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APHIDS OF JAVA. PART II: *SINOMEGOURA* TAKAHASHI, 1960 (HOMOPTERA: APHIDIDAE), WITH A NEW SPECIES FROM *COFFEA* *

by

D. NOORDAM

Noordam, D.: Aphids of Java. Part II: *Sinomegoura* Takahashi, 1960 (Homoptera: Aphididae), with a new species from *Coffea*.

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Key words: Aphididae; *Sinomegoura*; taxonomy; key; *Coffea*; Java.

A description is given of *Sinomegoura*. The following three species were collected in Java: *Sinomegoura citricola* (Van der Goot, 1917), from various woody plants; *Sinomegoura symplocois* (Van der Goot, 1917), collected by Van der Goot from *Symplocos* and described by him as *Aulacorthum symplocois* Van der Goot, 1917; and a new species collected from leaves of *Coffea* sp., *Sinomegoura coffeae* spec. nov. Keys are given to the apterae and alatae viviparae, and the species are described.

D. Noordam, Edeseweg 58, 6721 JX Bennekom, The Netherlands.

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* Aphids of Java. Part I was published as Zool. Verh. Leiden 219.

GENERIC ACCOUNT

Sinomegoura Takahashi, 1960

Sinomegoura Takahashi, 1960: 228 (type species *Acyrtosiphon photinae* Takahashi, 1936).

Description of the genus

Apterous viviparous female (figs. 1, 11, 24, 30). — Colour in life: Body yellow, green or reddish brown.

Macerated specimens: Body length 1.4-3.5 mm.

Head. — Head dorsally smooth. Antennal tubercles diverging, the mesal sides somewhat convex, ventrally with spinulae. Antennae 6-segmented, 2.0-4.0 mm long, 0.83-1.4 times as long as the body, and 4.8-6.7 times the width of the head across the eyes. Antennal segments I and II dorsally almost smooth, ventrally with blunt spinulae. Antennal segment III slightly imbricated on the distal part, usually with 1-4 circular rhinaria near the base of the segment; antennal segments IV-VI imbricated without spinulae; segment III with 25-30 hairs, the longest 12-32 μ . Antennal segment III 1.2-1.7 times as long as IV; the processus terminalis 3.2-4.9 times as long as the base of the segment, and 0.8-1.1 times as long as segment III, 1.2-1.9 times as long as the siphunculi. The rostrum reaches the mid-coxae or even beyond the hind coxae, its length 1.3-1.6 times the length of the second tarsal segment of the hind leg (in *S. pyri* almost equal to that length, according to Ghosh & Raychaudhuri, 1968), usually with 3-6 accessory hairs; stylets 770-960 μ long.

Thorax. — Thorax marginally and dorsally with wrinkles and with a more or less distinct network; moreover, prothorax marginally with a small tubercle. Tibiae almost smooth, distally with more imbrications. First tarsal segment of all legs usually with three setae. Second tarsal segment with smooth or spinulose imbrications. Empodial hairs tapering to a thin, acute tip, and about 30 μ long. Mesosternal furca with a broad base, sessile or with a short stem (figs. 4, 5, 15, 16, 17, 26).

Abdomen. — Abdominal segments II-V, and sometimes also I, marginally with a small tubercle, the marginal sclerites colourless or pale brown. Tergites with or without a network. Tergite VIII usually with four hairs. Siphunculi (figs. 7, 12, 13, 27) 2-4 times wider at base than the narrowest distal diameter, tapering most strongly in the basal half, less strongly in the distal half and very infrequently with an expansion of up to 3% over some distance of the distal half; siphunculi are faintly imbricated, just behind the rim with 2-4 striae with interconnections, the rim 1.2-1.3 times wider than the narrowest

distal diameter. Siphunculi 0.16-0.26 times as long as the body, 0.8-1.2 times the width of the head across the eyes, 0.5-0.8 times the length of the processus terminalis, and 0.8-1.3 times as long as the cauda. Cauda tapering gradually to the rounded tip, with 7-19 hairs, 0.13-0.23 times as long as the body, 0.67-1.1 times as long as the width of the head across the eyes. Subgenital plate with 2-4 anterior, and 9-16 posterior hairs, the anterior 28-46 μ long, the posterior 22-34 μ . Gonapophysis three, the middle with 5-10, the lateral each with 4-8 hairs, length of the hairs 20-33 μ .

Alate viviparous female (figs. 8, 19). — Macerated specimens: body length 1.9-3.2 mm.

Head. — Antennal tubercles ventrally with a few spinulae or smooth, dorsally smooth. The antennae 0.8-1.4 times as long as the body, and 6-7 times the width of the head across the eyes. Antennal segment III slightly imbricated with 13-30 circular rhinaria over almost the whole length, antennal segment IV with 0-10 rhinaria. Longest hairs on antennal segment III 20-30 μ . Antennal segment III 1.0-1.4 times as long as IV, 1.1-1.5 times as V; the processus terminalis is 3.1-4.2 times as long as the base of the segment, and 0.9-1.2 times as long as III. Rostrum reaches about as far as the hind coxae, 1.4-1.6 times as long as the second tarsal segment of the hind leg, with 4-5 accessory hairs. Stylets 800-900 μ long.

Thorax. — Medial vein of fore wing branched twice.

Abdomen. — Marginal sclerites of segments I-VI frequently brown, sometimes each with a small tubercle; segment VII usually with two or four dorsal patches, segment VIII with only one. Siphunculi as in apterae, but slightly less expanded at base, 0.15-0.23 times as long as the body, 0.8-1.1 times the width of the head across the eyes, 0.5-0.7 times the length of the processus terminalis, and 0.8-1.6 times the length of the cauda. Cauda tapering gradually to the rounded tip, with 5-17 hairs, 0.12-0.18 times as long as the body, and 0.5-0.9 times the width of the head across the eyes. Subgenital plate with 2-4 anterior, and 10-17 posterior hairs.

Discussion. — In the preceding description of the genus the following publications were taken into consideration: Takahashi (1936: 600; 1960: 228) on *Acyrtosiphon photiniae* Takahashi; Van der Goot (1917: 28, 34) on *Aulacorthum symplocois* Van der Goot and *Macrosiphoniella citricola* Van der Goot; Takahashi (1937: 8) on *Acyrtosiphon rhododendri* Takahashi; Tao (1963: 190) on *Acyrtosiphon elaeocarpi* Tao. Takahashi (1960) placed Van der Goot's *citricola* in *Sinomegoura*, while Eastop & Hille Ris Lambers (1976) considered all the above mentioned species to belong to this genus. Ghosh & Raychaudhuri (1968: 753) described *Sinomegoura pyri* Ghosh & Raychaudhuri. For the description of the genus many characters were taken

- black distal part. Cauda as dark or darker than the distal part of the siphunculi *Sinomegoura citricola*
- Siphunculi 1.4-1.6 times as long as the cauda. Head width across eyes 1.5-1.8 times the length of the cauda. Antennal segment III with 17-30 rhinaria, IV with 0-10. Colour varying 2
2. Head width across eyes 0.9-1.1 times the length of the siphunculi. Cauda with 10-13 hairs. Base of antennal segment III pale but rest of antennal segments III-V black. Tibiae black, darker than the distal part of the femora. Cauda paler brown than the distal part of the siphunculi.
..... *Sinomegoura coffeae* spec. nov.
- Head width across eyes 1.3 times the length of the siphunculi. Cauda with 5-7 hairs. Antennal segments III-V pale, but distal end of each segment black. Tibiae pale with darker distal end. Cauda darker than distal part of the siphunculi *Sinomegoura symplocois*

SPECIES ACCOUNTS

Sinomegoura citricola (Van der Goot, 1917)
(figs. 1-10)

Macrosiphoniella citricola Van der Goot, 1917: 34.
Sinomegoura citricola; Takahashi, 1960: 228.

