Sitobion loranthi, a new aphid from Angola living on mistletoes (Homoptera: Aphididae)

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Abstract: *Sitobion loranthi* spec. nov. is described from central Angola, where it lives on several species of *Loranthus* (Loranthaceae), obligatory parasitic plants. The siphunculi in the new species are long and very thick, distinguishing *S. loranthi* from other *Sitobion* species.

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Introduction

During 1970-1975 aphids belonging to two or more undescribed species of the genus *Sitobion* were collected in central Angola from local species of mistletoes (*Loranthus* spp.). One of the species, which can be easily differentiated from all other *Sitobion* species, is described here.

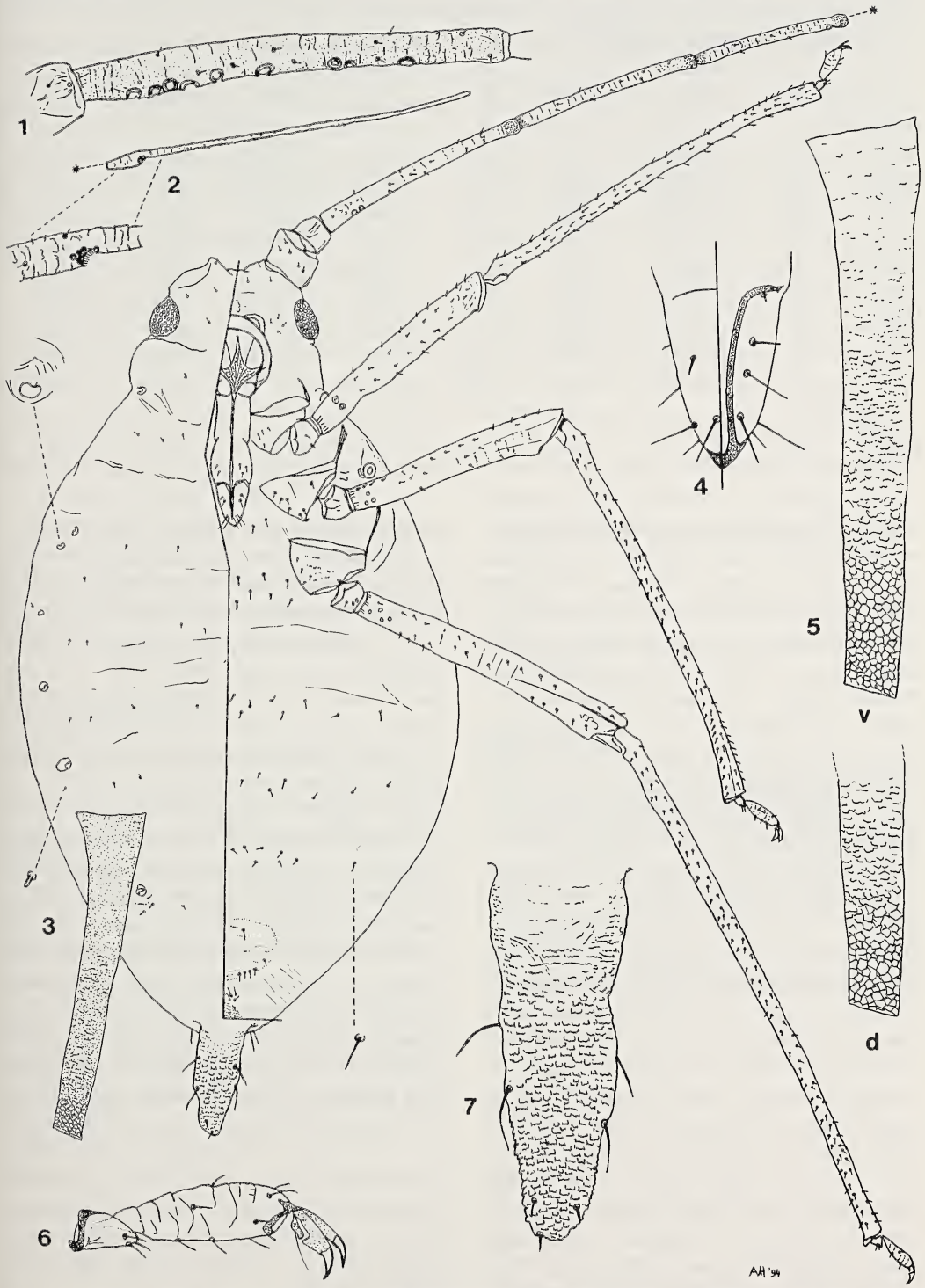
Sitobion loranthi spec. nov.

