

THREE NEW SPECIES OF TUBULIFERA FROM INDIA  
(THYSANOPTERA : PHLAETHRIPIDAE)

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ABSTRACT

Three species viz., *Crotonothrips erraticus*, *Liothrips renukae* and *Thlibothrips (Athlibothrips) yercaudensis* are described as new to science.

***Crotonothrips erraticus* sp. nov.**

*Female (Macropterous)*: (Fig. 1) General body colour brown, posterior abdominal segments and tube darker, antennal segments 1, 2, 7 & 8 brown, 3-6 golden yellow with brown shade at margin, 3 brighter; all femora, mid and hind tibiae brown with golden yellowish tinge, foretibiae golden yellow with brownish shade at margin, all tarsi golden yellow. Forewings grey. All setae hyaline and blunt.

Head about as long to very little broader 224-232\* long, 224-228 wide across eyes, 236-244 across cheeks, 232-236 across base; cheeks crenulate with 2-3 very minute spines, surface strongly reticulate. Eyes large 104-108 long, 68-72 wide; all ocelli 32 wide, median ocellus overhanging between antennae, paired ones placed above middle of eyes; postoculars well developed 88-96 long. Antennal segments 3-7 subpedicellate, 7 & 8 forming an unit; segments 1-8 length (width): 1: 54 (38-46); 2: 58 (36-38); 3: 76-84 (38); 4: 76-80 (42); 5: 72-76 (32-34); 6: 68-72 (32); 7: 62-64(28); 8: 38 (16); sense

cones on 3-6 moderately thick 30-34 long. Mouthcone broad, moderately long, 148-168 long, 190-208 wide at base, 106-114 at apex. Maxillary stylets retracted below postoculars, close at middle.

Prothorax about as long as head, 220-228 long, 240-258 wide at anterior margin, 418-456 at posterior margin. Anteroangulars 38-50, anteromarginals 24-28, midlaterals 46-52, postangulars 96 and epimerals 114 long respectively. Forefemora 286-304 long, 142 wide, foretarsal tooth straight, 46 long. Pterothorax 376-388 long, 524-540 wide across meso- and 518-560 across metathorax. Forewings broad, phlaeothripine 1.05-1.15 mm. long, 106-134 wide with 16-18 double fringes; basal wing setae well developed 72, 84, 84-88 long respectively. Mesoparaesternum complete, thin at middle.

Abdomen 564-594 wide at base, 526-532 at middle, 384-396 across segment VIII, 248-252 across segment IX; segments 3-7 with a black streak along apical margin. Pelta roughly bell shaped with reticules. B<sub>1</sub>-B<sub>3</sub> of segment

\*All units in microns unless otherwise mentioned.