Van der Goot collected apterae from young leaves of *Citrus aurantium* L., and an alatae from young shoots of *Cinnamomum verum* J.S. Presl. Takahashi (1960: 228) placed the species in *Sinomegoura*.

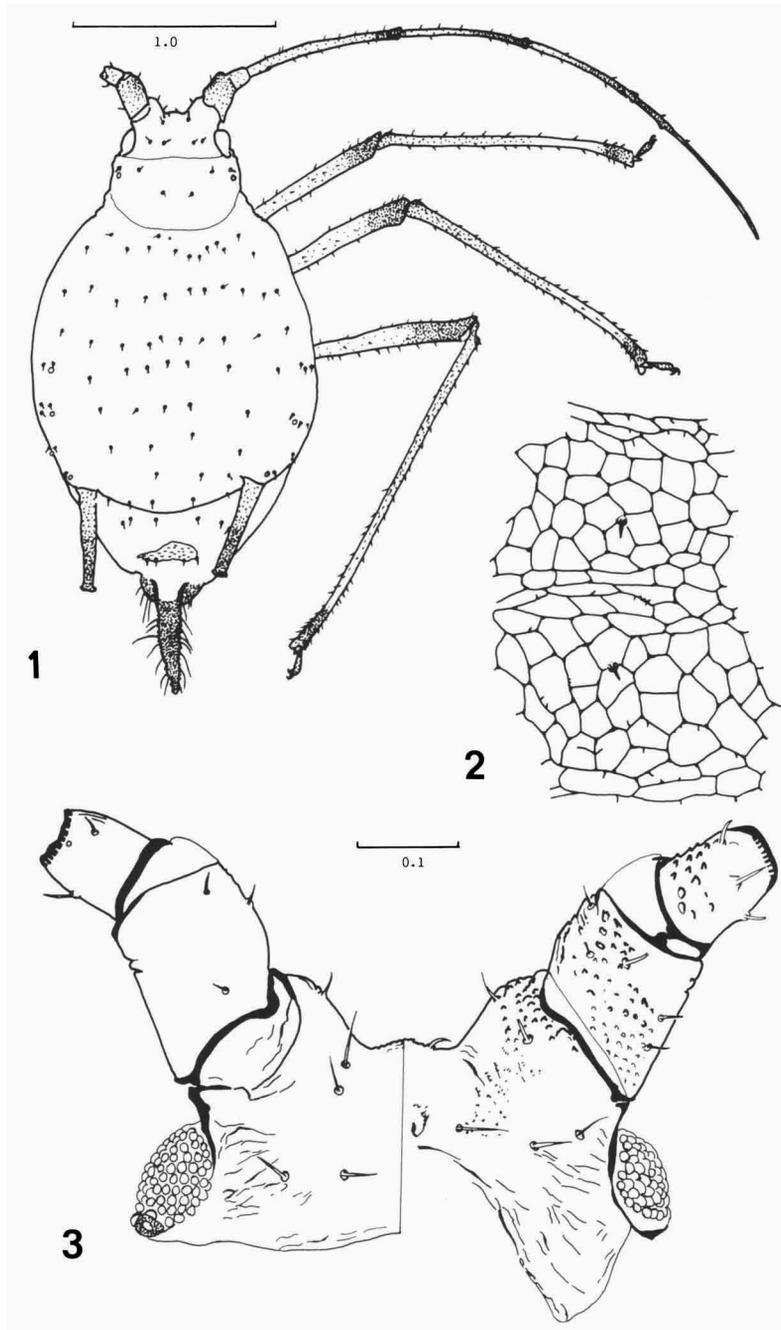
Types. — Van der Goot's original material has been lost.

The following morphological notes have been taken from specimens collected by the present author.

Apterous viviparous female (fig. 1). — Colour in life: Brown or reddish brown, a little shiny due to the network of the skin. Antennae pale or dark brown with the distal end of segment III, and the distal half of segments IV-VI black. Legs brown, but femur and tibia distally black, tarsi black. Siphunculi yellow or brown, distally dark brown or black. Cauda black.

Macerated specimens (described from 25 specimens): Body length 1.7-3.2 mm.

Head. — Head dorsally smooth, 450-470 μ wide across eyes, frontal hairs 24-50 μ long; antennal tubercles ventrally and on a band posteromedial from the tubercles with spinulae. Antennae 6-segmented, 2.42-3.47 mm long,

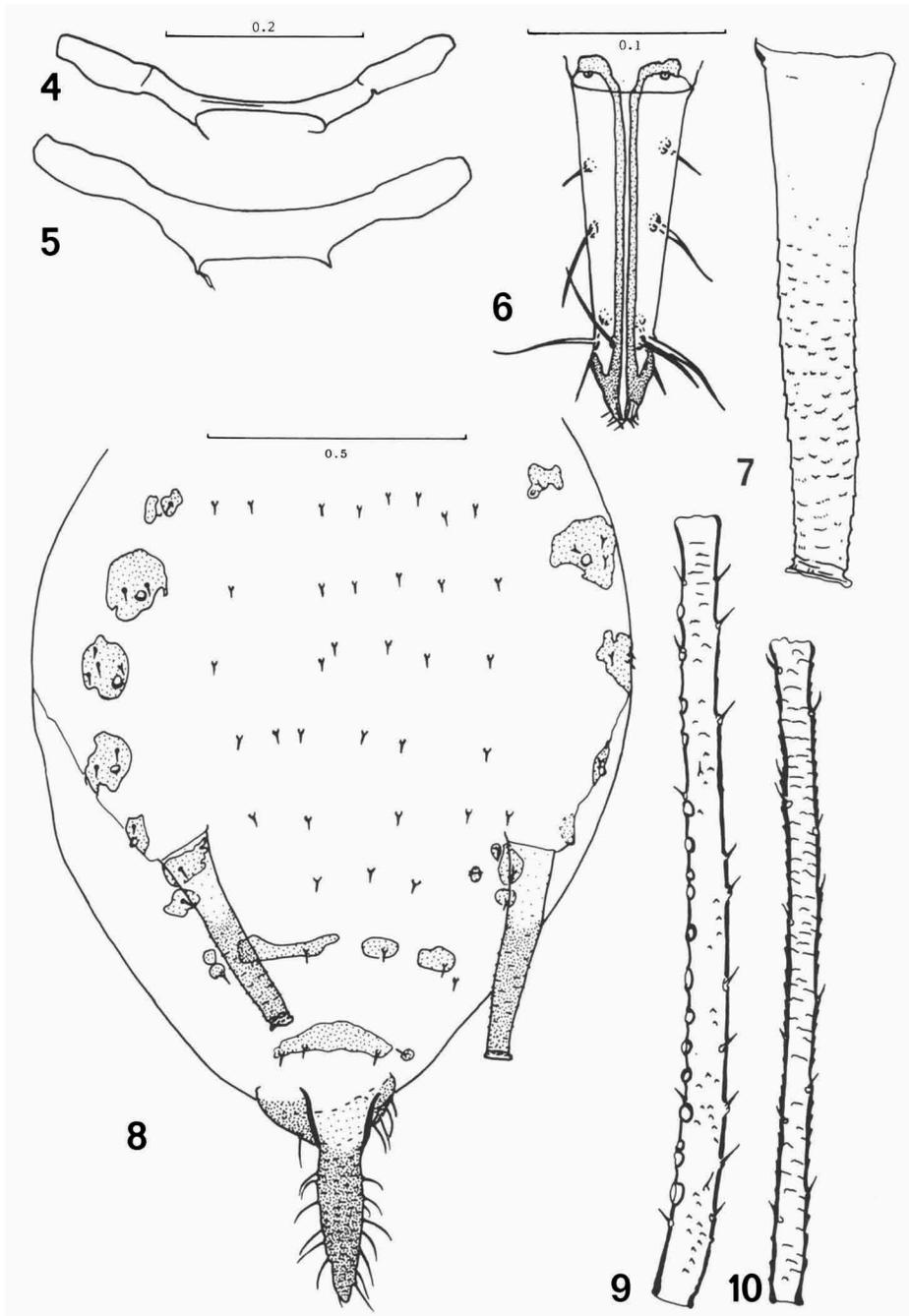


Figs. 1-3. *Sinomegoura citricola* (Van der Goot), aptera vivipara. Fig. 1, Body with dorsal hairs. Fig. 2, Cuticular network of abdominal tergites II and III, pleurally. Fig. 3, Head, dorsal view (left), ventral (right). The scale lines represent: 1.0 mm to fig. 1; 0.1 mm to figs. 2 and 3.

