

A new species of *Liothrips* from the Amazonas harmful to Guarana plantations (Insecta: Thysanoptera: Phlaeothripidae)

Richard zur Strassen (*)

Abstract

One of the Thysanoptera species collected from Guarana plantations in the Amazonas basin has proved to be hitherto unknown to science and is described as *Liothrips adisi* n. sp.

INTRODUCTION

During the year 1976 great parts of Guarana plantations in the vicinity of Manaus, Amazonas (Brasil) were infested by thrips (Adis, 1977, in prep.). The majority of these thrips attacked mostly the flower buds, tender leaves and the young shoots of the cultivated guarana plants, *Paullinia cupana sorbilis* Martius & Ducke (family Sapindaceae). Joachim Adis of the Instituto Nacional de Pesquisas da Amazônia [INPA] in Manaus collected a number of specimens of the harmful species of thrips. I am grateful to him for the opportunity to study the new species which is named after him.

The holotype and some paratypes will be deposited in the above institute (INPA), further paratype specimens are preserved in the Forschungsinstitut und Naturmuseum Senckenberg in Frankfurt am Main [SMF], in the Department of Entomology of the British Museum (Natural History) in London and in the Smithsonian Institution in Washington.

Liothrips adisi n. sp.

(Fig. 1-2)

Holotype: ♀ (deposited in INPA), Brasil, Manaus (Amazonas), from young leaves of *Paullinia cupana* var. *sorbilis* Martius & Ducke (Sapindaceae), 24-VII-1976, leg. Joachim Adis.

Paratypes: 2 ♀ 6 ♂ 2 larvae (INPA) and 5 ♀ 5 ♂ 2 larvae (SMF T 7304) together with the holotype.

(*) — Frankfurt am Main.

DIAGNOSIS

A dark winged species of intermediate size with head 1.1-1.2 times as long as broad, all tibiae and tarsi dark, only antennal segment III clear yellow, prothorax on each side with two epimeral setae of different length, main body setae dark including those on abdominal segments VIII-X, their tips blunt or slightly knobbed, anterior wing with 10-16 duplicated cilia, tube in ♀ slightly shorter than in ♂, about as long as the head, dorsal setae on tergite IX longer than the tube, in ♂ seta S2 on tergite IX longer than S1, not short and spine-like.

DESCRIPTION

♀, macropterous, total body length (distended) 2250-3000 μm.

Body including legs uniformly black, fore tibia sometimes brown in distal half, antenna dark, only segment III clear yellow, rarely slightly tinged apically with brown; wings brown, darkest at base, gradually becoming paler towards tip, anterior wing with a broad longitudinal median bar; main setae dark including the dorsal ones on abdominal segments VIII-X, but lateral (= posteroangular) setae on pleurotergites IV-VII and seta S2 on sternites V-VIII yellow or brownish yellow.

Head (fig. 1) 1.1-1.2 times as long as broad, broadest immediately behind eyes, cheeks straight, distinctly converging towards base, the latter somewhat constricted. Eyes occupying 33-37% of the lateral margin of head. Anterior ocellus just overhanging inter-antennal process. Postocular seta 105-121 μm long, placed 22-31 μm behind posterior margin of eyes, their tips blunt, often slightly expanded; other setae minute, even those along

cheeks, Mouth cone relatively short, somewhat bulged around middle, then strongly narrowed to apex. Antenna (fig. 2) about 1.7-1.9 times as long as the head, intermediate segments not particularly elongated, segment III about 2.2 times as long as broad, IV little shorter than or as long as III, but definitely broader than III, V and VI about equal in length and each 2.2-2.3 times as long as broad; total length 480-525 μm . Length (L) and width (W) in μm of antennal segments:

	L	W
I	40-43	40-43
II	50-57	32-34
III	75-86	33-35
IV	74-86	41-44
V	69-75	33-34
VI	68-73	32-33
VII	52-63	24-25
VIII	34-37	11-12

Pronotum (fig. 1) comparatively short, 0.5-0.6 times the head length and 0.6 times as long as the distance between the posteroangular setae, its median length 129-155 μm , width across anterior margin 218-240 μm , greatest width 327-373 μm . All main prothoracic setae developed, their tips blunt or slightly knobbed, anteroangulals and medio-laterals sometimes little expanded, epimeron with two stout setae, the inner one much shorter than the outer one; length of anteromarginals 46-49 μm , anteroangulals 52-68 μm , mediolaterals 75-98 μm , posteroangulals 120-157 μm , inner epimerals 40-68 μm , outer epimerals 109-172 μm . Surface with few scattered transverse lines in front of posterior margin.

