous females of *Liosomaphis himalayensis* Basu and *Macrosiphoniella sanborni* (Gillette), first record of apterous oviparous female of *Capitophorus formosartemisiae* (Takahashi) from India and new records of apterous oviparous females and alate males of *Macrosiphum* (*Sitobion*) *rosaeiformis* Das and *Tinocalloides montanus* Basu from the state of Uttar Pradesh. Besides, apterous oviparous female of *Taoia indica* (Ghosh and Raychaudhuri) has also been reported as new to the records of aphid fauna of north-west India.

Material of the reported species are deposited in the collection of Entomology Laboratory, Department of Zoology, University of Calcutta.

Capitophorus formosartemisiae (Takahashi, 1921)

Myzus formosartemisiae Takahashi, 1921. *Aphididae of Formosa*, 1 : 25.

Ghosh, A. K. *et al.* (1971) recorded and described for the first time single apterous oviparous female of this species on *Artemisia* sp. from Bhutan. From India the same morph of this species has been recorded here for the first time. The sexual morph was found along with the viviparous apterae colonised on the undersurface of an old and dry leaf of *Artemisia* host.

1 Deceased, 1st May 1981.

Material examined : 3 apterous viviparous ♀ ♀ and 1 apterous oviparous ♀ : Nainital, 3.xii.1979 from *Artemisia vulgaris*.

Measurements of the apterous oviparous female in mm

Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2.	Siph.	Cauda
1.42	0.67	1.44	0.12	0.16	0.21	(0.7+0.61)	0.1	0.09	0.43	0.1

Liosomaphis himalayensis Basu, 1964

(Text-fig. 1)

Liosomaphis himalayensis Basu, 1964. *J. Linn. Soc.* (*Zool.*), **45** : 231.

Apterous oviparous female : Body pale, about 1.33-1.53 mm long and 0.55-0.61 mm as maximum width. Head with low lateral and strong median prominence ; hairs on vertex short and blunt. Antennae 6-segmented, about 0.85-0.87 mm long and 0.57-0.85 x body ; paler upto segment IV, rest somewhat darker ; segments I and II scabrous, segment III smooth on outer margin, rest of the flagellum imbricated ; hairs on segment III about 5 μ long and 0.33-0.6 x basal diameter of the segment ; without secondary rhinaria. Rostrum extending upto midcoxae ; ultimate rostral segment as long as second segment of hind tarsus and with 2 accessory hairs. Dorsum of abdomen pale, hairs short and blunt, those on anterior tergites about 15 μ long and about 0.33-0.4 x and on 8th tergite about 0.85-0.92 x basal diameter of antennal segment III. Siphunculi about 0.21 x body, nearly smooth. Cauda constricted near base with 7-8 hairs. Hind tibiae distinctly swollen (Text-fig. 1), bearing numerous pseudosensoria throughout the length. Otherwise as in apterae viviparae.

Material examined : 4 apterous viviparous ♀ ♀ and 2 apterous oviparous ♀ ♀ : Nainital, 4. xii. 1979 from *Spiraea* sp.

Measurements of apterous oviparous females in mm

	Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2	Siph.	Cauda
1.	1.66	0.82	0.93	0.21	0.16	0.16	(0.1+0.19)	0.09	0.09	0.31	0.13
2.	1.31	0.58	0.86	0.21	0.16	0.15	(0.1+0.15)	0.08	0.08	0.31	0.13

Remark : This endemic species was so far known by its viviparous morphs and the alate male (Raychaudhuri, 1980 ; Basu and Raychaudhuri, 1980). It is the first record of a species of the genus *Liosomaphis* from *Spiraea* sp., usual host being *Berberis* spp. (Miyazaki, 1971 ; Raychaudhuri, 1980).