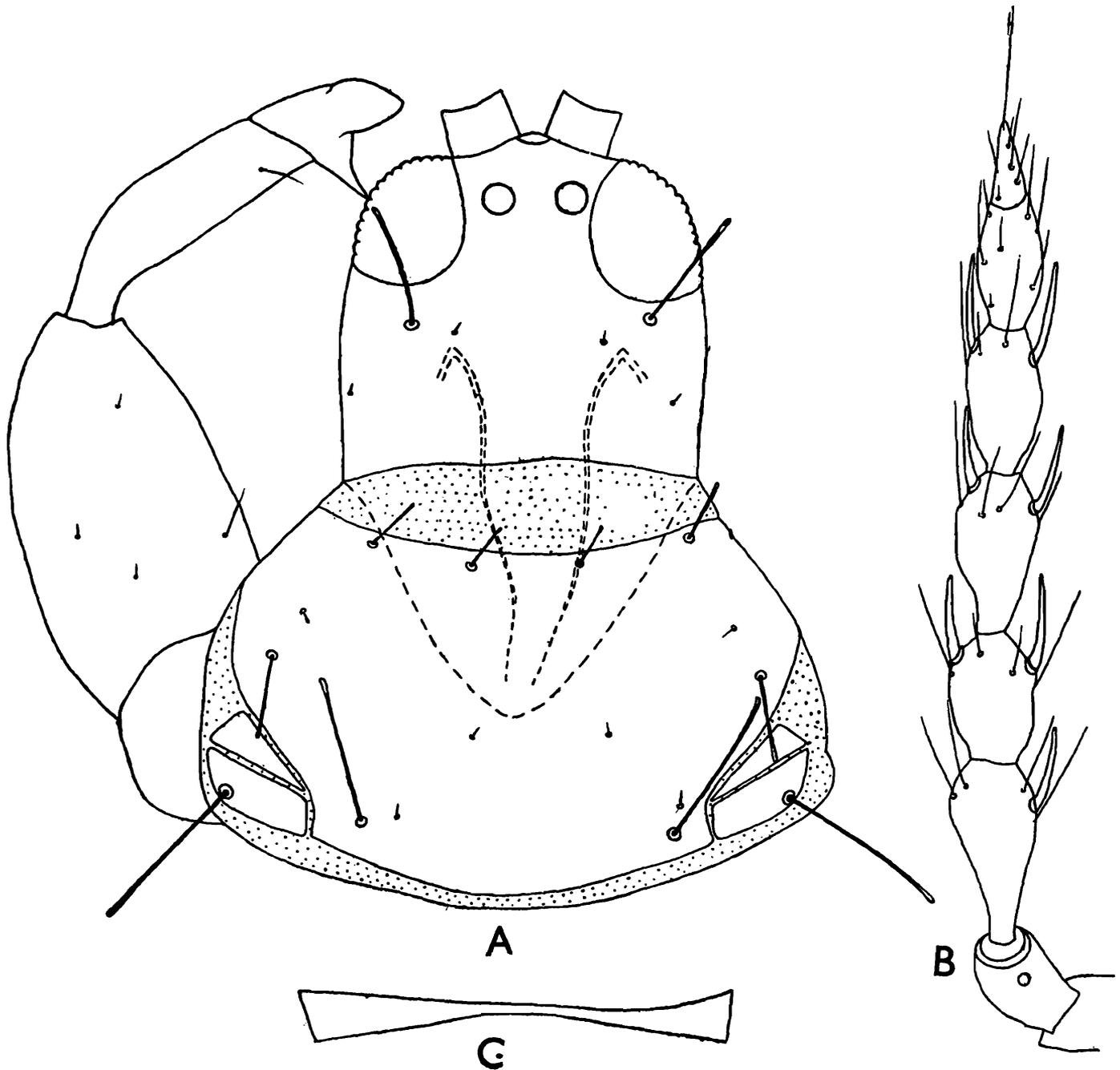


Fig. 1. *Crotonothrips erraticus* sp. nov. A. Head and pronotum, B. Antenna, C. Mesopraesternum.

IX: 152-172, 148-152 and 248-256 long respectively. Tube 266-278 long, anal setae 152-160 long.

Total body length: 2.75-2.79 mm.

*Material*: *Holotype*—♀ (Z.S.I. Reg. No. 251/H<sub>17</sub>), *paratype*—1 ♀ (Z.S.I. Reg. No. 252/H<sub>17</sub>), Gamartilla, Teliamura, Tripura, 19.x. 1977, ex. leaf galls; Coll. N. Muraleedharan; deposited in the National Zoological

Collections of Zoological Survey of India, Calcutta.

The new species differs from all the known species of *Crotonothrips* Ananthakrishnan by the presence of well developed postoculars, postangulars only a little shorter than epimerials and B<sub>2</sub> of IX as long as B<sub>1</sub> and B<sub>3</sub>.