Pterothorax 356-459 μm long, 459-517 μm broad. Mesonotum 103-121 μm long, 298-344 μm broad, surface densely sculptured with transverse anastomosing lines, lateral setae blunt or slightly knobbed, 54-67 μm long. Metanotum 241-282 μm long, 298-355 μm broad, densely sculptured with longitudinal hexagons, discal seta 57-69 μm long, somewhat thinner than the lateral seta of mesonotum, tip narrowly rounded. Anterior wing 990-1160 μm long, 86-126 μm broad across scale and 95-112

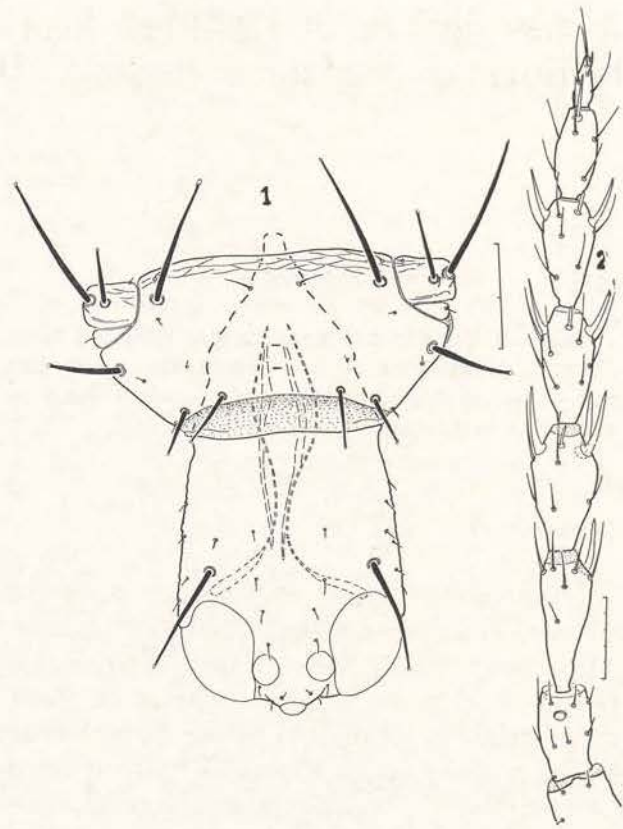


Fig. 1-2 — *Liothrips adisi* n. sp., ♀. — 1) Head and pronotum; specimen KOH-treated, head slightly tilted, scale 100 μm . 2) Right antenna dorsal; scale 50 μm . — J.S. Bhatti del.

μm broad across middle, subbasal wing setae knobbed or slightly expanded at tip, length of S1: 75-92 μm , S2: 86-103 μm , S3: 93-109 μm ; hind margin with 12-16 duplicated cilia.

Abdomen as usual. Pelta triangular in shape, 115-138 μm long, 184-239 μm broad, surface with hexagonal sculpture. Tergite IX 113-122 μm long, 220-243 μm broad, main setae pointed, length of S1: 252-287 μm , S2: 292-321 μm , S3: 270-321 μm . Tube slightly shorter than both the head and the main setae on tergite IX, lateral margins converging apically somewhat less in basal third than in the distal two-thirds, length of tube 235-255 μm , width at base 109-115 μm width at hind margins 47-49 μm ; length of longest terminal seta 195-258 μm .

Some measurements of holotype ♀ in μm (L = length, W = width): Total L 2920; head L 263, greatest W 235, W across eyes 230, across base 199, eye dorsal L 103, mouth cone

L 218, antenna L 515; pronotum L 149, W across anterior margin 223, greatest W 356, anteromarginal seta L 63, anteroangular L 60, mediolateral L 92, posteroangular L 149, inner epimeral L 57, outer epimeral L 172, anterior tibia L 258; pterothorax L 430, W 498, mesonotum L 106, W 333, metanotum L 281, W 327, anterior wing L 1132, W across scale 115, across middle 109, posterior wing L 1004; pelta L 132, W 228, tergite IX L 118, W 241, seta S1 L 276, S2 L 304, S3 L 321, tube L 253, W across base 115, longest terminal seta L 258.

♂, macropterous, total body length (distended) 2320-2450 μm .

Like female in colour and general structure, somewhat smaller and more slender than female, head somewhat more distinctly narrowed towards base than in female, fore leg not enlarged, fore tarsus without tooth, seta S2 on tergite IX longer than S1, not short and spine-like.