(figs 1-7, table 1)

Type material

Holotype: apterous viviparous female, from *Loranthus* sp., Chianga, 19.xi.1970, collected by A. van Harten.
Paratypes: 1 apterous and 1 alate viviparous females, same as holotype; 2 apterous and 2 alate viviparous females, Chianga, 27.viii.1971; 1 apterous and 1 alate viviparous females, Chianga, 21.ix.1971; 3 apterous and 1 alate viviparous females, Santo Amaro, 26.ix.1971, 2 apterous and 2 alate viviparous females, 1.xi.1971; all from *Loranthus* sp. and collected by A. van Harten. The type material was collected at Chianga, Santo Amaro and Cruzeiro, all localities about 10 km northeast and east of Huambo, central Angola. Some of the specimens were preserved in Canada Balsam, the others in Faure-Berlese medium. The holotype slide is deposited in the collection of the British Museum (Natural History), London, U.K. Paratype slides are deposited in the collections of the Institut Pasteur, Paris, France, the Systematic Entomology Laboratory, Beltsville, U.S.A., and the Estação Agronómica Nacional, Oeiras, Portugal. The remainder of the type material will stay in the author's collection.

Apterous viviparous female: Body broadly spindle shaped (fig. 3), 1.7-2.7 mm long. Head smooth, frontal tubercles well developed, diverging; median prominence broad, inconspicuous. Dorsal cephalic and frontal hairs blunt and very short, 6-10 µ long. Antennae 1.1-1.4 times as long as body. Antennal segment I almost smooth, segment II slightly imbricated, both pale. Remainder of antennae imbricated, the extreme apices of segments III, IV and V, the bases of IV and V, as well as the basal part of VI and a variable part of the processus terminalis dark; sometimes also antennal segment V dark. Third antennal segment with 1-4, mostly 2, small secondary rhinaria, normally confined to the basical one fifth. Processus terminalis 7.5-9.0 times as long as the base of VI (fig. 2), 1.4-1.8 times antennal segment III. Antennal hairs like dorsal cephalic hairs, but somewhat longer: 8-15 µ. Rostrum reaching to hind coxae. Ultimate rostral segment more than 1.5 times as long as its basal width (fig. 4), dusky, 1.05-1.20 times as long as the second joints of the hind tarsi, with only 6-8 15-30 µ long hairs in addition to the small basal pair and the three apical pairs (30-45 µ long); when 6 hairs are present, they normally consist of a dorsal pair and two ventral pairs. Dorsal body cuticle entirely pale, variably rugose, but not appreciably sclerotic. Mesothoracic furca sessile. Legs long, pale to dusky, except for tarsi, which are dusky to dark. Femora slightly imbricated, tibiae almost smooth; hind tibiae 1.25-1.70 mm in length. Most hairs of femora blunt, up to 12 µ long. Tibiae with hairs of various lengths,



Figs 1-7. *Sitobion loranthi* spec. nov. 1, alate viviparous female: third antennal segment. 2-7, apterous viviparous female: 2, last antennal segment; 3, body; 4, ultimate rostral segment; 5, siphunculus (v: ventrally, d: dorsally); 6, hind tarsus; 7, cauda.

Table 1. Biometric data for apterous and alate viviparous females of *Sitobion loranthi* spec. nov. Measurements in mm. N: number of measurements; S.E.: standard error; a.s.: antennal segment; p.t.: processus terminalis; siph.: siphunculus; u.r.s.: ultimate rostral segment; h.t.: hind tibia.

	apterous viviparae				alate viviparae			
	N	range	mean	SE	N	range	mean	SE
length of:								
body	10	1.69-2.69	2.25	0.32	7	1.90-2.45	2.22	0.18
antenna	18	2.41-3.02	2.71	0.19	10	2.41-2.83	2.59	0.13
a.s. III	20	0.50-0.66	0.58	0.05	13	0.51-0.62	0.55	0.04
a.s. IV	20	0.41-0.58	0.49	0.05	13	0.43-0.54	0.49	0.04
a.s. V	20	0.33-0.46	0.39	0.04	13	0.33-0.41	0.38	0.03
base VI	20	0.10-0.12	0.11	0.01	12	0.10-0.12	0.11	0.01
p.t.	18	0.82-1.01	0.94	0.06	10	0.85-1.00	0.93	0.05
cauda	10	0.25-0.37	0.32	0.05	7	0.20-0.27	0.25	0.02
siph.	19	0.64-0.96	0.80	0.11	14	0.59-0.77	0.65	0.06
u.r.s.	10	0.12-0.14	0.128	0.007	7	0.12-0.13	0.125	0.007
h.t.2	10	0.11-0.13	0.117	0.006	6	0.11-0.12	0.113	0.003
rhinaria on:								
a.s. III	20	1-4	1.95	0.94	14	8-12	9.79	1.19

