

# BRAZILIAN APHIDOIDEA: II. ACCOUNTS OF THE LACHNINAE, CHAITOPHORINAE, GREENIDEINAE, ANOECIINAE, AND HORMAPHIDINAE<sup>1</sup>

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**ABSTRACT** - Keys are provided for the identification of the tribes, genera and species of Brazilian Lachninae, Chaitophorinae, Greenideinae, Anoeciinae and Hormaphidinae. Host plant and distribution data are given for each species.

**Index terms:** Brazilian aphids, identification keys, host plants, check list of genera and species, distribution.

## AFÍDIOS BRASILEIROS: II. SUBFAMÍLIAS LACHNINAE, CHAITOPHORINAE, GREENIDEINAE, ANOECIINAE E HORMAPHIDINAE

**RESUMO** - Chaves para a identificação das tribos, gêneros e espécies de afídeos das subfamílias Lachninae, Chaitophorinae, Greenideinae, Anoeciinae e Hormaphidinae, que ocorrem no Brasil, são fornecidas. Dados sobre as hospedeiras e a distribuição geográfica são também apresentados.

**Termos para indexação:** Aphidoidea, chaves para identificação, hospedeiros, distribuição geográfica.

## INTRODUCTION

A previous paper (Costa et al. 1993) provided keys for the identification of the families and subfamilies of Aphidoidea known from Brazil and discussed the family Phylloxeridae and contained figures 1-67. Host plant and geographical distribution data were also included. In this paper the sub-families Lachninae, Chaitophorinae, Greenideinae, Anoeciinae and Hormaphidinae are discussed. The Drepanosiphinae, Aphidinae and Pemphiginae will be dealt with in future parts. The technique, data presentation and the figures mentioned in the text are to be seen in the already referred paper.

## LACHNINAE

Only two of the 3 tribes of Lachninae are known from South America, and only *Tuberolachnus* of the Lachnini, which are most palaeartic. Two genera of Cinarini, *Eulachnus* and *Cinara* are represented in Brazil. The tribe Tramini recognizable by the hind tarsi being much longer than the fore- and mid-tarsi, and more than half the length of the hind tibiae, is neither known from Brazil nor any other part of the Southern Hemisphere. However as they are inconspicuous, living on the roots of plants, mostly Compositae, they may have been overlooked.

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In recent years a number of species of Lachninae have caused forestry problems in various parts of the world, including *Cinara cronartii* and *Eulachnus rileyi* on *Pinus*, *Cinara thujafilina* on *Thuja orientalis* and *C. cupressi* on *Cupressus*.

#### Key to Brazilian genera of Lachninae

- 1 (2) Abdomen of apterae bearing a single large dark, dorsal median tubercle (Fig. 52), which is also present in alatae although smaller and paler. First tarsal segments without dorsal hairs, about 0.33 as long as the second tarsal segment, ultimate rostral segment blunt (Fig. 47) and with 4 or more accessory hairs. Rather large aphids, body length 4.8-5.8 mm. On *Salix*: ..... *Tuberolachnus*.
- 2 (1) Abdomen (apterae and alatae) without a dorsal median tubercle. First tarsal segments with (Fig. 51) or without dorsal (Fig. 31) hairs, 0.33-0.50 as long as the second tarsal segment, ultimate rostral segment acute (Fig. 48) or if blunt (Fig. 50) without or with only 1 or 2 accessory hairs. Body length of Brazilian species 1.7-4.2 mm. On Conifers, Pinaceae and Cupressaceae.
- 3 (4) Ultimate rostral segment blunt, about twice as long as its basal width, bearing 0-2 accessory hairs (Fig. 50). First tarsal segments elongate, bearing a pair of dorsal hairs (Fig. 51) in addition to the ventral hairs and about half as long as the second tarsal segment. Antennal segment VI bearing a large isolated accessory rhinarium. Siphunculi mere rings. Elongate aphids feeding on *Pinus* needles. .... *Eulachnus*.
- 4 (3) Ultimate rostral segment distinctly divided into segments 4 and 5, the 4th segment bearing 4-8 accessory hairs (Fig. 48). First tarsal segments with 1-9 (*Cinarella*, Fig. 54) or without (Fig. 31) (*Cupressobium*) dorsal hairs, 0.33-.50 as long as the second tarsal segment. Antennal segment VI without an isolated accessory rhinarium. Siphunculi placed on dark hair-bearing cones (Fig. 16). More rounded aphids feeding on the bark of various Conifers including *Pinus*. .... *Cinara*.