1.1-1.4 times as long as the body, and 5.3-6.2 times the width of the head across eyes. Antennae pale brown or brown, but the distal part of segments III-V darker. Antennal segments I and II dorsally almost smooth, ventrally with blunt spinulae, II with fewer spinulae than I. Antennal segment III smooth, distally slightly imbricated, 1.2-1.4 times as long as IV, with 0-4 rhinaria and with about 30 hairs, longest hairs 18-25 μ ; antennal segments IV-VI imbricated; processus terminalis 3.2-4.1 times as long as the base of the segment, and 0.8-1.1 times as long as segment III, 1.4-1.9 times as long as the siphunculi. Length of antennal segments: III 590-900 μ (and 28-48 μ wide in the middle), IV 450-760 μ , V 400-640 μ , base of VI 155-220 μ , and the processus terminalis 610-760 μ . The rostrum reaches a little beyond the hind coxae. Ultimate rostral segment (fig. 6) 151-179 μ long, 1.4-1.6 times the length of the second tarsal segment of the hind leg, longest distal hairs 38-52 μ , with 3-4 accessory hairs; stylets 800-960 μ long.

Thorax. — Thorax marginally and dorsally with a striking coarse network, prothorax marginally with a small tubercle. Mesosternal furca (figs. 4, 5) with a broad base, sessile or with a short stem. Femora distally darker than the basal part, and also darker than the middle part of the tibiae; femora only distally with some imbrications. Tibiae smooth, only the brown or black distal end with some imbrications. Tarsi black; first tarsal segments of all legs with three hairs, the lateral 12-18 μ long, the middle more sturdy 14-20 μ long; second tarsal segment with smooth or finely spinulose imbrications, usually with 10 hairs. Empodial hairs tapering to a thin tip, acute, 22-30 μ long. Length of hind leg segments: femur 650-1070 μ , tibia 1275-2020 μ , first tarsal segment 40-52 μ , second tarsal segment 96-118 μ .

Abdomen. — Especially segments I-V marginally and dorsally with a pale brown network (fig. 2); in a few exceptional cases the network is indistinct; segments II-V, and sometimes segment I with a brown tubercle, which sometimes has 2-3 facets. Marginal and dorsal hairs on segments I-VI on colourless sclerites; segment VII frequently with the pleural hair on a brown sclerite; segment VIII with a brown triangular sclerite with imbrications, 200-350 μ wide and 60-85 μ long in the middle. Number of hairs on abdominal segments: on I one marginal and 4-9 dorsal hairs, on II-IV 2-4 and 5-8, on V one and 2-4, on VI 2-4 and 4-7 respectively, on VII 5-8, on VIII usually four but sometimes at lateral sides one more; all hairs brown, blunt, on segment IV dorsally 13-25 μ long, ventrally 28-44 μ . Siphunculi (fig. 7) brown, the distal half darker, the base 2.1-2.5 times the narrowest distal diameter, the tip usually slightly curved outwards, faintly imbricated, just behind the rim 2-4 striae with some interconnections, the rim 1.2-1.3 times wider than the narrowest distal diameter, length of siphunculi 340-500 μ , 0.77-1.0 times as long



Figs. 4-10. *Sinomegoura citricola* (Van der Goot). Apterous vivipara: Figs. 4 and 5, Mesosternal furca. Fig. 6, Ultimate rostral segment. Fig. 7, Siphunculus. — Alate vivipara: Fig. 8, Abdomen with dorsal hairs. Fig. 9, Antennal segment III. Fig. 10, Antennal segment IV. The scale lines represent: 0.2 mm to figs. 4, 5, 7, 9, 10; 0.1 mm to fig. 6; 0.5 mm to fig. 8.

as the width of the head across the eyes, 0.53-0.7 times the length of the processus terminalis, and 0.8-1.0 times the cauda. Cauda black, 390-640 μ long, 110-200 μ wide at base, 0.17-0.23 times as long as the body, and 0.8-1.0 times the width of the head across the eyes, tapering gradually to the rounded tip, dorsally with imbrications provided with fine spinulae, ventrally with coarser spinulae, with 10-19 hairs, the longest 78-107 μ , but others markedly shorter. Longest hairs on subanal plate 80-97 μ . Subgenital plate with 2-4 anterior hairs, 32-46 μ long, and 9-16 posterior hairs, 22-34 μ long. The middle gonapophysis with 5-9, the lateral each with 4-7 hairs, 26-33 μ long.

Alate viviparous female (fig. 8). — Colour in life: As apterae. Pterostigma grey.

Macerated specimens (described from 13 specimens): Body length 2.0-3.0 mm.

Head. — Head and antennal tubercles smooth dorsally, ventrally with only a few spinulae, width across eyes, 420-525 μ . Antennae 6-segmented, 2.5-3.4 mm long, 1.1-1.4 times as long as the body, 6-7 times the width of the head across the eyes; segments III-V with pale brown bases and black distal ends. Antennal segment III (fig. 9) dorsally slightly imbricated, with 13-21 circular rhinaria, antennal segment IV (fig. 10) with 0-2 rhinaria, V without secondary rhinaria. Antennal hairs acute or blunt, longest hairs on segment III 20-30 μ . Length of III 585-770 μ , of IV 465-710 μ , of V 495-675 μ , base of VI 180-245 μ , and processus terminalis 650-790 μ . Antennal segment III is 1.0-1.3 times as long as IV, 1.1-1.4 times as long as V; the processus terminalis is 3.1-3.8 times as long as the base of the segment, and 0.9-1.2 times as long as III. Rostrum reaching beyond the hind coxae; ultimate rostral segment 149-176 μ long, 1.4-1.6 times the length of the second tarsal segment of hind leg, longest distal hairs 40-56 μ , with 4-5 accessory hairs; stylets 800-870 μ long.

Thorax. — Prothorax transversely wrinkled and with a marginal tubercle at each side, mesothorax smooth. Forewing with the cubital and anal veins bordered with some pale brown. Distal parts of the femora brown to black, darker than the bases of the femora and middle parts of the tibiae. Length of the hind leg segments: femur 670-985 μ , tibia 1345-1985 μ , first tarsal segment 100-120 μ .

Abdomen. — Abdominal tergites I-V sometimes with a network; abdominal segments I-VII with brown marginal sclerites, the antesiphuncular sclerite as dark as the others, the marginal sclerites of II-V, and sometimes of I, each with a tubercle, each sclerite with 1-4 hairs and some spinulae. Abdominal tergite VII with some brown patches, VIII with one brown, transverse triangular spot. Abdominal dorsal hairs blunt or acute, on segment IV 17-25 μ long. Basal part of the siphunculi pale brown, distal $\frac{2}{3}$ brown, the

base 1.9-2.9 times, and the rim 1.2-1.4 times wider than the narrowest distal diameter; length of siphunculi 320-475 μ , 0.8-0.9 times the width of the head across the eyes, 0.5-0.6 times the length of the processus terminalis, and 0.8-1.1 times as long as the cauda. Cauda black, 295-480 μ long, 130-205 μ wide at base, 0.14-0.18 times as long as the body, 0.7-0.9 times the width of the head across the eyes, tapering gradually to the rounded tip, with 10-17 hairs, the longest 75-100 μ , but others markedly shorter. Subanal plate with 20-25 hairs, the longest 70-100 μ . Subgenital plate with 2-3 anterior hairs, 32-40 μ long, and 11-17 posterior hairs, 22-40 μ long.