In a recent review Ananthakrishnan (1976)

has defined the genus *Crotonothrips* as characterised by reticulate head, vestigial postocul-

general build up it lacks most of the essential generic characters of *Crotonothrips*. Never-

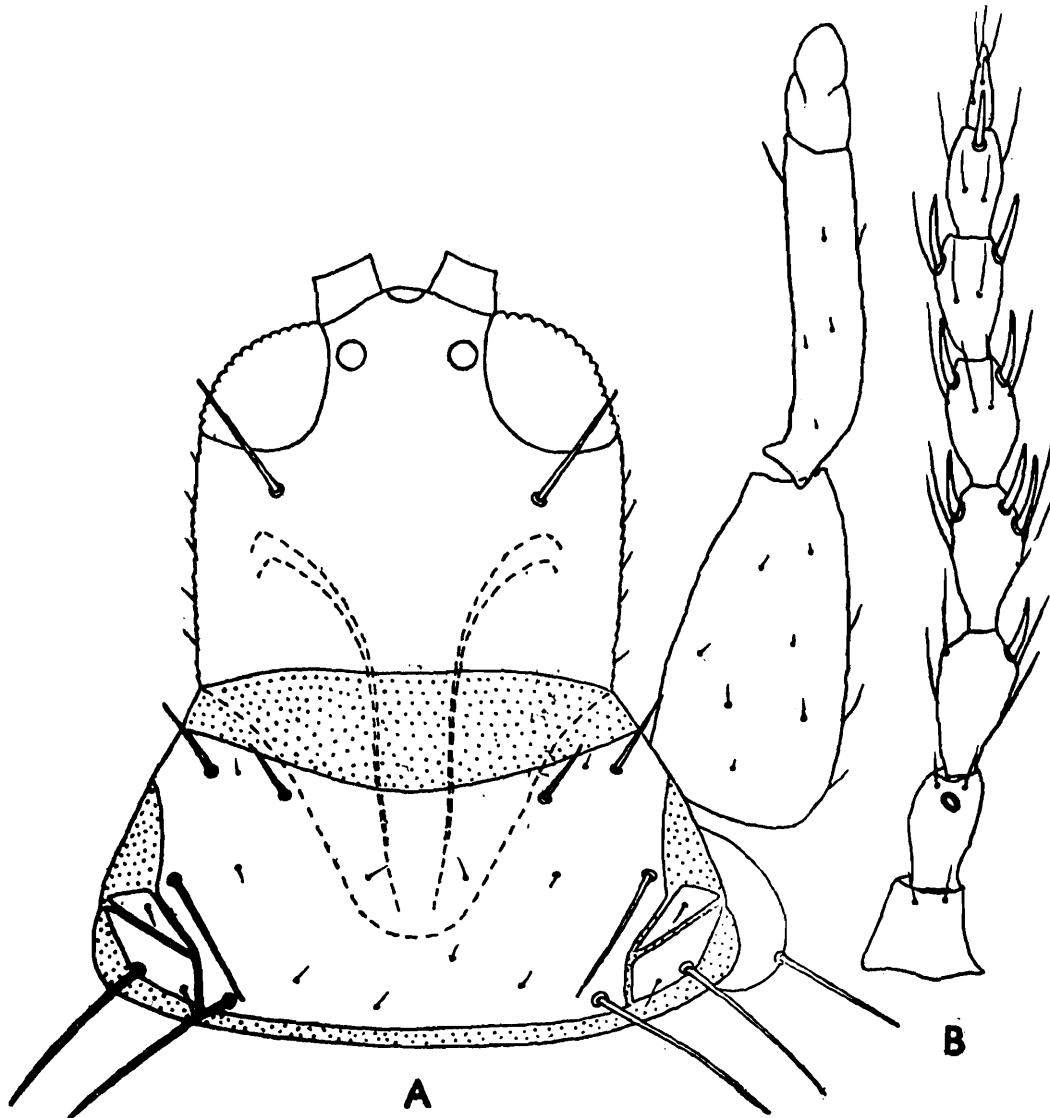


Fig. 2. *Liothrips renukae* sp. nov. A. Head and pronotum, B. Antenna.

lars, postangulars half as long as epimerals, tube longer than head and  $B_2$  of abdominal segment IX half as long as  $B_1$  and  $B_3$ . The presence of species with typical generic characters and those with one or the other of the essential *Crotonothrips* features missing makes this genus highly complex, demanding further subgeneric division. The species under discussion though resembles this genus in

theless this species is provisionally placed under *Crotonothrips* and with the discovery of males and additional material it has to be transferred to a separate genus.

