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**A NEW MALAYSIAN THRIPS WITH NOTES ON SOME SPECIES OF  
DENDROTHRIPOIDES AND INDUSIOTHRIPS  
(THYSANOPTERA, THIRIPIDAE)**

By IWAO KUDÔ

Systematic and Ecological Surveys on Some Plant-Parasitic Microarthropods  
in Southeast Asia, Scientific Report No. 15. Research Trips for Agricultural  
and Forest Insects in the Subcontinent of India, Scientific Report No. 46.

*Abstract*

KUDÔ, I. 1992. A new Malaysian thrips with notes on some species of *Dendrothripoides* and *Indusiothrips* (Thysanoptera, Thripidae). *Ins. matsum. n. s.* 47 : 91-101, 2 tabs., 3 figs.

*Isumidothrips serangga*, n. gen. and n. sp., is described from Semenanjung Malaysia and Sarawak (Borneo) on the basis of both sexes. *Dendrothripoides innoxius* from Nepal, and *D. poni* and *Indusiothrips seshadrii* from Semenanjung Malaysia are recorded. Some variations in the former two species and additional diagnostic characters for the last one are also mentioned.

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*Contents.* Introduction — *Dendrothripoides innoxius* — *Dendrothripoides poni* — *Indusiothrips seshadrii* — *Isumidothrips* n. gen. — *I. serangga* n. sp. — Acknowledgments — References.

## INTRODUCTION

In 1990 and 1991, I had the opportunities to survey Malaysian thrips in connection with the project "Systematic and ecological surveys on some plant-parasitic microarthropods in Southeast Asia" carried out jointly by Japanese and Malaysian members. The present paper is my first report on the Malaysian thrips collected under this project, dealing with a new genus, *Isumidothris*, for the reception of *serangga* n. sp., and several species of the related genera *Dendrothripoides* and *Indusiothrips*. Part of the material used in this paper was collected under another project, "Research trips for agricultural and forest insects in the Subcontinent of India."

About half the specimens of Malaysian species mentioned in this paper, including the holotype of the new species, will be deposited in Institut Penyelidikan Perhutanan Malaysia (= Forest Research Institute of Malaysia, or FRIM), Kepong, Selangor, Malaysia. The host plants of the Malaysian material and those of the Nepalese material were identified by Mr. K.M. Kochummen, ex-Botanist, FRIM, and at the Kathumandu Herbarium, respectively. The abbreviations used in the following lines are as in my previous paper (Kudô 1984).

## DESCRIPTIONS AND RECORDS

### *Dendrothripoides innoxius*

*Euthrips innoxius* Karny in Karny & Docters van Leeuwen-Reijnvaan 1914 : 359-360.

*Dendrothripoides innoxius*, Bhatti 1978 : 10-12.

*Dendrothripoides ipomeae* Bagnall 1923 : 624-625.

*Dendrothripoides ipomoeae* (sic), Wilson 1975 : 103-104 ; Kudô 1977 : 495-496.

*D. innoxius*, widely distributed in the tropics except for Africa, is now newly recorded from Nepal. It differs from the congeners in having longer  $A_7$ , thick antennal segments (Fig. 1.1), short PAS on the pronotum, and stout median setae on  $T_6$  and  $T_7$  as well as on  $T_8$ . Variations of some quantitative characters are given in Table 1.

The species appears to be highly variable. Kudô (1977) and Bhatti (1978) reported variations in color of  $T_1$  and metathorax and in the shape of the abdominal tergal setae. Some other variations are noted here. The mesosternum has no spinula in all the Nepalese specimens examined (Fig. 1.2), but this organ is well represented in some specimens from Southeast Asia. This variation is seen in *D. poni*, too. The absence of the mesothoracic spinula has so far been adopted as a diagnostic character of the genus *Dendrothripoides*. However, it is merely an intraspecific variation. The abdominal sternal glandular areas of the male are also variable in shape and number. So far as known, these areas occur on  $S_3$ - $S_7$  and are small (L 4-5  $\mu\text{m}$ , W 11-26  $\mu\text{m}$ ) in males from India (Fig. 1.4), while in the Nepalese specimens examined they are quite conspicuous (L 6  $\mu\text{m}$ , W 42-60  $\mu\text{m}$ ) and, in one specimen, even divided medially into two pieces on  $S_3$  (Fig. 1.3). Philippine males have moderately developed ones (L 6  $\mu\text{m}$ , W 18-29  $\mu\text{m}$ ) on  $S_4$ - $S_7$  (Fig. 1.5).