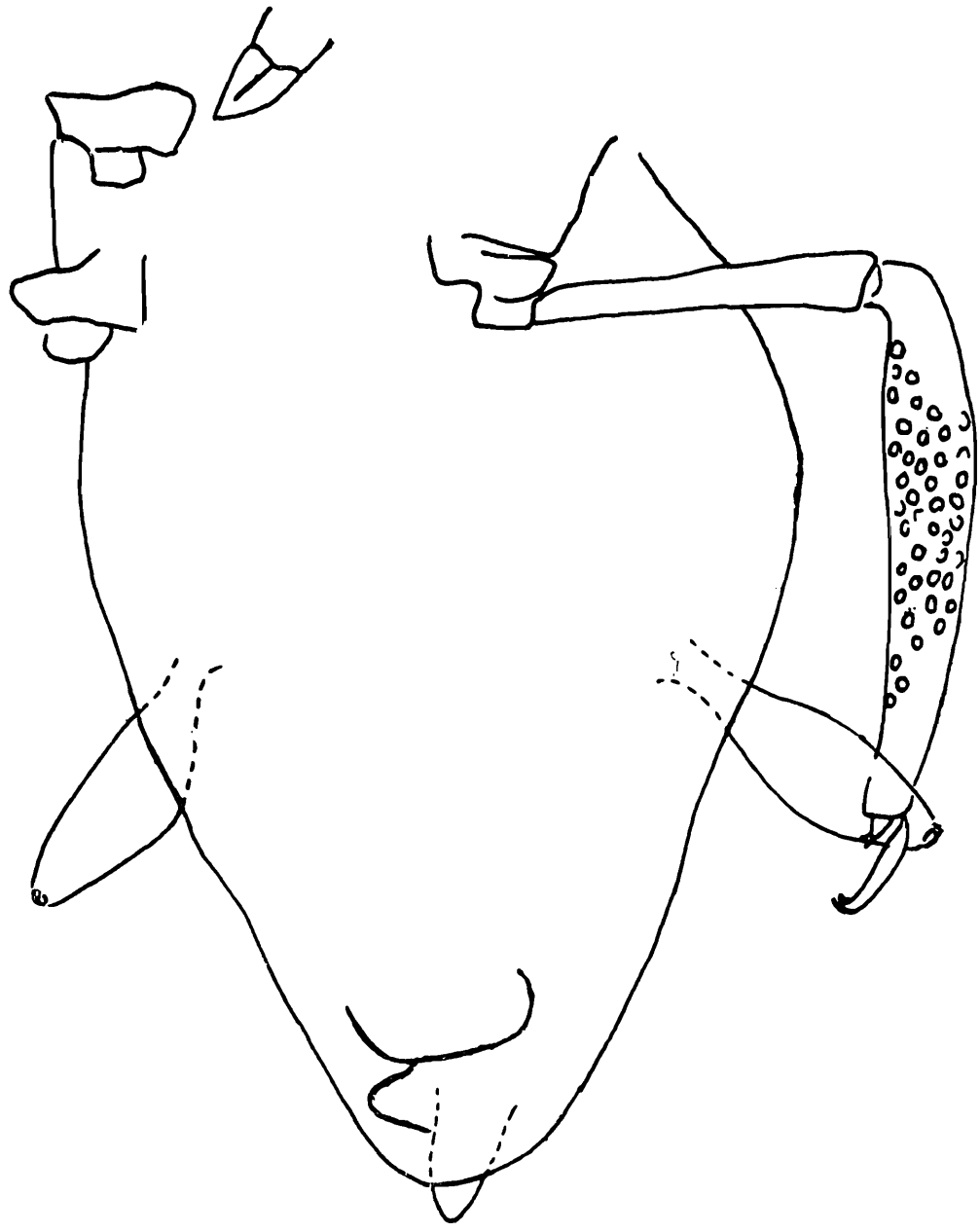

FIG 1

Text-fig. 1. *Liosomaphis himalayensis* Basu :

Apterous oviparous female : Portion of abdomen with hindtibia showing pseudosensoria.

Macrosiphoniella sanborni (Gillette, 1908)

(Text-fig. 2)

Macrosiphum sanborni Gillette, 1908. *Can. Ent.*, **46** : 65.

Apterous oviparous female : Head brown with strong lateral frontal prominences. Antennae 6-segmented, about 0.9 x body ; segment III with 6-8 small, circular secondary rhinaria ; flagellum paler upto basal half of segment IV, rest brown. Rostrum reaching past hind coxae ;

apical segment as long as second segment of hind tarsus and bear 3-4 hairs. Siphunculi stout, tapering towards apex, about 0.13 x body and 0.9 x cauda bearing 12-14 hairs. Femora comparatively darker than in viviparae, hind tibiae not swollen, bearing 4-6 sparsely placed pseudosensoria on innerside of apical half (Text-fig. 2). Otherwise as in apterous viviparae.