#### Genus *Cinara* Curtis, 1835

Only three of the 200 mostly brownish, hairy, ant attended Conifer-feeding aphids constituting the genus *Cinara* world wide are yet recorded from Brazil. About 150 of the species were described from North America and it is likely that further species will be found on introduced Coniferae. A genetic diagnosis, synonymy and details of biology, taxonomy and systematics can be found in the account of British *Cinara* given by Eastop (1972).

#### Key to the apterae viviparae of Brazilian species of *Cinara* Curtis

- 1 (4) Eyes stalked (Fig. 53). Many of the dorsal abdominal hairs arising from pigmented sclerites with a diameter 4 or more times that of the hair bases. Primary rhinaria with an evident chitinized rim (Fig. 55). Processus terminalis normally bearing 4 or 5 subapical setae. Third antennal segment 3.4-6.0 times as long as the longest hair borne on the segment and usually bearing a rhinarium near the apex. Hind tibiae 15-23 times long as the longest hair borne on them. Fifth antennal segment

- 1.0-1.5 times as long as the sixth antennal segment. Second segment of hind tarsus 1.7-2.2 times as long as the first segment which is 3.8-5.0 times as long as its own basal diameter. On *Pinus*. (Subgenus *Cinarella*).
- 2 (3) Fourth rostral segment 250-290  $\mu\text{m}$  long. 1.3-1.7 times as long as the first segment of hind tarsus, and 1.6-2.2 times as long as the longest hair on the eighth abdominal tergite. Second segment of hind tarsus 1.1-1.6 times as long as the fourth rostral segment. Processus terminalis mostly with 4 (60%) or 5 (35%) subapical hairs. .... *C. maritimae*.
- 3 (2) Fourth rostral segment 150-210  $\mu\text{m}$  long. 0.8-1.2 times as long as the first segment of hind tarsus, and 0.7-1.7 times as long as the longest hair on the eighth abdominal tergite. Second segment of hind tarsus 1.7-2.4 times as long as the fourth rostral segment. Processus terminalis usually with only 4, very rarely (3-4%) with 5 subapical hairs.....*C. piniiformosana*.
- 4 (1) Eyes sessile (Fig. 56). Dorsal abdominal hairs not arising from pigmented sclerites or if there are small pigmented areas at the bases of some hairs their diameter is less than 3 times that of the hair bases. Primary rhinaria without a chitinized rim (Fig. 17). Processus terminalis normally bearing only 3 subapical hairs. Third antennal segment 1.6-2.5 times as long as the longest hair borne on the segment and usually without rhinaria. Hind tibiae 5.9-11.0 times long as the longest hair borne on them. Fifth antennal segment 0.7-1.1 (usually 0.8-1.0) times as long as the sixth antennal segment. Second segment of hind tarsus 2.6-3.3 times as long as the first segment which is only 2.0-2.7 times as long as its own basal diameter. On Cupressaceae. (Subgenus *Cupressobium*).
- 5 (6) Hind tibiae dark only at the apex, the proximal three quarters pale. Processus terminalis 18-35  $\mu\text{m}$  long and 11-20%, exceptionally up to 28% of the length of sixth antennal segments. Body length 1.7-3.5 mm and antennal segment III - base of VI measuring 230-330; 85-150; 120-170; 110-170  $\mu\text{m}$  long, respectively. Fourth rostral segment 140-180  $\mu\text{m}$  long, second segment of hind tarsus 200-280  $\mu\text{m}$  long. Longest hairs on third antennal segment, third abdominal tergite and eighth abdominal tergite 110-170, 100-180 and 120-190  $\mu\text{m}$ , respectively. Yellow brown or sometimes darker aphids on *Callitris*, *Chamaecyparis*, *Libocedrus* and *Thuja*. .... *C. thujaefilina*.
- 6 (5) Hind tibiae dark at base and apex, but with a paler area from about the basal 1/5 to 1/2 its length. Processus terminalis 38-75  $\mu\text{m}$  long. 25-35% of the length of segment VI, and antennal segments III - base of VI measuring 360-580; 140-280; 160-270; 140-240  $\mu\text{m}$  long, respectively. Fourth rostral segment 160-240  $\mu\text{m}$  long, second segment of hind tarsus 260-350  $\mu\text{m}$  long. Longest hairs on third antennal segment, third abdominal tergite and eighth abdominal tergite 190-250; 180-230 and 190-260  $\mu\text{m}$ , respectively. Dark brown aphids on *Cupressus* and *Juniperus*. .... *C. fresai*.