Specimens examined. Nepal — Janakpur : Suri Dhoban (1,100 m), 30 ♀ 10 ♂

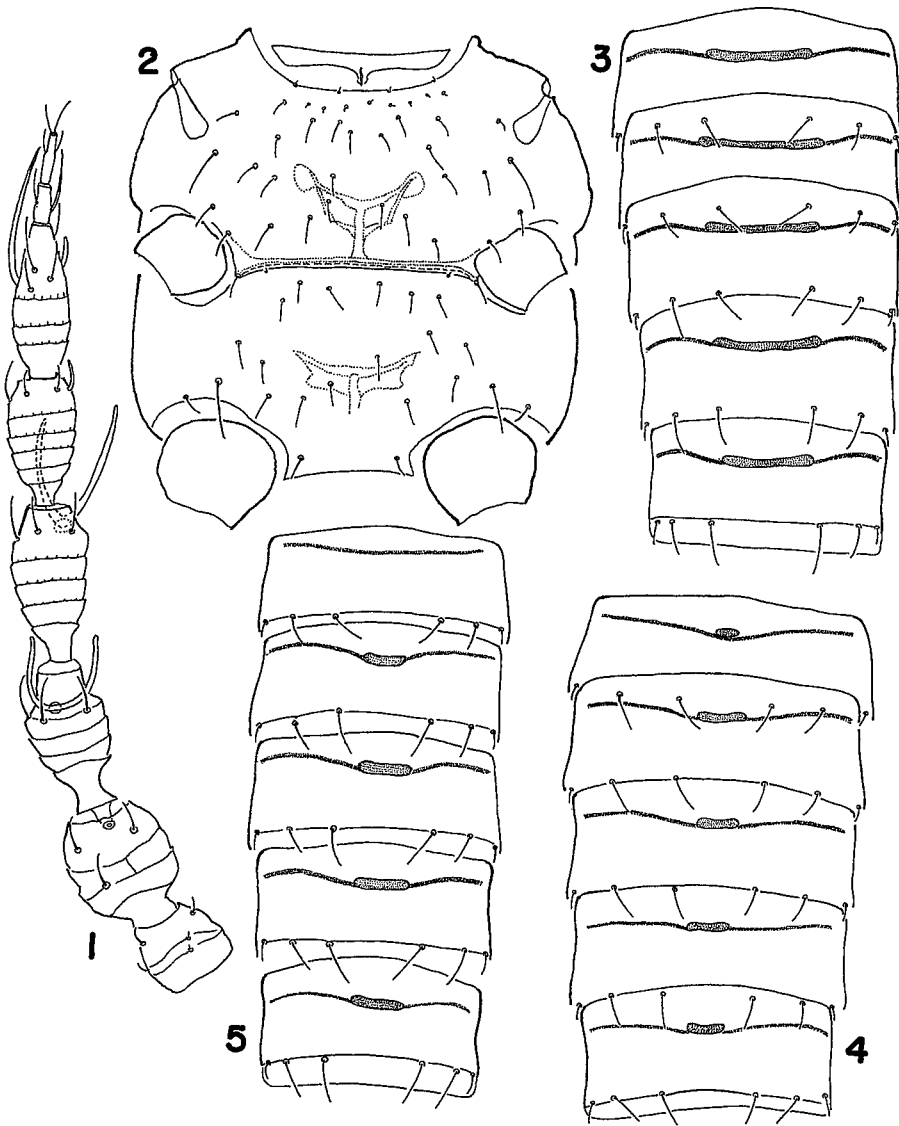


Fig. 1. *Dendrothripoides innoxius*. 1. ♀, antenna. 2. ♀, meso- and metasternum. 3-5. ♂, variation in glandular areas on S<sub>3</sub>-S<sub>7</sub>; 3, from Nepal; 4, from India; 5, from the Philippines.

(*Dioscorea* sp., Dioscoreaceae), VIII. 28. 1983. Semenanjung Malaysia — Terengganu: Dungun, 1 ♀ (*Saccharum officinarum*, Gramineae), VIII. 10. 1990; Pahang: Kuantan, 3 ♀ (dead plants), VIII. 13. 1990. The Philippines — Luzon: Manila, 4 ♀ 2 ♂ (grass & dry vines), II. 16-18. 1974; San Pablo, 3 ♀ 1 ♂ (grass), II. 20. 1974.

Table 1. Quantitative characters of *Dendrothripoides innoxius* in Nepal, mean±S.D.