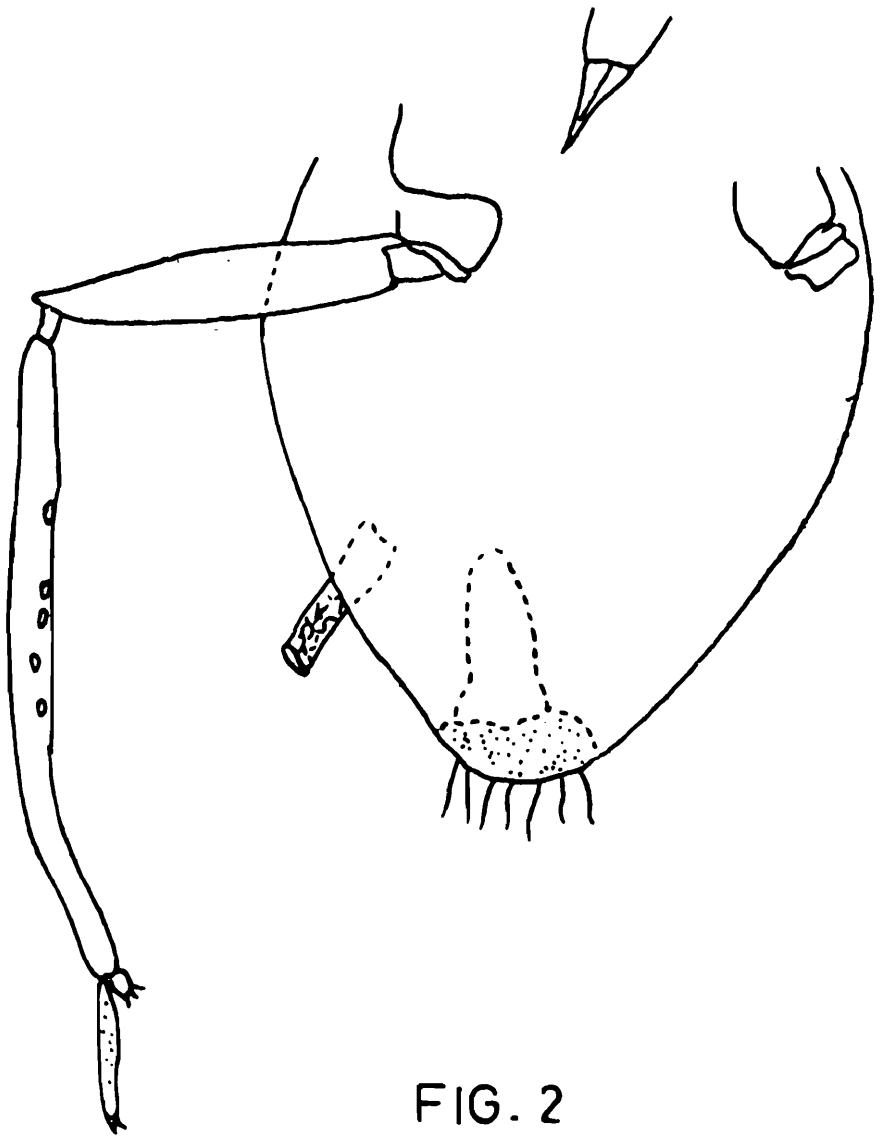

FIG. 2

Text-fig. 2. *Macrosiphoniella sanborni* (Gillette)
Apterous oviparous female: Portion of abdomen with hindtibia showing pseudosensoria.

Material examined : 8 apterous viviparous ♀ ♀ and 1 apterous oviparous ♀ : Almorah, 9.xii. 1979 from *Artemisia vulgaris*.

Measurement of the apterous oviparous female in mm

Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2	Siph.	Cauda
2.38	1.24	2.13	0.58	0.19	0.39	(0.19+0.58)	0.15	0.16	0.36	0.36

Remark : This worldwide distributed species is specific on *Chrysanthemum* spp. Hille Ris Lambers (1938) observed that the species lives

on its host without forming sexual forms. In India the species was known by viviparous morphs only. Find of apterous oviparous female along with apterae viviparae on *Chrysanthemum* in the hills of Kumaon Range suggests that the species can possibly lead a holocyclic life cycle in this area.

Macrosiphum (Sitobion) rosaeiformis Das, 1918

Macrosiphum rosaeiformis Das, 1918. *Mem. Indian Mus.*, **6** (4) : 158.

Basu and Raychaudhuri (1980) mentioned the occurrence of both alate male and apterous oviparous females of this species in the hills of north-east India. From Uttar Pradesh it appears to be the first record of the sexuales of this species.

Material examined : 1 alate viviparous ♀ and 1 alate ♂ : Nainital, 4. xii, 1979 from *Rosa* sp. ; 1 apterous viviparous ♀, 2 alate viviparous ♀ ♀ and 5 apterous oviparous ♀ ♀ : Almorah, 9. xii. 1979 from *Rosa* sp.