Key to the alatae viviparae of Brazilian *Cinara* Curtis

- 1 (4) Many of the dorsal hairs arising from usually pigmented scleroites with a diameter 4 or more times that of the hair bases. Primary rhinaria with an evident chitinised rim (Fig. 55). Processus terminalis bearing 4 or 5 subapical hairs. Third antennal segment 4.2-8.1 times as long as the longest hair (60-120  $\mu\text{m}$ ) borne on it. Hind tibia 13-16 times as long as the longest hair (130-150  $\mu\text{m}$ ) borne on it. Second segment of hind tarsus 1.7-2.2 times as long as the first segment which is 3.5-5.1 times as long as its own basal width (Fig. 54). Fifth antennal segment 1.1-1.7 times as long as the sixth. On *Pinus* spp.
- 2 (3) Fourth rostral segment 240-280  $\mu\text{m}$  long, and 1.8-2.4 times as long as the fifth rostral segment and 1.2-1.6 times as long as the first segment of the hind tarsus and 1.5-2.1 times as long as the longest hair on the eighth abdominal segment which is 1.7-1.9 times as long as the longest hair on the third antennal segment. Ultimate rostral segment (segments 4 + 5) 1.0-1.1 times as long as hind tarsus 2, which is 1.3-1.5 times as long as the fourth rostral segment alone. Third antennal segment 5.6-8.1 times as long as the longest hair borne on it and 1.2-1.3 times as long as the diameter of the siphuncular cone and 1.5-2.2 times as long as the fourth rostral segment. Longest hair on hind tibiae 130-150  $\mu\text{m}$  long and 1.5-2.1 times as long as the longest hair on the third antennal segment. Fourth and fifth antennal segments 0.8-1.1 and 1.1-1.3 times as long as the sixth antennal segment respectively (Fig. 55). Base antenal VI 0.6-0.8 times as long as fourth rostral segment. .... *C. maritimae*.
- 3 (2) Fourth rostral segment 170-180  $\mu\text{m}$  long, and 1.5-1.7 times as long as the fifth rostral segment and 1.0-1.1 times as the first segment of the hind tarsus and 0.8-1.2 times as long as the longest hair on the eighth abdominal segment which is 1.3-1.4 times as long as the longest hair on the third antennal segment. Ultimate rostral segment (segments 4 + 5) 0.7-0.8 times as long as hind tarsus 2, which is 2.0-2.1 times as long as the fourth rostral segment alone. Third antennal segment 4.2-5.1 times as long as the longest hair borne on it and 1.4-1.5 times as long as the diameter of the siphuncular cone and 1.0-1.1 times as long as the fourth rostral segment. Longest hair on hind tibiae 140-150  $\mu\text{m}$  long and 1.3-1.4 times as long as the longest hair on the third antennal segment. Fourth and fifth antennal segments 1.1-1.3 and 1.3-1.7 times as long as the sixth antennal segment respectively. Base antennal VI 1.0-1.1 times as long as fourth rostral segment. .... *C. piniformosana*.
- 4 (1) Scleroites absent or less than twice the diameter of the hair bases. Primary rhinaria without a chitinised rim (Fig. 17). Processus terminalis usually bearing only 3 subapical hairs, occasionally with 4. Third antennal segment 1.8-3.0 times as long as the longest hair (120-250  $\mu\text{m}$ ) borne on it. Hind tibia 5.6-8.6 times as long as the longest hair (140-360  $\mu\text{m}$ ) borne on it. Second segment of hind tarsus 2.6-3.5 times as long as the first segment which is 1.8-2.9 times as long as its own basal width (Fig. 31). Fifth antennal segment 0.8-1.1 times as long as the sixth. On Cupressaceae.