Characters	Female		Male	
	Mean±S.D.	n	Mean±S.D.	n
Head W/L	1.39±0.06	17	1.39±0.05	7
IOD/HOW	1.30±0.12	20	1.30±0.12	10
OOD/IOD	3.85±0.24	17	4.13±0.35	7
A <sub>2</sub> L/W	1.00±0.03	17	1.04±0.04	7
A <sub>3</sub> L/W	2.16±0.08	17	2.16±0.08	7
A <sub>4</sub> L/W	2.14±0.13	17	2.07±0.15	7
A <sub>5</sub> L/W	2.08±0.13	17	2.05±0.09	7
A <sub>6</sub> L/W	2.67±0.19	17	2.63±0.06	7
A <sub>7</sub> L/W	1.94±0.21	17	1.83±0.29	7
A <sub>8</sub> L/W	3.43±0.47	17	3.30±0.31	7
A <sub>8</sub> L/A <sub>7</sub> L	1.47±0.12	20	1.45±0.15	7
Pronotum W/L	1.30±0.05	17	1.28±0.01	7
No. of pronotal setae	54.1 ±2.2	17	52.8 ±1.7	6
No. of mesosternal setae	38.3 ±2.8	12	37.0 ±1.2	4
No. of metasternal setae	21.4 ±1.3	17	21.6 ±0.9	5
Metascutal median setae L/Distance between them	1.46±0.45	19	1.40±0.27	8
Fore wing L/W	22.28±1.00	15	21.33±0.52	3
No. of costal setae on fore wing	19.3 ±1.5	23	18.5 ±0.8	6
No. of fore veinal setae on fore wing	11.0 ±0.4	21	11.0 ±0.6	6
No. of hind veinal setae on fore wing	3.8 ±0.4	21	4.0 ±0.0	7
No. of anterior FH on fore wing	16.4 ±1.4	18	16.3 ±1.0	6
No. of posterior FH on fore wing	49.9 ±3.6	14	46.0 ±2.5	6
No. of FH on hind wing	47.1 ±3.4	21	45.4 ±2.0	8
T <sub>8</sub> B <sub>1</sub> /Distance between them	0.69±0.05	17	0.67±0.06	7
T <sub>8</sub> B <sub>2</sub> /Distance between them	0.86±0.04	17	0.78±0.04	7
T <sub>10</sub> L/T <sub>9</sub> L	2.38±0.13	17		
T <sub>9</sub> B <sub>1</sub> /T <sub>9</sub> L	1.75±0.13	21	0.21±0.01	7
T <sub>9</sub> B <sub>2</sub> /T <sub>9</sub> L	1.97±0.18	18	0.72±0.04	7
T <sub>9</sub> B <sub>3</sub> /T <sub>9</sub> L	1.39±0.06	18		
Middorsal setae/T <sub>9</sub> L			0.32±0.06	6
T <sub>10</sub> B <sub>1</sub> /T <sub>10</sub> L	0.76±0.05	19		
T <sub>10</sub> B <sub>2</sub> /T <sub>10</sub> L	0.78±0.03	18		
Ovipositor L/Pronotum L	1.56±0.06	17		

*Dendrothripoides poni*

Kudô 1977 : 497-498.

This species was originally described on the basis of a single female from Ko Phuket, Thailand. A redescription is given below for both sexes from Malaysia.

♀. Entirely yellow ; abdomen dull golden yellow, segment X brown ; major

setae on abdominal segments IX and X dark brown. Fore wing pale, with a brown patch at subbase and a brown band at middle. Antenna yellow;  $A_4$  slightly brownish apically, apical half of  $A_6$  and entire segments of  $A_7$  and  $A_8$  brown.

Head (Fig. 2.1) W/L 1.55-1.70; irregularly reticulate between eyes; occiput with 3-4 transverse striae; AOS thick; IOS, POS  $B_1$  and POS  $B_3$  thin, subequal in length, POS  $B_2$  minute; IOD/HOW 1.20-1.40; OOD/IOD 3.43-3.62; mouth cone long, reaching onto mesosternum. Antenna (Fig. 2.2) 2.9-3.1 as long as head;  $A_3$ - $A_8$  L/W 2.44-2.78, 2.33-2.50, 2.12-2.25, 2.63-2.93, 1.17-1.33 and 3.00-3.20, respectively;  $A_3$  longest;  $A_6$  shortly but distinctly pedicellate;  $A_8$  2.00-2.29 as long as  $A_7$ ;  $A_4$ - $A_6$  with weak microtrichia (erroneously stated as " $A_3$ - $A_6$ " in the original description).