Host plant records. — Specimens were collected in Java from the following most plants in the places and dates indicated, while the collectors are indicated by numbers between parentheses: Van der Goot (see Van der Goot 1917) (1); F.W. Rappard (2), and J.P. Sijpkens (3), both in the collection of the British Museum, London; D. Noordam (4), in the collection of the Rijksmuseum van Natuurlijke Historie, Leiden: *Annona muricata* L., Bondowoso, 25-VIII-1949 (2); *Antidesma bunius* (L.) Spreng., Banjoewangi, 22-X-1948 (3); *Bixa orellana* L. (1); *Cinnamomum* sp., Segunung-Sindanglaya, 1100 m, 2-XI-1977 (4); *C. burmanni* Nees ex Bl., Tjinjirioean, 1-VIII-1949 (3), and Bogor, Kebun Raya, 26-V-1975 (4); *C. multiflorum* Wight, Bogor, Kebun Raya, 4-IX-1977 (4); *C. verum* J.S. Presl (syn. *C. zeylanicum* Garc. ex Bl.), Mt. Merbaboe, 800 m, VII-1915 (1); *Citrus aurantium* L., Salatiga, 570 m, III-1915 (1); *Dendrophthoe pentandra* (L.) Miq., Cisarua (Bandung), 1300 m, 16-IX-1976 (4); *Ixora* sp., Rembangan, 650 m, 3-VIII-1950 (2); *Litsea amara* Bl., Segunung-Sindanglaya, 1100 m, 24-XI-1977, 28-XI-1977, 28-II-1978 (4); *Michelia montana* Bl., Soember Wringin, 800 m, 21-I-1950 (2); *Murraya koenigii* (L.) Spreng., Tjikopo, 6-VI-1947 (3); *Persea americana* Mill., Segunung-Sindanglaya, 1100 m, 19-V-1975, 30-VIII-1977 (4); *Piper aduncum* L., Maribaya-Lembang, 1400 m, 25-VII-1975, Segunung-Sindanglaya, 1100 m, 10-XI-1977 (4); *Psidium guajava* L., Segunung-Sindanglaya, 1100 m, 20-I-1977 (4); *Ravensara aromatica* Gmel., Kebun Raya, 19-IV-1975 (4); *Scurrula* sp., Margahayu-Lembang, 1400 m, 19-II-1977 (4); *S. philippensis* (Cham. & Schlecht.) G. Don, Tjisarua-Lembang, 1-VIII-1977 (4); *Syzygium pycnanthum* Merr. & Perry (syn. *Eugenia densiflora* (Bl.) Duthie), VII-1915 (1).

The aphids are found on the lower sides of new leaves, on developing shoots, and on flowers (*Cinnamomum*) or flower stems (*Persea*).

Sinomegoura coffeae spec. nov.

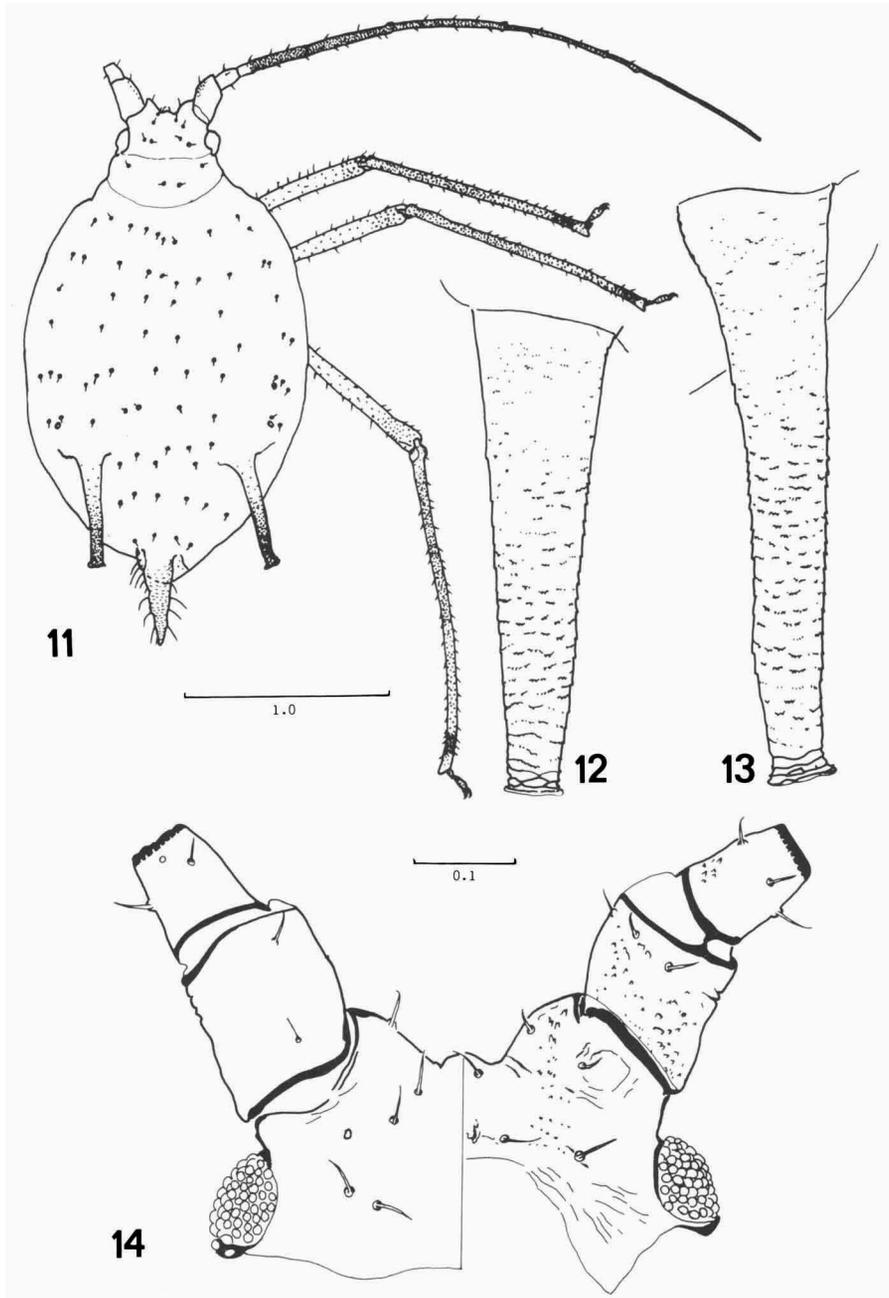
(figs. 11-21)

Types. — Holotype: ♀ (aptera vivipara) from *Coffea* sp., Segunung-Sindanglaya, Java, 18-XII-1976, leg. D. Noordam no. 816-1-1. Paratypes (41 apterae viviparae, 11 alatae viviparae) Segunung-Sindanglaya no. 816, 18-XII-1976, no. 791, 19-X-1976, no. 361, 2-VI-1975; Pengalengan, no. 760, 17-IX-1976, all collected from *Coffea* sp., leg. D. Noordam. Holotype and paratypes in the collection of the Rijksmuseum van Natuurlijke Historie, Leiden.

Apterous viviparous female (fig. 11). — Colour in life: Antennal segments I, II and the basal 1/10 of III brown, the rest of the antennae black, but the processus terminalis white or grey. Head, thorax and abdomen, yellow and shiny. Base of siphunculi yellow, distal half progressively brown, the rim black. Cauda yellow or slightly grey. Femora pale brown to yellow, distally brown. Tibiae and tarsi black. Eyes red.

Macerated specimens (described from 11 specimens): Body length 2.4-3.0 mm.