- 5 (6) Hind tibiae 1.6-2.1 mm long and 6.3-8.6 times as long as the longest hair (140-310  $\mu\text{m}$ ) borne on it. Tibiae mostly pale on the proximal three quarters and dark only at the apex, rarely completely dark brown. Processus terminalis 10-30  $\mu\text{m}$  long, 8-16% of the total length of the sixth antennal segment (Fig. 32) Third antennal segment 300-450  $\mu\text{m}$  long, 1.0-1.9, but rarely less than 1.3 times the diameter of the siphuncular cone and 2.0-3.0 times as long as the longest hairs (120-200  $\mu\text{m}$ ) borne on it. Fifth antennal segment 160-190  $\mu\text{m}$  long. Fourth rostral segment 130-180  $\mu\text{m}$ ; 1.2-1.8 times as long as the first segment of the hind tarsus and 1.0-1.2 times as long as the longest hair on the eighth abdominal tergite. Fifth abdominal tergite bearing 38-60 hairs between the siphuncular cones. Mostly on *Thuja orientalis*, more rarely on other Cupressaceae *C. thujaifilina*.
- 6 (5) Hind tibiae 1.6-2.6 mm long and 5.6-7.7 times as long as the longest hair (270-360  $\mu\text{m}$ ) borne on it. Tibiae black at base and apex and brown in the middle. Processus terminalis 35-75  $\mu\text{m}$  long, 14-28% of the total length of the sixth antennal segment. Third antennal segment 390-560  $\mu\text{m}$  long, 0.8-1.6, but rarely more than 1.3 times the diameter of the siphuncular cone and 1.8-2.4 times as long as the longest hairs (190-250  $\mu\text{m}$ ) borne on it. Fifth antennal segment 200-290  $\mu\text{m}$  long. Fourth rostral segment 140-210  $\mu\text{m}$ , 1.6-2.1 times as long as the first segment of the hind tarsus and 0.6-0.9 times as long as the longest hair on the eighth abdominal tergite. Fifth abdominal tergite bearing 60-70 hairs between the siphuncular cones. Mostly on *Cupressus* and *Juniperus* spp. more rarely on other Cupressaceae..... *C. fresai*.

*Cinara (Cinarella) maritimae* (Dufour, 1833)

Figs. 16, 53-55

First recorded from Brazil as *Cinara excelsae* on *Pinus elliotii* and caught in suction trap in the State of São Paulo (Costa et al. 1972).

Collection data:

DISTRITO FEDERAL: Brasília, *Pinus* sp., 13. viii. 1991 (V.F. Eastop).

SÃO PAULO: Campinas, *P. elliotii*, 28. xi. 1969; *Pinus* sp., 21. v.1969 (C.L. Costa); suction traps: vi-vii. 1969 (C.L. Costa); Piracicaba, *Pinus elliotii*, 26. vi. 1968 (C.L. Costa); 25. vi. 1968 (E. Berti Filho); Suzano, *Pinus densiflora* + *P. thumbergii*, 17. viii. 1971 (F. Mariconi); *Pinus caribae bahamensis*, 25. viii. 1971 (A. Zamith).

RIO GRANDE DO SUL: São Sepe, *Pinus elliotii*, 22. xi. 1972 (V.F. Eastop); Santa Maria, 28. viii. 1970 (D. Link).

Distribution in South and Central America: Argentina and Chile.

*Cinara (Cinarella) piniformosana* (Takahashi, 1923).

Collection data:

SÃO PAULO: Campinas, water trap: v-vi. 1968 (C.L. Costa); Suzano, *Pinus densiflora* + *P. thumbergii*, 27. viii. 1967 (F. Mariconi); São Carlos, *Pinus* spp. ? (F. Mariconi); Suzano, x. 1971 (student).

Distribution in South and Central America: Argentina, Chile and Colombia.

*Cinara (Cupressobium) thujafilina* (del Guercio, 1909)  
Figs. 17, 18, 31, 32, 48, 56

Collection data:

RIO GRANDE DO SUL: Santa Maria, *Cupressus*, 19. ix. 1970.

Distribution in South and Central America: Chile.