Pronotum (Fig. 2.1) W/L 1.18-1.24; with transverse anastomosing striae in

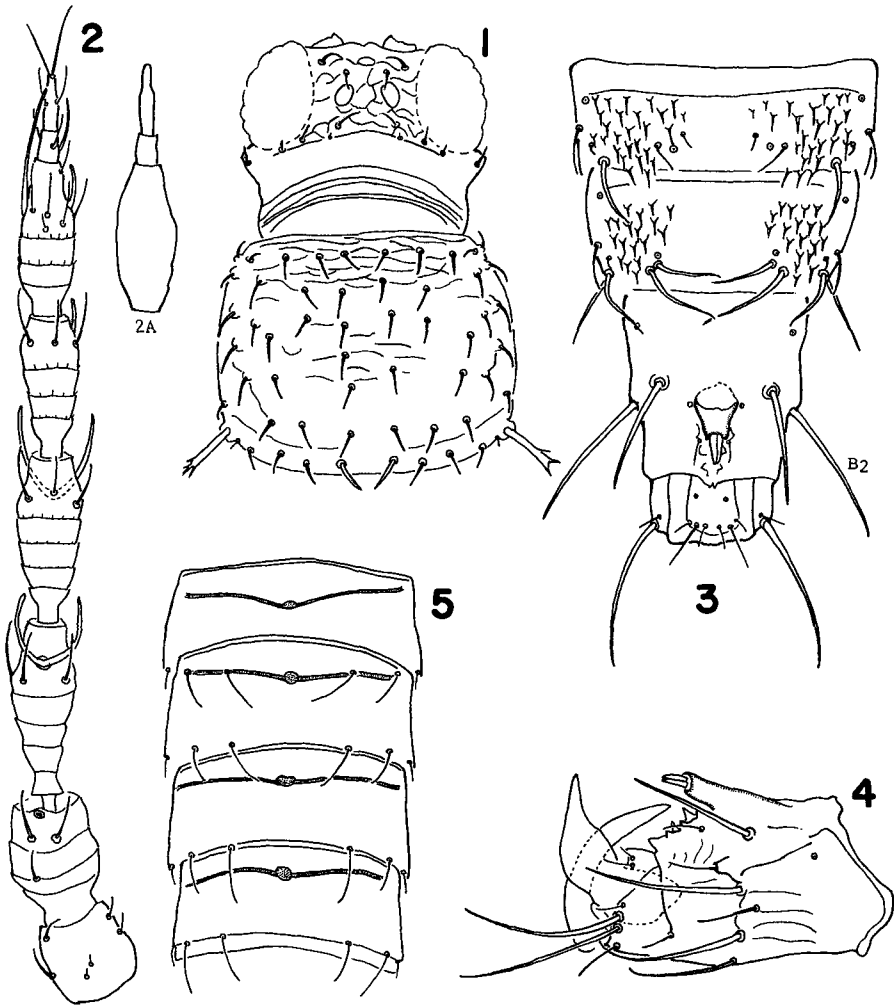


Fig. 2. *Dendrothripoides poni*. 1. ♀, head and pronotum. 2. ♀, antenna, A, outline of  $A_6$ - $A_8$  in *D. venustus*. 3. ♂,  $T_7$ - $T_{10}$ . 4. ♂, abdominal segments IX and X with genitalia, lateral view. 5. ♂,  $S_4$ - $S_7$ .

anterior fourth ; with 55-58 setae in all, discal setae mostly normally thin, only some setae lanceolate ; PAS expanded apically, 0.26-0.28 as long as pronotum. Mesonotum reticulate, with anterior CPS, median setae at posterior third ; metascutum irregularly reticulate medially, with CPS at posterior third, median setae (L 16-18  $\mu\text{m}$ ) thick and placed at anterior fourth ; metepimeral anterior seta (L 20-22  $\mu\text{m}$ ) thick, slightly shorter than posterior one (22-24  $\mu\text{m}$ ) ; mesosternum usually with spinula, but often without it ; meso- and metasternum each with a pair of long setae (ca. 60  $\mu\text{m}$ ) on midlateral side ; metaspinasternum short but wide ; hind coxae spaced by four-fifths their width. Fore wing with 14-16 anterior and 45 posterior FH ; costa with 14-17 setae (including long apical seta), fore vein with 10, hind vein with 2-4. Hind wing with 42-46 FH.

Median setae on  $T_1$ - $T_7$  small,  $B_3$  thick and pointed apically ;  $T_{10}L/T_9L$  3.09-3.13 ;  $T_9$  with 2 pairs of CPS,  $T_{10}$  with 1 pair ;  $B_1$ - $B_3$  on  $T_9$  2.17-2.33, 2.57-2.74 and 2.26-2.30 as long as  $T_9$ , respectively ;  $B_1$ - $B_2$  on  $T_{10}$  0.60-0.63 and 0.63-0.64 as long as  $T_{10}$ , respectively. Primary setae on  $S_2$ - $S_7$  at posterior margin ; setae on  $S_7$  much longer than those on anterior sterna ;  $B_2$  on  $S_7$  as long as  $S_7$  and 1.5-1.7 as long as  $B_1$  ; ovipositor 2.23-2.28 as long as pronotum.

Measurements ( $\mu\text{m}$ ). Body L 1.1 mm. Head L 76-85, W 129-134 ; pronotum L 128-130, W 154-161 ; PAS 34-36 ;  $T_9$  L 46 ;  $T_{10}$  L 142-144 ;  $B_1$ - $B_2$  on  $T_8$  42-43 and 58-62 ;  $B_1$ - $B_3$  on  $T_9$  100-107, 118-126 and 104-106, respectively ;  $B_1$ - $B_2$  on  $T_{10}$  86-90 and 90-92 ; ovipositor L 285-296. Antenna 234-245 in total L ; L(W) of antennal segments as follows :  $A_1$  20-22 (22),  $A_2$  28 (26),  $A_3$  44-50 (18),  $A_4$  42-45 (18),  $A_5$  36 (16-17),  $A_6$  41-42 (14-16),  $A_7$  7-8 (6), and  $A_8$  15-16 (5).

♂. Colored as in female. Head L/W 1.59-1.69 ; IOD/HOW 1.20-1.63 ; OOD/IOD 2.77-3.33.  $A_3$ - $A_8$  L/W 2.41-2.71, 2.00-2.50, 1.75-2.19, 2.13-2.71, 1.20-1.60 and 3.00-3.75, respectively ;  $A_8$  1.88-2.17 as long as  $A_7$ . Pronotum W/L 1.12-1.24 ; with 54-58 setae in all ; setae lanceolate in 1 specimen, mostly thin in 4 specimens ; PAS (28-34  $\mu\text{m}$ ) 0.24-0.29 as long as pronotum. Fore wing L/W 18.7 ; with 13-16 anterior and 44 posterior FH ; costa with 14-15 setae, fore vein with 10-11, hind vein with 3-4. Hind wing with 39-41 FH.  $T_9$  (Figs. 2.3, 2.4) with 2 short thorn-like setae (16-18  $\mu\text{m}$ ) close together on an elevation (16-20  $\mu\text{m}$ ) ; middorsal setae on  $T_9$  pointed apically and long (61-70  $\mu\text{m}$ ),  $B_2$  (midlateral setae) 80-86  $\mu\text{m}$  long.  $S_4$ - $S_7$  (Fig. 2.5) each with a small circular glandular area, L 4-8  $\mu\text{m}$ , W 4-12  $\mu\text{m}$ . Genitalia dark brown ; aedeagus short and thick, subequal to paramer in length ; paramer broad. Body L 0.9 mm.