Head (fig. 14). — Head very pale brown, width across eyes 480-560 μ ; frontal median tubercle with a base 1/4 to 1/5 the width of the head, protruding in the middle about 12-15 μ , slightly wrinkled, with two curved hairs of 32-38 μ long; antennal tubercles diverging, the mesal sides convex, protruding 60-80 μ , dorsally smooth, each with two or three setae; rest of head, dorsally with one pair of hairs posterior to the frontal hairs, and a second pair more posterior and lateral, and 4-5 interocular hairs; all slightly longer than the frontal hairs, tapering, but usually with blunt tip; antennal tubercles ventrally with spinulae which continue in the area caudad to the tubercles; one hair on each antennal base, four interocular hairs. Antennae 6-segmented, 2.7-3.5 mm long, 1.0-1.2 times as long as the body, and 5-7 times the width of the head across the eyes; antennal segments I, II and the basal 1/10 of III very pale brown, the rest of III, IV, V, and VI up to the distal part of VI black, or the distal part of V and the basal half of VI brown, while the processus terminalis is always paler brown or even colourless to the end. Antennal segments I and II dorsally almost smooth, ventrally with blunt spinulae, but II only with a few; segment I with 4-6 hairs, II with four. Antennal segment III smooth with a few spinulae and distally distinctly imbricated, 1-3 circular rhinaria near its base and with about 30 blunt hairs, the longest of which are 20-32 μ , III 1.3-1.7 times as long as IV; segments IV-VI imbricated, without spinulae. Processus terminalis 3.4-4.0 times as long as the base of the segment, and 0.82-0.96 times as long as segment III, 1.3-1.6 times as long as the siphunculi. Length of antennal segments: III 710-910 μ (and 38-47 μ wide in the middle), IV 435-630 μ , V 465-670 μ , base of VI 170-225 μ , and processus terminalis

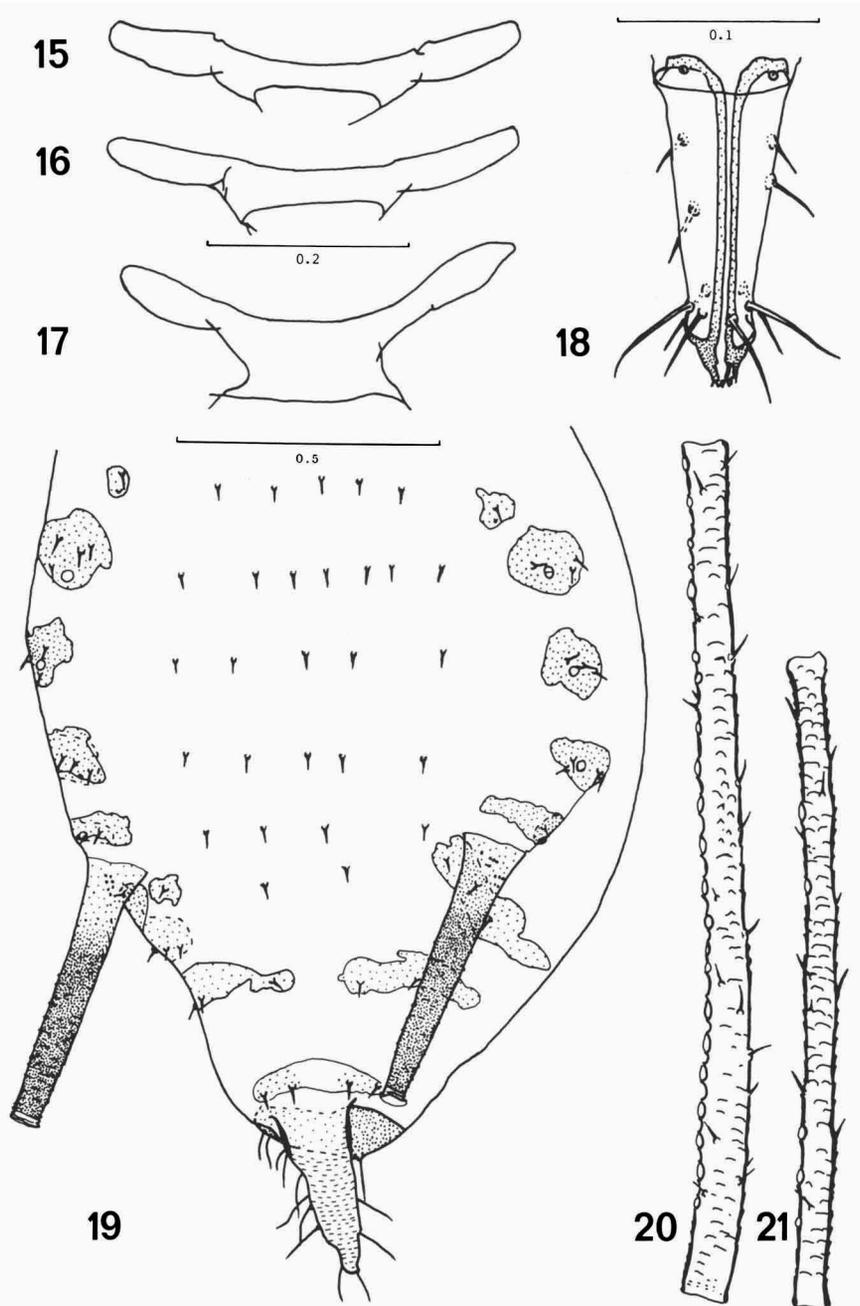


Figs. 11-14. *Sinomegoura coffeae* spec. nov., aptera vivipara. Fig. 11, Body with dorsal hairs. Figs. 12 and 13, Siphunculi. Fig. 14, Dorsal view of head (left), and ventral (right). The scale lines represent: 1.0 mm to fig. 11; 0.1 mm to figs. 12-14.

620-800 μ . The rostrum reaches a little beyond the hind coxae; ultimate rostral segment (fig. 18) pale brown with dark tip, 149-164 μ long, 1.3-1.4 times the length of the second tarsal segment of hind leg; longest distal hairs 40-52 μ , usually with 4-5 accessory hairs; stylets 770-910 μ long. Eyes compound, colourless, triommatidia pale brown, diameter of the ommatidia the same as that of the facets of the compound eye.

Thorax. — Prothorax marginally with a tubercle, 12-20 μ high, 18-40 μ wide at base, with one marginal hair, one anteropleural hair at each side, and two posterospinal hairs. The mesothorax is more distinctly wrinkled than the pro- and metathorax, with marginally and pleurally excavations and a distinct network. Mesosternal furca with a broad base, sessile or with a short stem (figs. 15, 16, 17). Femora pale brown, subapically darker. Tibiae with distally a black part, about 200 μ long, but the distal end, about 50 μ , brown. Femora distally with spinulose imbrications, tibiae smooth with some imbrications which are almost without spinulae. All hairs of femora and tibiae short, stiff, acute or blunt, length of hairs of hind tibiae in the middle at dorsal side about 30-35 μ , at ventral side about 20 μ . First tarsal segment, brown, of all legs usually with three hairs, the lateral 16-22 μ long, the middle more sturdy, 12-16 μ long. Second tarsal segment, brown, with smooth or finely spinulose imbrications and usually with ten hairs. Empodial hairs tapering to a thin tip, acute, 22-36 μ long. Length of hind leg segments: femur 800-1100 μ , tibia 1425-1860 μ , first tarsal segment 44-54 μ , second tarsal segment 106-123 μ .