*Cinara (Cupressobium) fresai* Blanchard, 1939

This widespread species has been recorded from Argentina, Chile and Colombia and although not yet seen, it may have already been introduced to Brazil.

Genus *Eulachnus* del Guercio, 1909

Only one species is known from Brazil, probably *Eulachnus rileyi* from *Pinus* sp. in Distrito Federal and Rio Grande do Sul.

The relationship with other members of the subfamily Lachninae are shown in the key of the page 270.

*Eulachnus rileyi* (Wilson, 1911)  
Figs. 50, 51

Collection data:

DISTRITO FEDERAL: Brasilia, *Pinus* sp., 11. vi. 1991 (V.F. Eastop)

RIO GRANDE DO SUL: Santa Maria, *Pinus* sp., 28. viii. 1970 (D. Link).

Distribution in South and Central America: Argentina.

Comments: body brown but covered with bluish wax dust and differing from northern European *rileyi* by shorter antennal and body hairs and by the range of relative proportions of some appendages, perhaps a temperature effect.

Genus *Tuberolachnus* Mordwilko, 1909

The widely distributed species, *Tuberolachnus salignus* (Gemlin) on *Salix* is the only species recorded from Brazil. The relationship of the species with other members of subfamily Lachninae can be seen in the key of the page 270.

*Tuberolachnus salignus* (Gmelin, 1788)

Figs. 47, 52

Recorded from Brazil (Lima, 1942) as *Lachnus salignus* (Gmelin, 1788) (of which *L. punctatus* Burmister, 1835 was considered a synonym). Collected in São Paulo (Costa et al., 1972) and now recorded from Rio Grande do Sul on *Salix babylonica*.

Collection data:

RIO GRANDE DO SUL: Caçapava do Sul. *Salix babylonica*, 24. x. 1970 (D. Link).

SÃO PAULO: Campinas, on Mrs. Costa's white shirt, 14. vii. 1968 (C.L. Costa).

Distribution in South and Central America: Argentina, Costa Rica, Falkland Is., Peru and Uruguay.

### CHAITOPHORINAE

Only *Sipha flava* Forbes, 1884, a native American species is known from Brazil. It has been recorded from São Paulo on sugarcane (Costa, 1957). *Panicum maximum* and collected in water traps and as vagrant on tomato plants (Costa et al., 1972).

Genus *Sipha* Passerini, 1860

*Sipha flava* Forbes, 1844

Fig. 46

*Sipha carrerai* E.E. Blanchard, 1939 is a synonym

This species is easily distinguished from other aphids on Gramineae and Cyperaceae by the yellow colour in life, the 5-segmented antennae, the truncate siphunculi and knobbed cauda. Secondary rhinaria are absent from the apterae viviparae and in the alatae they are present only on the third antennal segment (1-6 in the Brazilian specimens examined), distributed on the median one third of the segment.

Collection data:

DISTRITO FEDERAL: Brasília, water trap, i. 1974; v-vi. 1975. (C.L. Costa).

PARANÁ: Curitiba, grass, 23-25.x.1972; Matelandia, grass, 09.xii.1972; Piraquara Monastery, grass, 17.x.1972; Ponta Grossa, *Setaria sphacelata*, 18.x.1972 (V.F. Eastop).

PERAMBUCO: Barra de Guabiraba, *Digitaria decumbens* (H. de Camargo-C.L. Costa)

RIO GRANDE DO SUL: "ex cult", 12.xii.1972 (V.F. Eastop); Pelotas, wheat, Autumn, 68 (V.R. Caetano); Santa Maria, *Panicum* sp. 7.v.1971 (D. Link); *Pennisetum clandestinum* + *Digitaria*, 25.xi.1970; yellow pan water trap by wheat & oats, ix-x. 1971 (D. Link).

SÃO PAULO: Campinas. *Pennisetum clandestinum*, 6.v.69 (C.L. Costa); *Panicum maximum*, 14.vii.1968 (S. Matsuoka - C.L. Costa); vagrants on tomato plants, v-vi. 1968 (C.L. Costa); water trap, v-vi. 1968; vii-viii. 1968; 16-18.iv.1971 (C.L. Costa); Tatuí, *Oryza sativa* (roots), 30. iv. 1971 (C.J. Rossetto - C.L. Costa).