Specimens examined. Semenanjung Malaysia — Johor : Kota Tinggi : Desaru, 3♀5♂ (*Callicarpa longifolia*, Verbenaceae), VIII. 18. 1990.

Remarks. On the basis of the holotype, which alone was available when the species was described, the occurrence of lanceolate setae on the pronotum was taken as a diagnostic character of the species. In the Malaysian specimens examined, however, the pronotal setae vary from the normally thin to the lanceolate type. Individuals with thin pronotal setae almost look like the South African *D. venustus* except for the color pattern of the fore wing. Differences between the two species are summarized as follows.

<i>D. poni</i>	<i>D. venustus</i>
Fore wing with a brown subbasal patch and a brown median band.	Largely brown, pale basally and apically.
$A_6$ shortly but clearly pedicellate.	Not pedicellate, only narrowed basally (Fig. 2.2A).
Median setae on metascutum shorter (16-18 $\mu\text{m}$ ).	Longer (24 $\mu\text{m}$ ).
Anterior seta on metepimeron shorter (20-22 $\mu\text{m}$ ) than posterior one (22-24 $\mu\text{m}$ ).	Anterior seta longer (26 $\mu\text{m}$ ) than posterior one (22 $\mu\text{m}$ ).
A pair of midlateral setae on meso- and metasternum longer (60 $\mu\text{m}$ ).	Shorter (40 $\mu\text{m}$ ).
No. of FH on hind wing 42-46.	58-59.
Major setae on $T_9$ 2.2-2.7 as long as $T_9$ .	2.9-3.3.
Major setae on $T_{10}$ about 0.6 as long as $T_{10}$ .	About 0.8.
Ovipositor about 2.2 as long as pronotum.	About 1.6.
Glandular areas of male small and circular on $S_4$ - $S_7$ .	Small and transverse on $S_3$ - $S_7$ .

### *Indusiothrips seshadrii*

Priesner 1952: 183-185; Wilson 1975: 171-172.

This species has so far been known only from Tamil Nadu, India, but its distribution now extends to Semenanjung Malaysia. Some additional diagnostic characters are given below.

Head with 1 pair of AOS and 5 pairs of POS. Mesonotum with anterior CPS, median setae far ahead of posterior margin; metascutum without CPS, median setae placed at about middle; hind coxae close together, separated from each other by fourth their width. Abdomen without flange at posterior margins of terga and sterna; all setae on  $T_1$ - $T_7$  placed in front of posterior margin; median CPS on  $T_2$ - $T_8$  slightly anterior to median setae;  $T_{10}L/T_9L$  about 1.2;  $B_1$ - $B_3$  on  $T_9$  about 1.1, 0.8 and 0.7 as long as  $T_9$ , respectively,  $B_3$  thin. All primary setae on  $S_2$ - $S_7$  small, L about 10  $\mu\text{m}$ ; 3 pairs of primary setae on  $S_7$  placed by their length from posterior margin; ovipositor about 2.0 as long as pronotum.

Specimen examined. Semenanjung Malaysia — Selangor: Templer Park, 1♀ (dry leaf), II. 10. 1974.

### *Isumidothrips* n. gen.

Type-species: *Isumidothrips serangga* n. sp.

Head wider than long, concave posteriorly, strongly constricted behind eye; with 1 pair of AOS and 6 pairs of POS; mouth cone thin, moderately long; maxillary palpus long, 3-segmented. Antenna 8-segmented;  $A_2$  with dorsal median seta;  $A_3$  and  $A_4$  with forked sense cone;  $A_3$ - $A_6$  with distinct microtrichia.

Prothorax with 2 pairs of PAS; profurcasternum entire; mesosternum alone with spinula; mesopleurosternal suture absent; mesospinasternum broad; metepisternum without setae; metaspinasternum short and narrow; hind coxae close together. Fore wing narrow, entirely covered with microtrichia; veinal setae distinct; fore veinal setae broadly interrupted medially; scale with 5 anal setae and

1 discal seta ; posterior FH wavy. Tarsi 2-segmented.

Abdominal terga polygonally reticulate ; with distinct microtrichia on lateral third ; without ctenidia ; tergal setae  $B_3$  and  $B_6$  marginal ;  $T_8$  without comb ; major setae on  $T_9$  and  $T_{10}$  stout and pointed apically ;  $T_{10}$  completely divided longitudinally ; terga with a short flange at posterior margin but sterna without it ; laterotergum and pleurosternum undivided. Male with a pair of thorn-like setae on  $T_9$ , without sternal glandular areas.