#### *Liothrips renukae* sp. nov.

*Female (Macropterous)*: (Fig. 2) General body colour brown, head and tube a little darker; antennal segment 1 brown, base of

segment 2, apex of 7 and segment 8 pale brown; all femora brown, foretibiae yellow, mid and hind tibiae brown and all tarsi yellow; wings clear. All setae brown and pointed.

Head about 1.1 times wider than long, surface transversely striate, 180-200 long 180-180, wide across eyes, 204-208 across cheeks, 200 across base, sides finely cremulate and with one or two small cheek setae. Eyes slightly ventrally extended, 60-68 long, 48-56 wide, all ocelli 20 wide, median ocellus overhanging between the antennae, placed 16-20 away from paired ones and the latter placed 28-32 apart. Postoculars pointed, 64-80 long, placed 20 below eyes. Antennal segments length (width): 1: 36-40 (40); 2: 44 (28); 3: 56 (30-32); 4: 48-52 (32); 5: 46-48 (28); 6: 44-48 (24-28); 7: 40 (24); 8: 28 (12); sense cones 12-16 long. Mouthcone pointed, 120-140 long, 192-200 wide at base, 64-80 wide at apex. Maxillary stylets retracted to the level of postoculars, not meeting at middle; maxillary bridge absent.

Prothorax 124-128 long 204-212 wide at anterior margin, 296-320 at posterior margin. Anteroangulars 44-52 long, anteromarginals 32-44 long, midlaterals 80-88 long, postangulars 96-104 long, epimerals 104-116 long. Epimeral suture complete. Forefemora 160-168 long, 80-84 wide. Pterothorax 323-340 long, 388-404 wide across meso- and 396-412 wide across metathorax. Forewings 680-714 long, 80 wide, the number of double fringes varying from 2-4, often present only in one wing. Basal wing setae  $B_1$ - $B_3$ , 72, 72-84, 72-76, long respectively. Mesopraesternum complete, narrow at middle.

Abdomen 400-425 wide at base, 380-408 at middle, 288-296 across VII, 164-168 across IX.  $B_1$ - $B_3$  of segment IX, 164-192, 144-180,

180-192 long respectively. Tube 172-180 long and anal setae 120-124 long.

Total body length: 1.75-1.83 mm.

*Male (Macropterous)*: Colour as in female. Head 168 long, 176 wide across eyes, 192 wide across cheeks, 180 across base. Eyes 60 long and 40 wide. Ocelli 20 wide, median ocellus 16 away from paired ones and the latter 24 apart. Postoculars 64 long, placed 20 below eyes. Antennal segments length (width): 1: 28 (32); 2: 40 (24); 3: 52 (28); 4: 48 (28); 5: 44 (28); 6: 48 (24); 7: 40 (24); 8: 28 (12). Sense cones 16 long. Mouthcone 120 long, 176 wide at base and 64 wide at apex.

Prothorax 120 long, 196 wide along anterior margin, 280 wide at posterior margin. Anteroangulars 44 long, anteromarginals varying in length 20-40 long, midlaterals 64 long, postangulars 88 long and epimerals 104 long. Forefemora 152 long, 76 wide. Pterothorax 306 long, 360 wide across meso and 356 wide across metathorax. Forewings 646 long, 68 wide with 2 double fringes. Basal wing setae  $B_1$ - $B_3$ , 64, 72, 60 long respectively.

Abdomen 380 wide at base, 368 across middle, 240 across VIII, 148 across IX.  $B_1$ - $B_3$  of IX 172, 48, 164 long respectively. Tube 148 long and anal setae 120 long.

Total body length: 1 mm.

*Material*: *Holotype*—♀, (Z.S.I. Reg. No. 692/H<sub>17</sub>) Renuka, Sirmur Dist., Himachal Pradesh; 25. vi. 1979; ex. leaf gall; Coll. N. Muraleedharan, *allotype*—♂, (Z.S.I. Reg. No. 693/H<sub>17</sub>), data same as for holotype; *paratypes*—7 ♀♀ (Z.S.I. Reg. Nos. 694-700/H<sub>17</sub>), data same as for holotype; deposited in the National Zoological Collections of Zoological Survey of India, Calcutta.