Distribution in South and Central America: Argentina, Barbados, Colombia, Costa Rica, Cuba, Guadeloupe, Guatemala, Jamaica, St. Kitts.

### GREENIDEINAE

Only one aphid species belonging to the subfamily Greenideinae, *Brasilaphis bondari* Mordvilko, 1930, is known from Brazil.

Genus *Brasilaphis* Mordvilko, 1930.

This is a monotypic genus and the sole species is probably native to Brazil, but the host plant is not known. The available specimens are: (a) two immatures labeled as larvae I and larva III (Paratypes) by Mordvilko, collected in the state of Bahia by G. Bondar; neither the host plant nor the locality of collection are indicated on the label; (b) one alate viviparous female caught in a water trap in Campinas, SP, 11-12. xi. 1970 by C.L. Costa (described below).

*Brasilaphis bondari* Mordvilko, 1930

Fig. 9

Alata vivipara

Length of body 1.7 mm. Antennae 5-segmented bearing 69 and 64 secondary rhinaria on antennal segment III; 7 and 5 on IV and V without secondary rhinaria. The antennal segments measuring: III, 0.661 and 0.653 mm; IV, 0.238 and 0.232 mm; V-base, 0.093 and 0.093 mm; and V-processus terminalis, 0.113 and 0.113 mm. Ultimate rostral segment without accessory hairs (0.090 mm long and 0.077 mm wide at the base) shorter than the second segment of hind tarsal segment which measured 0.096 mm. The shoe-shaped first tarsal segment bears 5 ventral hairs on all legs. The siphunculi are slightly swollen, 0.309 mm long with 3-4 hairs distributed along the external surface and 3 hairs in a ring near the apex, just before the small, but distinct flange. One pair of tubercles, measuring 0.077 and 0.083 mm, are present on the dorsum of abdomen behind the siphunculi. The media of forewings is once-branched and the hind wings are greatly reduced with the hamuli at the tip of wings. The sclerotization of the abdomen, which appears hairless, is reduced to transverse bands at least in the posterior dorsal segments.

Collection data:

BAHIA: G. Bondar.

SÃO PAULO: Campinas, water trap III, 11-12. xi. 1970 (C.L. Costa).

Distribution in South and Central America: Peru.



## ANOECIINAE

Only one species of Anoeciinae is known to occur in Brazil, *Anoecia cornicola*, of which only the alate viviparous form has been seen.

Genus *Anoecia* Koch, 1857

The sole Brazilian species has 6-segmented antennae and round secondary rhinaria. It may be distinguished from a similar North-American species, *Anoecia oenotherae*, which might occur here, by the following key:-

- 1 (2) Solid patch on the dorsum of abdomen but with unsclerotized cuticle at the margins of the abdomen. Third antennal segment 1.9-2.6 times as long as the ultimate rostral segment which is 0.70-0.85 times the second segment of hind tarsus. Antennal III 2.35-2.85 times as long as antennal V. Secondary rhinaria varying in size: usually 1 and often 2 very minute in size; rarely 1 fairly large (1.5-2.0 times the diameter of the commonest rhinarium) and distributed: antennal III, 4-9; antennal IV, 1-2; antennal V, 0-1 and VI, 0. .... *A. cornicola*.
- 2 (1) Sclerotization of the dorsum of abdomen reduced to cross bands on IV-VII (sometimes only on VI-VII) tergites. Third antennal segment 1.4-2.1 times as long as the ultimate rostral segment, which is 0.89-1.05 times the second segment of hind tarsus. Antennal III (1.6) 2.0-2.4 (-2.6) as long as antennal V. Secondary rhinaria uniform in size and distributed: antennal III, 0-3; antennal IV, 1; antennal V and VI, none. .... *A. oenotherae*.

*Anoecia cornicola* (Walsh, 1863)

Figs. 33-36

Collection data:

SÃO PAULO: Campinas, vagrants on tomato plants, v-vi, 1968; water trap, 14-16, iv, 1967; suction trap, v-vi, 1968; vi-vii, 1969 (C.L. Costa).

Distribution in South and Central America: only known from Brazil.