Abdomen. — Abdominal tergites colourless, but tergite VIII imbricated and at most very pale brown; in exceptional cases a pleural hair on tergite VII on a pale brown sclerite. Abdominal marginal sclerites colourless or very pale brown, segment IV with a tubercle, and sometimes also one on segments I, II, III, and V, slightly smaller than the tubercle on the prothorax, situated between the marginal hairs; abdominal segment I with one marginal and 5-7 dorsal hairs, II-IV with 2-3 and 5-7, V with one and 3-6, VI with 1-3 and 4-6 respectively, VII with 4-6, VIII with four dorsal hairs; all hairs brown or pale brown, blunt, on segment IV dorsally 20-28 μ long, ventrally 28-40 μ . Siphunculi (figs. 12, 13) pale brown at base, distal half brown; expanded basally, the base 2.9-4.0 times wider than the narrowest distal end, the tip usually slightly curved outwards, faintly imbricated, just behind the rim 2-4 striae with some interconnections, the rim 1.1-1.4 times wider than the narrowest distal diameter; length of siphunculi 430-610 μ , 0.9-1.1 times the width of the head across the eyes. Cauda 0.6-0.8 times as long as the processus terminalis, and 0.8-0.9 times the siphunculi, 360-510 μ long, 110-150 μ wide at base, 0.13-0.18 times as long as the body, 0.8-0.9 times as long as the width of the head across eyes; tapering gradually to the rounded tip, dorsally with imbrications provid-



Figs. 15-21. *Sinomegoura coffeae* spec. nov. Apter vivipara: Figs. 15-17, Mesosternal furca. Fig. 18, Ultimate rostral segment. — Alata vivipara: Fig. 19, Abdomen with dorsal hairs. Fig. 20, Antennal segment III. Fig. 21, Antennal segment IV. The scale lines represent: 0.2 mm to figs. 15-17, 20, 21; 0.1 mm to fig. 18; 0.5 mm to fig. 19.

ed with fine spinulae, ventrally with coarser spinulae; with 9-13 hairs, the longest 82-97 μ , but other hairs not markedly shorter; pale brown. Subanal plate broadly rounded or semicircular, pale brown, with 15-19 hairs, the longest 75-90 μ . Subgenital plate very pale brown, with 2-5 anterior hairs and 7-14 posterior hairs, the anterior hairs 36-44 μ long, the posterior 22-32 μ . The middle gonapophysis with 6-9 hairs, the lateral each with 4-5, 20-30 μ long.

Alate viviparous female (fig. 19). — Colour in life: Shining, but the cauda dull. Antennal segments I, II and the basal 1/10 of III pale brown, the rest of the antennae black except the whitish grey distal end of the processus terminalis. Head pale brown to yellow with black around the ocelli. Prothorax yellow, mesothorax orange. Abdomen yellow sometimes with four grey spots anterior to the siphunculi. Siphunculi yellow at base, the rest black. Cauda yellow to grey. Base of femora yellow, the rest of the legs black. Veins of forewing black, pterostigma almost black. Eyes red.

Macerated specimens (described from 11 specimens): Body length 2.2-2.7 mm.

Head. — Head pale brown, around ocelli brown, across eyes 470-520 μ wide, frontal median tubercle with a base about 1/6 the width of the head across eyes, protruding in the middle 2-16 μ , slightly wrinkled, with 2 curved hairs, 20-40 μ long; antennal tubercles diverging, the mesal sides somewhat convex, protruding 40-60 μ , dorsally smooth, ventrally with some wrinkles, each with usually two hairs curved at the tip; rest of head dorsally smooth with one pair of hairs posterior to the frontal hairs, a second pair more posterior and lateral, and four interocular hairs, all acute or blunt, longer than the frontal hairs; antennal tubercles ventrally almost smooth, caudad to the antennal tubercles a few tiny spinulae, one hair on the antennal bases, four interocular hairs. Antennae 6-segmented, 2.9-3.2 mm long, 1.2-1.5 times as long as the body, and 6-7 times as long as the width of the head across eyes; antennal segments I, II and the basal 1/10 of segment III brown, the rest of III, IV and sometimes also V black, but usually V and the base of VI brown, the processus terminalis brown, but paler to the end. Antennal segments I and II dorsally smooth, I ventrally with some spinulae, II with a few spinulae at the medial (anterad) side, I with 4-5 hairs, II with four. Antennal segment III (fig. 20) slightly imbricated, also at the basal part, with 17-25 non-ciliated circular rhinaria over almost the whole length; segments IV-VI heavily imbricated, IV (fig. 21) with 1-10 rhinaria, V without secondary rhinaria; primary rhinaria on antennal segments V and VI ciliated, but on VI sometimes indistinctly. Antennal hairs acute or blunt, longest hairs on segment III 24-31 μ . Length of segment III 685-825 μ , of IV 550-640 μ , of V 530-590 μ , base of VI 180-230 μ , and processus terminalis 650-860 μ . Antennal segment III is 1.1-1.3 times

as long as IV, 1.3-1.5 times as long as V; the processus terminalis is 3.3-4.2 times as long as the base of the segment, and 0.9-1.2 times as long as III. Rostrum reaches the hind coxae; ultimate rostral segment brown with dark tip, 151-161 μ long, 1.4-1.5 times the length of the second tarsal segment of hind leg, longest distal hairs 42-56 μ , with 4-5 accessory hairs; stylets 810-900 μ long. Eyes compound, pale brown, triommatidia brown.

Thorax. — Prothorax slightly transversely wrinkled, marginally with a tubercle, with six marginal and dorsal hairs as in apterae. Mesothorax brown, almost smooth. The cubital and anal veins of forewing bordered with some pale brown, hind wing with two oblique veins. Coxae, trochanters and 1/5 or less of the base of the femora pale brown, the rest of the femora brown or black, tibiae black, tarsi brown. Femora ventrally, and distally at the dorsal side with fine spinulose imbrications; tibiae smooth, distally with imbrications. All hairs of the femora and tibiae short, stiff, acute; length of hairs of hind tibiae at dorsal side 22-35 μ , at ventral side 20-25 μ . First tarsal segment of all legs with three hairs, about 20 μ long, but the middle more sturdy, about 15 μ long. Second tarsal segment with smooth or finely spinulose imbrications, usually with ten hairs. Empodial hairs tapering to a thin tip, acute, 25-32 μ long. Length of hind segments: femur 950-1130 μ , tibia 1680-1950 μ , first tarsal segment 44-58 μ , second tarsal segment 106-113 μ .

Abdomen. — Tergites I-V colourless without spinulae and network, tergites VII, VIII and sometimes VI with very pale brown patches arranged in transverse bands, with spinulae in transverse lines. Abdominal marginal sclerites brown with some spinulose imbrications, II-V and sometimes I each with a small tubercle visible as a colourless oval spot when seen from above, situated between the marginal hairs; abdominal segment I with one marginal and 5-7 dorsal hairs, segments II-IV with 2-3 (II sometimes with four) marginal and 4-6 dorsal hairs, V with one marginal antesiphuncular hair close to the tubercle (if present), postsiphuncular marginal hairs of V plus VI 2-4, V with four dorsal hairs, VI with 3-5, VII with 4-5 dorsal hairs, VIII with four dorsal hairs; all hairs brown, blunt or acute, on segment IV dorsally 23-32 μ long. Siphunculi basal 1/5 pale brown, the rest brown, expanded basally, the base 2.3-3.5 times wider than the narrowest distal end, faintly imbricated with finely spinulose imbrications over the whole length, just behind the rim 3-4 striae with some interconnections, the rim 1.2-1.4 times wider than the narrowest distal diameter; length of siphunculi 450-540 μ , 0.9-1.1 times as long as the width of the head across eyes, 0.55-0.7 times the length of the processus terminalis, and 1.4-1.6 times as long as the cauda. Cauda pale brown, 285-350 μ long, 140-195 μ wide at base, 0.12-0.15 times as long as the body, and 0.6-0.7 times the width of the head across eyes; cauda tapering gradually to the

rounded tip, at base about 8 times wider than the tip at the point where the rounding starts; dorsally with imbrications provided with fine spinulae, ventrally with coarser spinulae; with 10-13 hairs, the longest 82-100 μ , but other hairs not markedly shorter. Subanal plate pale brown, posterior margin broadly rounded, with 16-19 hairs, the longest 82-93 μ . Subgenital plate brown with 2-4 anterior hairs and 10-16 posterior hairs, the anterior hairs 30-48 μ long, the posterior 22-40 μ . Gonapophyses three, the middle with 7-10 hairs, the lateral each with 5-6, 16-28 μ long.