The new species closely resembles *Liothrips minys* Ananth. and *Liothrips nanus* Ananth. All the three species have short head, wider than long. *L. nanus* and *L. renukae* have the

The present species differs from the latter species in colouration, presence of clear wings, lesser number of double fringes and comparatively longer tube.

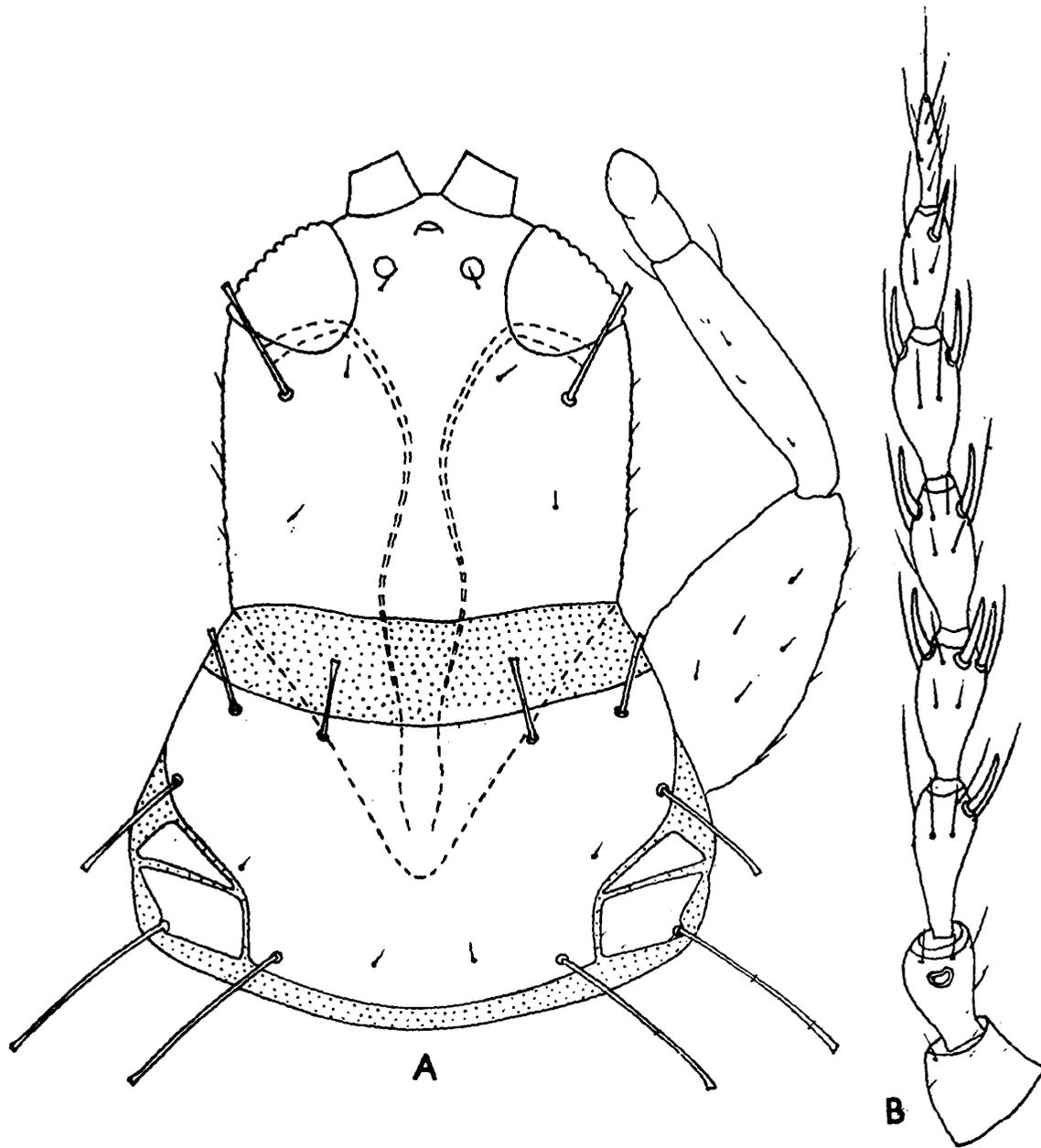


Fig. 3. *Thlibothrips yercaudensis* sp. nov. A. Head and pronotum, B. Antenna.

mesopraesternum complete, epimerals longer than postangulars, and postoculars longer than eyes. In *L. minys* postoculars are shorter than eyes and postangulars and epimerals are subequal and mesopraesterunm incomplete.