Measurements of small and large paratype ♂ in μm (L = length, W = width). Total L 2320-2450; head L 230-252, greatest W 199-212, W across base 166-173, eye dorsal \pm 92-98, mouth cone L 148-156, antenna L 400-460; pronotum L 121-132, greatest W 294-310, anteromarginal seta L 52-57, anteroangular L 46-57, mediolateral 75-86, posteroangular L 100-109, inner epimeral L 34-61, outer epimeral 114-128; pterothorax L 356-390, mesonotum L 95-99, W 261-270, lateral seta L 52-57, metanotum L 224-236, W 264-281, discal seta 51-57, anterior wing L 900-947, W across scale 92-98, across middle 81-86; pelta L 108-112, W 161-218, tergite IX L 103-110, W 152-168, seta S1 L 252-264, seta S2 L 270-283, seta S3 L 278-293, tube L 230-247, W across base 86-98, longest terminal seta L 207-241.

Larva II: Coloration orange-yellow with head, the whole antenna, the two pronotal plates, all legs, the two small plates at the posterior angles of tergite VIII and the abdominal segments IX and X black; body setae pale brown, the midlateral ones on abdominal segments yellowish brown, all knobbed or slightly expanded at tip.

Total length 1650-1900 μm . Head 120-132 μm long, postocular seta 47-54 μm long; an-

tenna 321-362 μm long, distance between their sockets 30-34 μm , segment III 86-102 μm long, 23-24 μm broad, segment IV 57-69 μm long, 25 μm broad. Pronotal plates each 143-155 μm long, width across both plates 230-270 μm , length of seta S1: 25-29 μm , S2: 34-43 μm , S3: 69-86 μm , S4: 58-72 μm , S5: 94-110 μm , S6: 114-138 μm , S7: 63-80 μm . Setae S1 and S2 on hind margin of the lateral plates on tergite VIII 51-67 μm long. Abdominal segment IX 126-161 μm long, 103-128 μm broad across anterior margin, 86-103 μm broad across posterior margin, the setae of all three postero-marginal pairs of about equal length (103-126 μm). Segment X 112-120 μm long, 75-87 μm broad at base, longest terminal seta 200-258 μm .

DISCUSSION

Liothrips adisi n. sp. belongs to those species which are characterised by the fairly short head being only 1.1-1.2 times as long as broad, by the presence of two short epimeral setae and by the long seta S2 on tergite IX in ♂. The species seems to be closely related to *L. varicornis* Hood 1912 from North America and Mexico, but is distinguished (1) by the dark setae on abdominal segments VIII-X (pale in *varicornis*), (2) by the coloration of the anterior wing which is darkest at base, becoming paler gradually towards apex (in *varicornis* pale at base, except for the insertion area of the subbasal setae, and becoming slightly darker in distal half), and (3) in the somewhat heavier and stouter setae on head and pronotum as compared with those in *varicornis*. Another similar species is *L. obscuricornis* Priesner from Paraguay which differs from *adisi* n. sp. (1) in the more slender head being 1.4 times as long as broad (in *adisi* 1.1-1.2 times), (2) in the paler intermediate antennal segments with IV-VI mottled yellowish (in *adisi* uniformly dark), and (3) in the more elongate antennal segments V and VI, with V 2.7 times as long as broad (in *adisi* 2.1-2.2 times) and VI about 0.7 times as long as V (in *adisi* V and VI of equal length). *L. cordiae* Hood 1935 from Panama also shows resemblances with *adisi*, but is characterised

(1) by the slightly more elongate head which is 1.3 times as long as broad, (2) by the yellowish brown distal part of antennal segment II, (3) by the minute inner epimeral seta, (4) in the black lateral abdominal setae (= posteroangulars of pleurotergites), (5) by the pale (brownish yellow) setae S1 to S3 on tergite IX in ♀, and (6) by the short spine-like setae S2 on tergite IX in ♂.

DERIVATIO NOMINIS: The species is named after its collector, Dipl. — Biol. J. Adis.

Resumo

No 2.º semestre de 1976 houve uma série infestação por trips, das inflorescências jovens, brotos e folhas jovens de guaraná, em plantações próximas a Manaus. Um desses Thysanoptera era uma espécie nova e é aqui descrita como *Liothrips adisi* n. sp. *L. adisi* pertence ao grupo de espécie caracteri-

zadas por uma cabeça muito curta, pela presença de setas epimerais e por ter a seta S2 comprida, no tergito IX do ♂. A espécie é próxima de *L. varicornis* da América do Norte e *L. obscuricornis* do Paraguai e, mais distante um pouco, de *L. cordiae* do Panamá.

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