Host plant records. — All specimens were collected from *Coffea* sp., from the lower side of leaves, the adults mainly along the midrib, the larvae along the principal lateral veins. The species has also been collected from *Coffea* in the island of Timor (Indonesia), mounts present in the British Museum, London. *Coffea* is native to Africa, and one would suppose that the aphid species, if native to Java, also lives on a wild Javanese host plant. Van der Goot, in his unpublished manuscript, describes an aphid "*Aulacorthum murrayae* nov. spec."; however, the specimens which Van der Goot collected from *Murraya exotica* L. (= *M. paniculata* (L.) Jack), have been lost, but his description agrees with *S. coffeae* spec. nov. *Murraya paniculata*, known wild from Java, and also as a garden tree, maybe offers a clue as to the primary host of the aphid species.

Etymology. — The species is named for the host plant on which it was found.

Sinomegoura symplocois (Van der Goot, 1917) (comb. nov.)
(figs. 22-30)

Aulacorthum symplocois Van der Goot, 1917: 28, 293.

Van der Goot (1917: 28) originally described *Aulacorthum symplocois*, which is the only existing description; the aphids were collected at the beginning of 1915 from *Symplocos ferruginea* Roxb. (correct name: *S. javanica* Bl. Kurz) from the Dieng mountain; Van der Goot (1917: 293) has corrected the name *Symplocos ferruginea* to *S. sessilifolia* (Bl.) Gürke and, at the same time, mentions the collection of the same aphid (*A. symplocois*) from *Eurya japonica* Thunb., also from Mt. Dieng. The Laboratorium voor Entomologie at Wageningen possesses a slide labeled (but not in Van der Goot's handwriting): "*Aulacorthum simplocois*, leaf *Scirpus grossus*, Bogor 1914"; obviously, the slide has been remounted and contains two apterous and four alate viviparous specimens, considerably fragmentary; without any doubt the

specimens belong to *Aulacorthum symplocois*, and not to *A. scirpi* Van der Goot, 1917, which he collected from *Scirpus grossus* L. at the end of December 1914, at Bogor (Van der Goot 1917: 28). I have placed *A. symplocois* in *Sinomegoura* on the grounds of characters agreeing with those mentioned in the above description of the genus. Below is a re-description of the species, including many data of Van der Goot (1917).

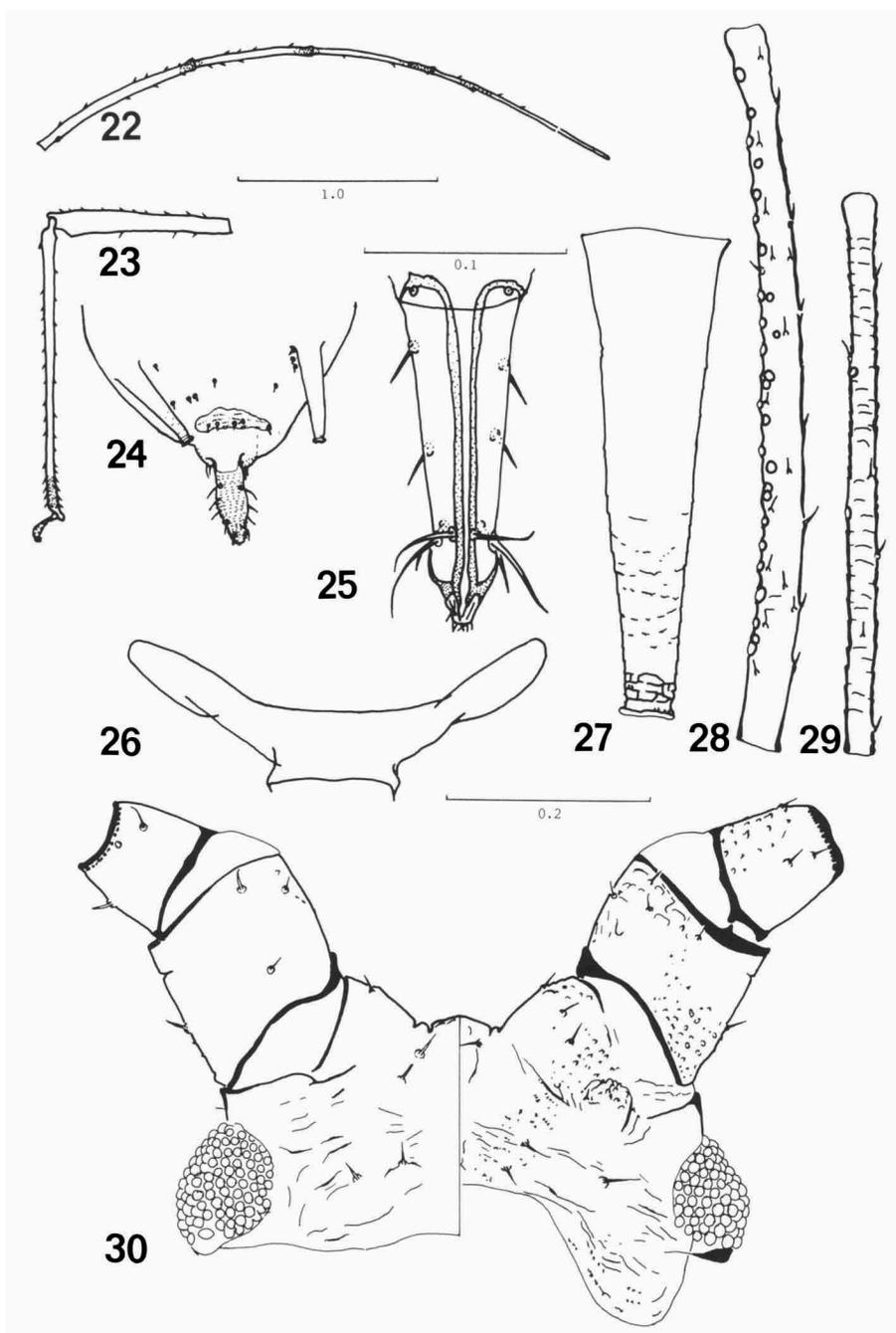
Types. — Lectotype (aptera vivipara) labeled in manuscript: "*Aulacorthum symplocois*, leaf *Scirpus grossus*, Bogor 1914". Paralectotypes: four alate viviparous females on the same slide and same data as the lectotype. There is, however, serious doubt about these data: it is very likely that at least the host plant is mentioned in error.

Lectotype and paralectotypes are in the collection of the Laboratorium voor Entomologie, Wageningen, The Netherlands.

Apterous viviparous female (figs. 22-24). — Colour in life: Light reddish brown. Eyes black. Antennae greyish white, the end of the segments black. Legs pale brown, tarsi and distal end of tibiae black. Siphunculi light brownish yellow, distal end black. Cauda black.

Macerated specimens (described from the lectotype specimen): Body length 2.9-3.0 mm.

Head. — Width of head (fig. 30) across eyes 560-610 μ . Frontal median tubercle less than 20 μ high, slightly wrinkled with two blunt hairs, 18-24 μ long; antennal tubercles diverging, the mesial sides convex, protruding 50-60 μ , dorsally smooth, each with two or three setae; rest of head dorsally somewhat wrinkled, with one pair of hairs posterior to the frontal hairs, and a second pair more posterior and lateral, and four interocular hairs; all hairs blunt, the two anterior hairs 35 μ long, the other shorter. Antennal tubercles ventrally with spinulae, the coarsest blunt and four μ high, a band of spinulae proceeds ventrally from the antennal tubercles posteromedial. Head ventrally, besides hairs on the antennal tubercles, at each side in the middle of the antennal base with two hairs, and four interocular hairs. Antennae 6-segmented, 2960 μ (or estimated to be not longer than 3 mm), 1.4 times as long as the body; antennal segments pale, but the distal ends of III, IV, V, and the part of VI around the rhinarium darker; segments I and II dorsally smooth, ventrally with blunt spinulae, but II only with few; segment I with eight, II with four hairs: segment III almost smooth at the base with 1-2 rhinaria, segments IV-VI imbricated without spinulae; segment III with about 30 hairs, blunt, the longest hairs 15-18 μ . Antennal segment III 1.5 times as long as IV; the processus terminalis 3.5 times as long as base of the segment, 0.84 times as long as segment III. Length of the antennal segments: III 740-860 μ (and 45 μ wide in the middle), IV 460-570 μ , V 600 μ , base of VI



Figs. 22-30. *Sinomegoura symplocois* (Van der Goot). Aptera vivipara: Fig. 22, Antennal segments III-VI. Fig. 23, Middle leg. Fig. 24, Apex of abdomen. Fig. 25, Ultimate rostral segment. Fig. 26, Mesosternal furca. Fig. 27, Siphunculus. Fig. 30, Head, dorsal view (left) and ventral view (right). — Alata vivipara: Fig. 28, Antennal segment III, Fig. 29, Antennal segment IV. The scale lines represent: 1.0 mm to figs. 22-24; 0.1 mm to fig. 25; 0.2 mm to figs. 26-30.