Remarks. This genus is characterized by the reticulate head and abdominal terga, by the head strongly constricted behind eye, by the narrow fore wing, by the absence of mesothoracic pleurosternal suture, by the undivided abdominal pleuron, by the elongate abdominal segment X, and by stout setae on  $T_9$  and  $T_{10}$ . In these characters *Isunidothrips* is closely related to the Oriental genera *Dendrothripoides* and *Indusiothrips*. However, it differs from *Indusiothrips* in having 2 pairs of PAS, in the abdominal terga with distinct microtrichia and a posteromarginal flange, in the tergal setae  $B_3$  and  $B_6$  marginal, and in the apically pointed major setae on  $T_9$  of the female. It differs from *Dendrothripoides* by the following characters : presence of 2 pairs of PAS on the pronotum ; distinct microtrichia on  $A_3$ - $A_6$  ; the metaspinasternum is so short and narrow that the hind coxae are set close together ; the fore wing with distinct veinal setae and entirely covered with microtrichia ; normally small microtrichia on the abdominal terga ; and the abdominal sterna without a posteromarginal flange.

*Isunidothrips serangga* n. sp.

♀. Almost entirely yellow ; head dark in anterior half ; eye dark red ; abdominal segment X slightly brownish ; major setae on  $T_9$  and  $T_{10}$  dark yellow. Fore wing gray in about basal sixth and in median and apical fifths, pale in subbasal and subapical fifths ; scale gray. Hind wing with vein dark, but pale at basal and median sixths.  $A_1$ - $A_3$ , basal third of  $A_4$  and basal half of  $A_5$  yellow ; the rest dark grayish brown, apical half of  $A_5$  and of  $A_3$  paler.

Head (Fig. 3.1) W/L 1.41-1.63 ; irregularly reticulate between eyes ; occipital area with 3-4 transverse striae ; AOS situated near to eye laterad of fore ocellus ; IOS between fore and hind ocelli within ocellar triangle ; AOS and POS  $B_1$  subequal (L ca. 18-20  $\mu$ m), longer than IOS ; POS  $B_1$  close to eye, POS  $B_2$ - $B_4$  minute and along occipital ridge ; IOD/HOW 0.93-1.33 ; OOD/IOD 2.50-3.54 ; mouth cone narrow, moderately long to long but not reaching onto mesosternum. Antenna (Fig. 3.2) 2.7-3.1 as long as head ;  $A_2$  L/W 1.28-1.42 ;  $A_3$  L/W 2.32-2.78, equal to  $A_4$  in length ;  $A_4$  L/W 2.26-2.89 ;  $A_5$  L/W 2.29-2.59, constricted at basal third, then bulged subbasally, shortly but distinctly pedicellate ;  $A_6$  L/W 2.86-3.31, constricted subbasally, subequal to  $A_5$  in length, inner sense cone arising from middle of the segment and nearly reaching apex of  $A_8$  ;  $A_7$  L/W 1.20-1.60 ;  $A_8$  L/W 3.20-4.00, 1.88-2.50 as long as  $A_7$  ;  $A_3$ - $A_6$  with 5, 5, 6, 8 setae, respectively ;  $A_3$  with 4-5 dorsal and 3-4 ventral rows of microtrichia,  $A_4$  with 4 dorsal and 3 ventral rows,  $A_5$  and  $A_6$  with 3 rows.

Pronotum (Fig. 3.1) W/L 1.21-1.32, entirely unsculptured except for 1-2 transverse striae along anterior margin ; with 54-62 setae in all ; PMS in 3 pairs ; inner PAS 0.17-0.22 and outer PAS 0.27-0.31 as long as pronotum. Mesoscutum (Fig. 3.3)