***Thlibothrips (Athlibothrips) yercaudensis* sp. nov.**

*Female (Macropterous)*: (Fig. 3) General body colour brown. All femora, mid and hind tibiae brown, apex of foretibiae yellow, rest brown, all tarsi yellow. Antennal seg-

ments 1 and 2 brown, 3-7 yellow, 8 pale brown. Wings clear; all setae hyaline, blunt at apex.

Head almost as long as wide, 180-200 long, 148-168 wide across eyes, 176-192 across cheeks, 176-192 wide at base, sides almost parallel, cheeks finely crenulate, with 2-3 small setae. Eyes of moderate size, 60-76 long, 48-64 wide, angular behind posteriorly. Median ocellus 16-20 wide, placed 16-20 from paired ocelli, lateral ocelli 20 wide and placed 28-32 apart. Postoculars as long as eyes 60-64 long. Antennal segments length (width); 1: 32-40 (28-36); 2: 40-48 (28); 3: 52-56 (24-28); 4: 52-56 (28-32); 5: 44-52 (24-32); 6: 44-52 (24-28); 7: 40-44 (10-16); 8: 40-42 (10-12). Sense cones 20 long. Mouthcone pointed, 132-152 long, 172-196 wide at base, 48-60 wide at apex. Maxillary stylets retracted to the level of eyes, meeting at middle; maxillary guides very prominent.

Prothorax 128-160 long 184-240 wide at anterior margin, 260-304 wide at posterior margin. Anteroangulars 28-32 long, anteromarginals 28-36 long, midlaterals 36-40 long, postangulars 64-72 long, epimerals 64-76 long. Epimeral suture complete. Forefemora 140-168 long, 64-80 wide. Pterothorax 288-357 long, 288-368 wide across meso- and 284-368 wide across metathorax. Forewings 629-697 long, 68-80 wide, with 12-15 double fringes.  $B_1$ - $B_3$  of forewings 36-44, 44-48, 44-48, long respectively. Mesopraesternum complete with a median crest.

Abdomen 336-408 wide at base, 320-399 across middle, 212-260 across segment VIII and 116-152 across segment IX.  $B_1$ - $B_3$  of segment IX 112-124, 104-120, 120 long

respectively. Tube shorter than head, 140-172 long and anal setae 112-140 long.

Total body length 1.46-2.14 mm.

*Material*: *Holotype*—♀, (Z. S. I. Reg. No. 701/H<sub>17</sub>) Top slip, Anamalai, Tamil Nadu, 4. 12. 1973, Coll. N. Muraleedharan; *paratypes*—10 ♀♀, (Z.S.I. Reg. Nos. 702/H<sub>17</sub>-711/H<sub>17</sub>) data same as for holotype; 8 ♀♀, (Z.S.I. Reg. Nos. 712/H<sub>17</sub>-719/H<sub>17</sub>) Yercaud, Salem Dist., Tamil Nadu 19. 7. 1963; ex, Gooseberry, Coll. T. N. Ananthakrishnan; deposited in the National Zoological Collections of Zoological Survey of India, Calcutta.

*Thlibothrips (Athlibothrips) yercaudensis* is similar to *T. inquilinus* Ananthakrishnan & Varadarasan (1978) in the presence of pointed mouthcone and maxillary stylets retracted far into the head, but differs from the latter in the colouration of antennal segments, presence of blunt setae, well developed anteromarginals and nature of mesopraesternum.

#### ACKNOWLEDGEMENT

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#### REFERENCES

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