## HORMAPHIDINAE

Three species of Hormaphidinae are recorded from Brazil, all belonging to genus *Cerataphis* of the tribe Cerataphidini. They may be distinguished by the key which follows. However the true situation may be more complicated than this and further samples from different palms, different orchids and different localities are needed for clarification. Records of *Cerataphis lataniae* from Brazil may really be based on misidentified specimens of the other two species.

Key to the Brazilian species of *Cerataphis*.

## Apterae

- 1 (2) Cauda bearing 5-9 hairs. Underside of head bearing at least one pair of thick, dagger-shaped hairs. Ultimate rostral segment about 0.75 of hind tarsus 2. On various palms ..... *C. variabilis*.
- 2 (1) Cauda bearing 10-16 hairs. Underside of head with only fine hairs.
- 3 (4) Ultimate rostral segment only 0.67-0.75 as long as hind tarsus 2. On palms. .... *C. lataniae*.
- 4 (3) Ultimate rostral segment almost equal in length to hind tarsus 2. On orchidaceae. .... *C. orchidearum*.

## Alatae

- 1 (2) Antennal III 3.0-3.5 times as long as the ultimate rostral segment which is 80-95  $\mu\text{m}$  long and is 0.87 to almost as long as hind tarsus 2. Hind tibiae 1.50-1.75 times antennal III: Longest hair near siphunculi 20-30  $\mu\text{m}$  long, about equal in length to the diameter of the siphuncular porus. Cauda bearing about 14 hairs. On Orchidaceae. .... *C. orchidearum*.
- 2 (1) Antennal III 5-8 times as long as the shorter, 50-70  $\mu\text{m}$  long, ultimate rostral segment which is 0.67-0.80 times as long as hind tarsus 2. Hind tibiae 0.9-1.4 times as long as antennal III. Longest hair near siphunculi 10-30  $\mu\text{m}$  long, 0.4-0.7 as long as the diameter of the siphuncular porus. Cauda bearing 4-13 hairs. On palms.
- 3 (4) Cauda bearing 4-8 hairs. Hind tibiae 1.0-1.4 times as long as antennal III. Longest hairs near siphunculi 15-30  $\mu\text{m}$  long, 0.5-0.7 as long as the diameter of siphuncular porus. .... *C. variabilis*.
- 4 (3) Cauda bearing about 10 hairs. Hind tibiae 0.9-1.1 times as long as antennal III. Longest hairs near siphunculi 10-15  $\mu\text{m}$  long and 0.4-0.6 of the diameter of siphuncular porus. .... *C. lataniae*.

Genus *Cerataphis* Lichtenstein, 1882

*Cerataphis lataniae* (Boisduval, 1867)

Recorded from Brazil, eg. Mariconi (1958 pp 424-425, 430) but records are probably based on *C. orchidearum* and/or *C. variabilis*.

*Cerataphis palmae* Baehr, 1908 is a synonym.

*Cerataphis orchidearum* (Westwood, 1879),  
Figs. 37, 38, 66

*Cerataphis brasiliensis* Hempel, 1901 is synonym.

Collection data:

BRASIL. *Stenocoryne secunda* (Fritz Dungs, via H.K. Airy-Shaw, Kew Gardens), 12.xi. 1967.

DISTRITO FEDERAL: Brasília, cultivated orchid, 13. v. 1991 (J. Sinclair).

Distribution in South and Central America: Colombia, Jamaica, Br. Guiana, Puerto Rico.

*Cerataphis variabilis* Hille Ris Lambers, 1953

Figs. 39-43

Placed as a synonym of *C. palmae* (Ghesquière, 1934) by Eastop & Hille Ris Lambers, 1976, but later (Remaudière, et al. 1987) regarded as the valid name.

Collection data:

DISTRITO FEDERAL: Brasília, *Cocos nucifera*, 6. v. 1989 (C.L. Costa); *Butia* sp., 17. vi. 1991 (Lace M. Breyer).

MATO GROSSO: 12°50'S 51°47'W, leaf of small spiny palm, attended by ants, 17. ix. 1968 (O.W. Richards).

RIO DE JANEIRO: Rio de Janeiro, *Pandanus ? utilis* fruit, 18. ix. 1945 (Berry Parker - Louise M. Russell).

Distribution in South and Central America: Belize, Br. Guiana, Colombia, Dominica, Ecuador, Granade Cayman Is., Guatemala, Surinam, Trinidad.

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