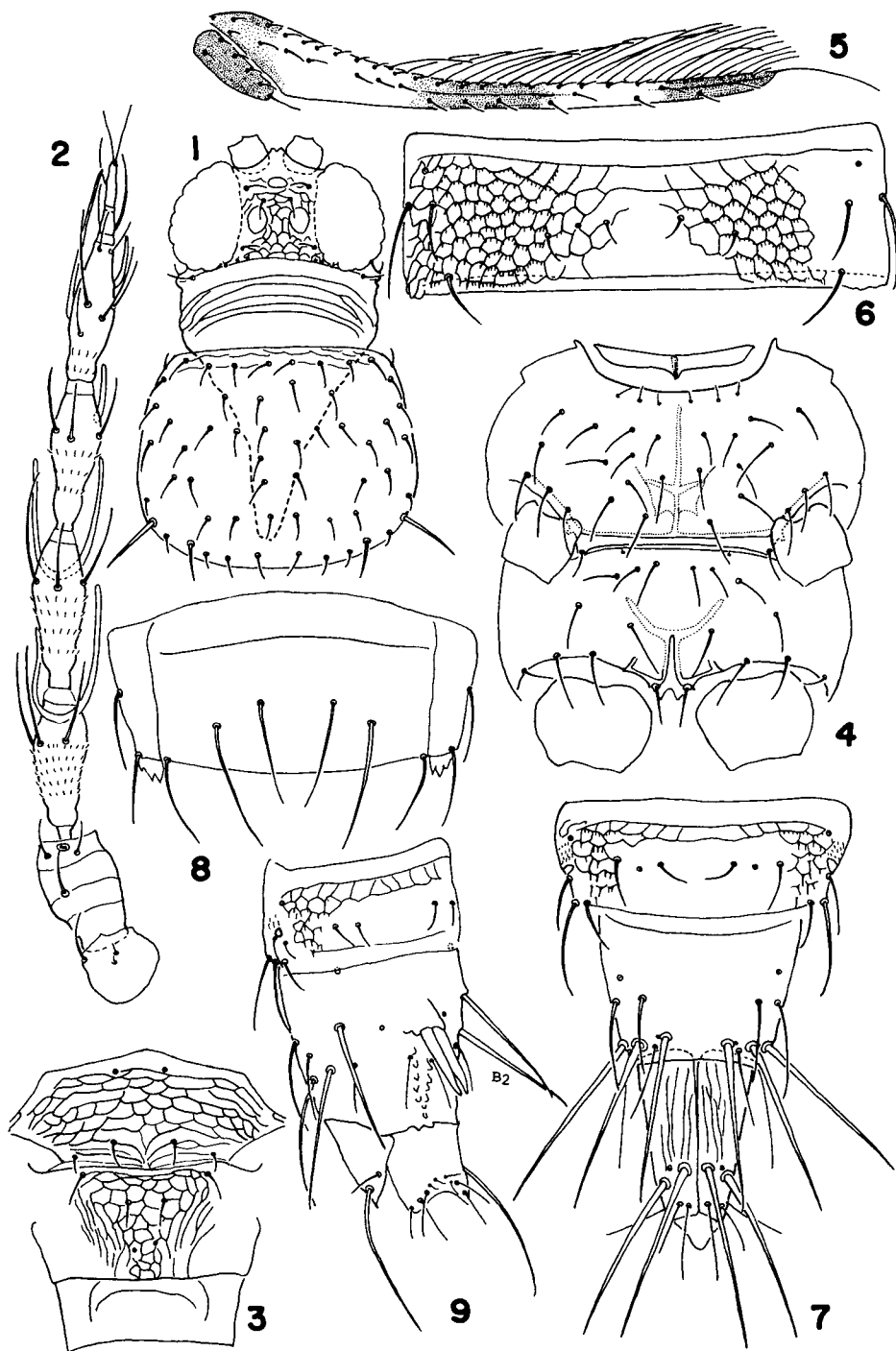


Fig. 3. *Isunidothrips serangga*. 1. ♀, head and pronotum. 2. ♀, antenna. 3. ♀, meso- and metanotum. 4. ♀, meso- and metasternum. 5. ♀, fore wing. 6. ♀, T<sub>5</sub>. 7. ♀, T<sub>8</sub>-T<sub>10</sub>. 8. ♀, S<sub>7</sub>. 9. ♂, abdominal segments VIII-X, dorsal view.

Table 2. Quantitative characters in females of *Isunidothrips serangga*, mean  $\pm$  S.D.

Characters	Mean $\pm$ S.D.	n	Characters	Mean $\pm$ S.D.	n
Head W/L	1.52 $\pm$ 0.08	14	No. of metasternal setae	20.6 $\pm$ 0.8	13
IOD/HOW	1.12 $\pm$ 0.11	14	Fore wing L/W	21.84 $\pm$ 1.03	9
OOD/IOD	2.88 $\pm$ 0.33	14	No. of costal setae on fore wing	24.3 $\pm$ 1.4	25
A <sub>3</sub> L/W	2.47 $\pm$ 0.15	14	No. of fore veinal setae on fore wing	10.0 $\pm$ 0.3	26
A <sub>4</sub> L/W	2.46 $\pm$ 0.17	14	No. of hind veinal setae on fore wing	5.6 $\pm$ 0.5	26
A <sub>5</sub> L/W	2.41 $\pm$ 0.10	14	No. of anterior FH on fore wing	22.4 $\pm$ 1.6	24
A <sub>6</sub> L/W	3.05 $\pm$ 0.13	14	No. of posterior FH on fore wing	52.9 $\pm$ 2.3	9
A <sub>7</sub> L/W	1.42 $\pm$ 0.15	14	No. of FH on hind wing	59.2 $\pm$ 1.9	13
A <sub>8</sub> L/W	3.66 $\pm$ 0.19	14	T <sub>10</sub> L/T <sub>9</sub> L	1.31 $\pm$ 0.05	14
A <sub>8</sub> L/A <sub>7</sub> L	2.12 $\pm$ 0.19	14	T <sub>9</sub> B <sub>1</sub> /T <sub>9</sub> L	1.41 $\pm$ 0.10	17
Pronotum W/L	1.27 $\pm$ 0.03	14	T <sub>9</sub> B <sub>2</sub> /T <sub>9</sub> L	1.49 $\pm$ 0.10	17
No. of pronotal setae	59.6 $\pm$ 2.5	14	T <sub>9</sub> B <sub>3</sub> /T <sub>9</sub> L	1.52 $\pm$ 0.13	17
Inner PAS/Pronotum L	0.19 $\pm$ 0.01	15	T <sub>10</sub> B <sub>1</sub> /T <sub>10</sub> L	1.09 $\pm$ 0.04	17
Outer PAS/Pronotum L	0.29 $\pm$ 0.01	15	T <sub>10</sub> B <sub>2</sub> /T <sub>10</sub> L	1.05 $\pm$ 0.05	17
No. of mesosternal setae	36.0 $\pm$ 1.4	5	Ovipositor L/Pronotum L	1.89 $\pm$ 0.09	14

reticulate, with anterior CPS, median setae slightly anterior to outer setae; metascutum reticulate, median setae at anterior third, CPS at posterior third; mesanepimeron polygonally reticulate, with granules in reticles; metepimeral anterior seta long, 0.9-1.0 as long as outer PAS; meso- and metasternum (Fig. 3.4) with 34-38 and 20-22 setae, respectively; hind coxae separated from each other by third their width. Fore wing L/W 20.1-23.4; with 20-26 anterior and 50-56 posterior FH; costa with 21-28 setae including apical long seta, fore vein with 9-11 setae, hind vein with 5-6. Hind wing with 56-62 FH.