210 μ , and processus terminalis estimated as 720 μ . The rostrum reaches a little beyond the hind coxae, ultimate rostral segment (fig. 25) colourless with brown tip, 180 μ long, 1.4-1.5 times the length of the second tarsal segment of hind leg, longest distal hairs 50 μ , with four accessory hairs; stylets 900 μ long. Eyes compound, colourless, triommatidia brown, diameter of the ommatidia the same as that of the facets of the compound eye.

Thorax. — Prothorax dorsally wrinkled, one marginal hair at each side and caudad to this hair a small tubercle; antepleurally at each side one hair, and two posterospinal hairs. Mesothorax marginally wrinkled, dorsally with a distinct network. Mesosternal furca with a broad base and a short stem (fig. 26). Femora pale, darker to the distal end and with some imbrications, without spinulae. Tibiae pale, darker at the base and at the distal end, almost smooth. Hairs of femora and tibiae somewhat acute or blunt, length of hairs of tibiae dorsally in the middle about 22 μ long, ventrally about the same. First tarsal segment of all legs with three hairs, the middle hair some microns shorter than the others; second tarsal segments imbricated with usually four hairs next to the distal hairs; empodial hairs acute, 20-22 μ long. Length of leg I segments: femur 783 μ , tibia 1330 μ , first tarsal segment 58 μ , second tarsal segment 119 μ .

Abdomen. — Abdomen marginally and dorsally presumably almost colourless; tergite VIII with four hairs plus one hair more laterally; hairs dorsally on segment IV, 14 μ long, ventral hairs 34 μ . Siphunculi (fig. 27) darker to the end, with almost straight sides, gradually tapering to the end, the base 2.7-3.1 times wider than the narrowest distal diameter, with a few imbrications, just behind the rim 2-4 striae with some interconnections, the rim about 1.3 times wider than the narrowest distal diameter; length of siphunculi 470-560 μ , 0.16-0.20 times as long as the body and 0.77 times as long as the width of the head across the eyes. The siphunculi are 1.1 times longer than the cauda. Cauda darker than the siphunculi, 420-520 μ long, 0.14-0.18 times as long as the body, and 0.71 times as long as the width of the head across the eyes, tapering gradually to the rounded tip, or at the basal 1/4 more narrow than in the middle, dorsally with imbrications provided with fine spinulae, ventrally with coarser spinulae; with nine hairs, the longest 85 μ long, but other hairs not markedly shorter. Subanal plate with 17 hairs, the longest 85 μ . Subgenital plate with two anterior hairs and 13 posterior hairs, 40 μ long, the posterior 22 μ , Gonapophyses each with five hairs which are 28 μ long.

Alate viviparous female. — Colour in life (Van der Goot, 1917): Head and thorax black. Abdomen dirty brown. Eyes black. Antennae whitish, the ends

of the segments black. Legs pale yellowish. Tarsi and distal end of femora and tibiae black. Siphunculi pale brownish yellow with black distal end. Cauda black.

Macerated specimens (described from four fragmentary specimens (paralectotypes)): Body length 2.5-2.6 mm.

Head. — Width of head across eyes 510-540 μ . Frontal median tubercle indistinct, with two acute hairs, 16-20 μ long. Antennal tubercles diverging, the mesal sides somewhat convex, protruding about 45 μ , slightly wrinkled, dorsally and ventrally without spinulae, each with three hairs; rest of head dorsally smooth, with one pair of hairs posterior to the frontal hairs, a second pair more posterior and lateral, and four interocular hairs, all acute or blunt, the longest 40-48 μ ; head ventrally smooth, one hair in the middle of the antennal bases, four interocular hairs. Antennae 6-segmented, 3.5 mm long, 1.35 times as long as the body; antennal segments darker at the distal ends. Antennal segments I and II dorsally smooth, ventrally with some imbrications and spinulae. Antennal segment III (fig. 28) slightly imbricated, with 25-30 non-ciliated circular rhinaria over almost the whole length; segments IV-VI heavily imbricated, IV (fig. 29) with 0-5 rhinaria, V without secondary rhinaria; primary rhinarium on segment V ciliated. Antennal hairs acute or blunt, longest hairs on segment III 16 μ . Length of III 680-760 μ , of IV 520-580 μ , of V 530-580 μ , base of VI estimated to be about 180 μ , and processus terminalis 750-800 μ . Antennal segment III is 1.2-1.3 times as long as IV and V; the processus terminalis is 4.2 times as long as the base of the segment, and 1.1 times as long as III. The rostrum reaches a little beyond the hind coxae, ultimate rostral segment colourless with brown tip, 156-169 μ long, estimated to be about 1.4 times the length of the second tarsal segment of the hind leg, longest distal hairs 44-50 μ , with four accessory hairs; stylets 830-910 μ long. Eyes compound, triommatidia brown.

Thorax. — Prothorax slightly wrinkled with a small marginal tubercle, and six marginal and dorsal hairs as in apterae. Hind wing with two oblique veins.

Abdomen. — Marginal sclerites brown, tergites presumably colourless. Hairs on tergite IV 16-18 μ long, ventral hairs 28-36 μ . Siphunculi darker to the distal end, with almost straight sides, gradually tapering to the end, the base 2.2-2.5 times wider than the narrowest distal diameter, with a few imbrications, just behind the rim 2-4 striae with some interconnections, the rim 1.2-1.3 times wider than the narrowest distal diameter; length of siphunculi 360-490 μ , 0.17-0.19 times as long as the body, 0.77 times as long as the width of the head across the eyes, and 1.5 times longer than the cauda. Cauda darker than the siphunculi, 240-300 μ long, about 0.12 times as long as the body, and 0.6 times as long as the width of the head across the eyes, tapering gradually

to the rounded tip or at basal 1/4 more narrow than in the middle, dorsally with imbrications provided with fine spinulae, ventally with coarser spinulae; with 6-8 hairs, the longest 70-80 μ long, but other hairs not markedly shorter. Subanal plate with 17-18 hairs, the longest 80 μ . Subgenital plate with two anterior and 13-15 posterior hairs, the anterior hairs 30-36 μ , the posterior 18-20 μ long. The middle gonapophysis with 5-7 hairs, the lateral each with 4-6 hairs which are 24-28 μ long.

Host plant records. — See introductory section (p. 55).

DISCUSSION

The reddish brown colour and the very long black cauda together with the relatively short siphunculi make it easy to recognize the species *S. citricola*, in life. The yellow colour of body and the cauda of *S. coffeae* in life must be sufficient to distinguish that species from the other two. It still has to be proved whether the light reddish brown colour of the apterae of *S. symplocois* is sufficient to distinguish this species from the darker coloured *S. citricola*. *S. symplocois* has a slightly shorter cauda in proportion to the length of the siphunculi and the width of the head across eyes than *S. citricola*. This, and the number of hairs of the cauda in apterae and alatae, and the number of rhinaria of antennal segment III in the alatae are sufficient reasons to uphold *S. symplocois* and *S. citricola* as valid species.

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