between 10 and 30 μ, increasing in length towards apex, the ones in basal part blunt and those at apex pointed, abundant. First tarsal joints with 3, 3 and 3 hairs. Second joints of tarsi imbricated (fig. 6), longest hairs on them measuring 15 μ. Dorsal abdominal hairs blunt, those on tergite VIII as long as on anterior tergites (7-11 μ long) and 2-4 in number. Ventral hairs more abundant, acute, 15-20 μ long. Spiracles reniform to oval. Siphunculi evenly dark, cylindrical, but expanding slightly over basal one-fourth (fig. 5); 0.34-0.38 times as long as body, 2.3-2.7 times as long as cauda, very thick for *Sitobion* species: their middle diameter 2.0-2.5 times as broad as middle of hind tibiae, their base distinctly broader than base of cauda; imbricated, the imbrication becoming stronger from base towards apex, passing ventrally into 12-15 and dorsally into 8-10 rows of perfect hexagonal cells, this reticulation covering about 0.16-0.20 of the length before the very apex which is parallel-sided; apex cut a little bit obliquely. Cauda pale, elongate tongue-shaped, with a slight constriction in its basal two-fifth and with blunt apex (fig. 7), spinulosely imbricated, more accentuatedly so on the ventral side; with 6-8 hairs, typically one basal pair implanted ventrally, a medium dorsal-lateral pair and 2-4 subapical dorsal hairs; the basal and medium pairs always long and pointed, measuring 40-60 μ, the subapical hairs normally blunt and much shorter, measuring 15-25 μ; however, sometimes one or more, or even all, of the subapical hairs also long and pointed. Subgenital plate pale, imbricated, with one pair of anterior hairs, 25-30 μ long, and 8-13 shorter (12-20 μ) hairs along the hind margin.

Colour when alive: green, with siphunculi and apical parts of antennae black.

Alate viviparous female: Body length 1.9-2.5 mm. Similar to apterae in most morphological characters, but head, antennal segments I-II and thorax darkish; antennal segments III-VI (with the exception of the very base of III) and rostrum black; femora and tibiae darker than in apterae, with apical parts (up to 1/3 in femora and 1/4 in tibiae) and the very bases of the tibiae black; abdomen with brownish marginal sclerites on tergites II-V, those on V smaller than the others. Third antennal segment with 8-12 secondary rhinaria in an almost straight row over most of its length (fig. 1). Wings with normal venation, the veins not bordered with brown. Siphunculi and cauda comparatively somewhat shorter than in apterae (ratio siphunculi/body: 0.26-0.32; ratio siphunculi/cauda: 2.3-3.0).

Colour when alive: green, with head, thorax and legs brown, siphunculi and antennae black.

Biological notes

The new aphid lives on at least three different species of *Loranthus* (Loranthaceae), including a narrow-leaved and a broad-leaved one. Unfortunately the foodplants could not be identified to the species level. *Loranthus* spp. are obligatory parasitic plants growing on different species of trees. In central Angola probably the most frequent host of *Loranthus* is *Ochna afzelii* R. Br. ex Oliver (Ochnaceae).

Sitobion loranthi feeds on both upper and underside of the leaves. At least one, perhaps even two, other species of *Sitobion* were found living on *Loranthus*, but they do not possess similar thick siphunculi. On two occasions, oviparous females of a *Sitobion* species were collected from *Loranthus* sp., but it is not clear to which species they belong.

Sometimes, *S. loranthi* was found heavily parasitized by *Aphidius camerunensis* Mackauer (Hymenoptera: Braconidae) (Starý & van Harten, 1973). An association of this aphid species with ants was never observed.

Differential diagnosis

Sitobion loranthi can be distinguished from almost all other species of *Sitobion* by its thick siphunculi. Hille Ris Lambers (1966) used the thickness of siphunculi to separate *S. sylvesteri* Hille Ris Lambers (= *S. alopecuri sylvesteri* according to Eastop & Hille Ris Lambers, 1976). In this species the siphunculi are pale and short (0.18 - 0.20 times as long as body in apterous viviparous females).

A microphotograph included by Robinson (1972) in the description of *Macrosiphum (Sitobion) yongyooti* shows a species with apparently very thick siphunculi, although this character was not mentioned in the description. According to the late Dr. Hille Ris Lambers (personal communication) this aspect is caused by the method of preparation and the mounting medium used by Robinson. Part of the type material of *S. loranthi* is embedded in Canada Balsam, the remainder in Faure-Berlese medium; in both types of preparations the middle of the siphunculi is at least twice as broad as the middle of the hind tibiae. *Sitobion yongyooti* can be separated from *S. loranthi* by its short ultimate rostral segment (shorter than second joints of hind tarsi) and by the very extensive reticulated area at the apex of the siphunculi of apterous viviparous females (about 2/5 of total length).

Apart from the thick siphunculi, the combination of long siphunculi, medium long cauda, long processus terminalis and ultimate rostral segment longer than second joint of hind tarsi, is unique in all hitherto described *Sitobion* species.

Sofar as I know, *S. loranthi* is the first *Sitobion* species ever to be recorded from Loranthaceae.

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