Measurements in mm

	Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2	Siph.	Cauda
1.	3.27	1.32	3.45	0.79	0.67	0.6	(0.18+0.99)	0.12	0.13	0.67	0.36
2.	2.38	1.24	2.13	0.58	0.19	0.4	(0.19+0.58)	0.15	0.16	0.36	0.36
3.	1.82	1.08	1.62	0.36	0.25	0.26	(0.1+0.51)	0.83	0.11	0.30	0.19
4.	1.75	0.83	1.76	0.35	0.28	0.3	(0.11+0.52)	0.10	0.14	0.35	0.19
5.	1.92	1.03	1.97	0.49	0.33	0.33	(0.12+0.58)	0.10	0.12	0.39	0.15
6.	1.92	0.96	1.69	0.39	0.26	0.23	(0.10+0.58)	0.10	0.11	0.36	0.21

(1, alate male ; 2-6, apterous oviparous females).

Taoia indica (Ghosh and Raychaudhuri, 1972)

Euceraphis indica Ghosh and Raychaudhuri, 1972. *Oriental Ins.* **6** : 373.

This endemic species was until now known by sexuale morphs and the viviparous morphs from north-east India only. Present finding of apterous oviparous female along with apterous viviparous morph appears to be new to the aphid record of north-west India and also confirms the earlier finding that the species is confined to the plants of Betulaceae only (Basu and Raychaudhuri, 1980).

Material examined : 4 apterous viviparous ♀ ♀ and 5 apterous oviparous ♀ ♀ : Almorah, 8. xii. 1979 from *Alnus nepalensis*.

Measurements of apterous oviparous females in mm

	Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2	Siph.	Cauda
1.	3.34	1.20	5.26	1.41	1.38	1.10	(0.63+0.45)	0.13	0.21	0.15	0.15
2.	3.31	1.32	5.14	1.32	1.44	1.04	(0 65+0.47)	0.14	0.18	0.12	0.14
3.	3.14	1.22	5.19	1.32	1.32	132	(0.59+0.41)	0.14	0.18	0.12	0.11
4.	3.13	1.08	4.88	1.33	1.22	1.05	(0.61+0.47)	0.14	0.18	0.11	0.11
5.	3.17	1.12	5.08	1.32	1.12	1.14	(0.58+042)	0.14	0.18	0.11	0.12

Tinocalloides montanus Basu, 1969

Tinocalloides montanus Basu, 1969. *Oriental Ins.*, 3 : 367.

It is another endemic species known also by sexuale morphs in the hills of north-east India and Himachal Pradesh (Basu and Raychaudhuri, 1980). It is the first report from Uttar Pradesh of alate males and apterous oviparous females along with alate viviparous female of this species which was collected on peach plants infesting the undersurface of leaves along mid-rib.

Material examined : 1 alate viviparous ♀, 2 alate ♂♂ and 24 apterous oviparous ♀♀ : Almorah, 17. iii. 1980 from *Prunus persica*.

Measurements in mm

	Length	Width	Antenna	Antennal segments III	IV	V	VI	Urs.	ht. 2	Siph.	Cauda
1.	1.54	0.75	1.38	0.52	0.25	0.21	(0.12+0.13)	0.07	0.12	0.07	0.03
2.	1.51	0.55	DISTORTED					0.10	0.11	0.06	0.06
3.	1.71	0.66	0.84	0.36	0.15	0.15	(0.10+0.12)	0.09	0.12	0.06	0.03
4.	1.46	0.71	0.87	0.30.	0.14	0.14	(0.10+0.10)	0.10	0.11	0.03	0.04
5.	1.46	0.54	0.94	0.35	0.15	0.14	(0.10+0.11)	0.10	0.12	0.03	0.03
6.	1.38	0.58	0.78	0.31	0.13	0.15	(0.09+0.10)	0.09	0.11	0.04	0.03
7.	1.62	0.61	0.82	0.34	0.14	0.14	(0.10+0.11)	0.10	0.11	0.04	0.03

(1-2, alate males ; 2-7, apterous oviparous females)

Summary

This paper includes descriptions of hitherto unknown apterous females of *Liosomaphis himalayensis* Basu and *Macrosiphoniella sanborni* (Gillette) and reports apterous oviparous females of *Capitophorus formosartemisiae* (Takahashi) for the first time from India. Besides, apterous oviparous female of *Taoia indica* (Ghosh and Raychaudhuri) is reported here as new to north-west India and alate males and apterous oviparous females of *Macrosiphum* (*Sitobion*) *rosaeiformis* Das and *Tinocalloides montanus* Basu are new to the state of Uttar Pradesh.

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