Abdominal T<sub>1</sub> with transversely anastomosing striae except on posteromedian area, median setae at anterior fifth, median CPS close to posterior margin; T<sub>2</sub>-T<sub>7</sub> (Fig. 3.6) polygonally reticulate except between median setae, reticles with some microtrichia on their posterior lines of sculpture, microtrichia becoming slightly stouter on posterior segments; median tergal setae small; median CPS on T<sub>2</sub>-T<sub>8</sub> placed at the level of B<sub>1</sub> between B<sub>1</sub> and B<sub>2</sub>; T<sub>8</sub> (Fig. 3.7) without comb, weakly reticulate laterad of B<sub>2</sub>, with 2-3 microtrichia rows anteriorly to spiracle; T<sub>9</sub> unsculptured, with 2 pairs of CPS; T<sub>10</sub> with a pair of CPS and some longitudinal striae; T<sub>10</sub>L/T<sub>9</sub>L 1.24-1.40; B<sub>1</sub>-B<sub>3</sub> on T<sub>9</sub> 1.24-1.59, 1.31-1.72 and 1.31-1.78 as long as T<sub>9</sub>, respectively; B<sub>1</sub>-B<sub>2</sub> on T<sub>10</sub> 1.04-1.16 and 0.94-1.13 as long as T<sub>10</sub>. S<sub>2</sub> with 2 pairs of primary setae and weak and transversely anastomosing striae; S<sub>3</sub>-S<sub>7</sub> unsculptured; sternal setae long, those on S<sub>2</sub>-S<sub>6</sub> 0.5-0.8 as long as respective segment, B<sub>2</sub> mostly longest; B<sub>1</sub> and B<sub>2</sub> on S<sub>7</sub> (Fig. 3.8) far ahead of posterior margin, B<sub>1</sub> anterior to B<sub>2</sub>, B<sub>1</sub> (L ca. 65-75  $\mu$ m) and B<sub>2</sub> (ca. 75-85  $\mu$ m) 0.7-0.9 as long as S<sub>7</sub>, B<sub>3</sub> (ca. 55-65  $\mu$ m) shortest; ovipositor 1.77-2.09 as long as pronotum.

Measurements ( $\mu$ m). Body L 1.1-1.3 mm. Head L 80-95, W 128-136; pronotum L 128-140, W 155-180; inner PAS 22-29, outer PAS 36-42; metepimeral anterior seta 32-40; fore wing L 519-598, W 24-28; T<sub>9</sub> L 64-85; T<sub>10</sub> L 82-108; B<sub>1</sub>-B<sub>3</sub> on T<sub>9</sub> 94-112, 104-118 and 104-120, respectively; B<sub>1</sub>-B<sub>2</sub> on T<sub>10</sub> 98-116 and 90-108;

ovipositor L 232-292. Antenna 239-268 in total L ; L(W) of antennal segments as follows : A<sub>1</sub> 18-20 (22-24), A<sub>2</sub> 32-35 (24-25), A<sub>3</sub> 42-52 (18-19), A<sub>4</sub> 43-52 (18-19), A<sub>5</sub> 38-44 (16-17), A<sub>6</sub> 40-44 (13-14), A<sub>7</sub> 6-8 (5), and A<sub>8</sub> 14-16 (4).

♂. Colored as in female. Head W/L 1.47 ; IOD/HOW 1.00-1.08. A<sub>2</sub>-A<sub>8</sub> L/W 1.27, 2.33, 2.50, 2.50, 3.00, 1.40 and 3.50, respectively ; A<sub>8</sub> 2.00 as long as A<sub>7</sub>. Pronotum W/L 1.20, with 57 setae ; inner PAS 0.22 and outer PAS 0.28 as long as pronotum ; metepimeral anterior seta 30 μm long ; metasternum with 21 setae. Fore wing with 22-23 anterior and 51-53 posterior FH ; costa with 21-22 setae, fore vein with 10, hind vein with 5. Hind wing with 57 (?) FH. T<sub>9</sub> (Fig. 3.9) with a pair of thorn-like setae (L 48 μm) arising from an elevation, middorsal seta 84 μm long and B<sub>2</sub> (posterolateral seta) 88 μm ; sternal glandular areas absent ; primary setae on S<sub>2</sub>-S<sub>8</sub> at posterior margin. Body L 1.0 mm.

Specimens examined. Semenanjung Malaysia — Selangor : Kuala Lumpur : Kepong, holotype (♀) & 9 ♀ (*Oxyspora* sp., Melastomataceae), X. 30. 1991, 1 ♀ (*Bridelia tomentosa*, Euphorbiaceae), XI. 3. 1991, 1 ♀ (*Hyptis capitata*, Labiatae), VIII. 7. 1990. Sarawak — Lundu : Gunong Gading, 2 ♀ 1 ♂ (*Derris* sp., Leguminosae), X. 19. 1991.

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