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SECRETARIA DA AGRICULTURA — SÃO PAULO-BRASIL

NOTES ON THE NEOTROPICAL AGROMYZIDAE
(DIPTERA). 1

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The material dealt with in this paper is from Brazil. Five new species are described, including three striking yellow and black species in the genus *Phytobia* Lioy s.s. in the *xanthophora* (Schiner) group.

The generic grouping of Hendel's conglomerate genus *Dizygomyza* (= *Phytobia* Lioy, *sensu* Frick) has recently been revised by Nowakowski (1962) and the changes affecting neotropical species are recorded.

During the past three years I have seen many species bred by Mr. Carl E. Stegmaier Jr. in the Miami area of Florida, which clearly have neotropical rather than nearctic affiliations. These species will be discussed shortly in a separate paper.

Genus *Japanagromyza* Sasakawa*Japanagromyza* sp.

Brazil: São Paulo, Praia Grande, Faz. Rondônia, 1 ♀, Jan. 1945 (M. Carrera).

This species is close to the series identified by Spencer (1963: 304) as *Japanagromyza* sp. (Peru). There are clearly many species in this genus awaiting description in South America. The male genitalia provide the most satisfactory means of positive identification.

Genus *Ophiomyia* Braschnikov*Ophiomyia spicatae* Spencer

Ophiomyia spicatae Spencer, 1963: 329.

Brazil: Rio Grande do Sul, Pôrto Alegre, 5 ♂, 6 ♀, bred from stem-mines on *Baccharis spicata* Hieron (F. D. Bennett).

The aedeagus (Figs. 1, 2) of this aberrant species is entirely typical of normal species in the genus.

Genus *Cerodontha* Rondani

Nowakowski (1962) has now associated the sub-genera *Dizygomyza* Hendel (= *Poemyza* Hendel) and *Icteromyza* Hendel of the artificial genus *Dizygomyza* Hendel with the natural genus *Cerodontha* Rondani.

The neotropical species now transferred to this genus are given below.

***Cerodontha (Dizygomyza) andensis* (Spencer), comb. nov.**

Phytobia (Dizygomyza) andensis Spencer, 1963.

***Cerodontha (Dizygomyza) angulata* (Loew), comb. nov.**

Agromyza angulata Loew, 1869; cf. Spencer, 1963: 335.

***Cerodontha (Dizygomyza) inepta* (Spencer), comb. nov.**

Phytobia (Poemyza) inepta Spencer, 1963.

***Cerodontha (Icteromyza) longipennis* (Loew), comb. nov.**

Agromyza longipennis Loew, 1869; cf. Frick (1952: 393).

Brazil, São Paulo, Salesópolis (Estação Biológica de Boracéia), 2 ♂, 2 ♀, 14.VIII.1947 (Rabello, Travassos F. & Lane).

This is the first record of this species for Brazil; it was hitherto known from Chile and North America and was unfortunately omitted from the author's synopsis of Neotropical Agromyzidae (1963).

***Cerodontha (Dizygomyza) nitidiventris* (Malloch), comb. nov.**

Agromyza nitidiventris Malloch, 1934.

Phytobia (Dizygomyza) nitidiventris (Malloch), Spencer, 1963.

Genus *Phytobia* Lioy

Frick (1952: 390) treated *Phytobia* s.s. as a sub-genus of *Phytobia* Lioy, following Hendel (1931-36:22). Nowakowski (1962) split up the artificial genus *Phytobia* Lioy sensu, Frick (= *Dizygomyza* Hendel), upgrading to full generic rank *Amauromyza* Hendel, *Calycomyza* Hendel and also *Phytobia* s.s. The species in *Phytobia* are large, the larvae boring in the cambium of twigs of young trees. In this way they damage the wood and can be of some economic importance.

Only two species have hitherto been known in the Neotropical region, *Phytobia kallima* (Frost) from Panama and *P. xanthophora* (Schiner), cf. Spencer (1963: 333). Three further species are now described and a key is given below for the identification of the five known neotropical species. No host plants are known for these species.

1. Mesonotum and scutellum entirely black. *kallima* (Frost)
Mesonotum and scutellum partially yellow 2
2. Frons and antennae entirely black 3
Frons brownish-orange in front, antennae similar 4
3. Wings clear *xanthophora* (Schiner)
Wings pictured *rabelloi*, sp. n.
4. Wings clear; black of mesonotum forming two bands laterally
(Fig. 3) *kuhlmanni*, sp. n.
Wings pictured; black of mesonotum not split up into bands
laterally *lanei*, sp. n.

***Phytobia kuhlmanni*, sp. n.**

Head: frons slightly over one and a half times width of eye, not projecting above eye in profile; four unusually long orbital bristles, the lowest one only slightly weaker; orbital setulae very sparse, minute; jowls narrow, deepest in centre below eye, about one-seventh vertical height of eye.

Mesonotum: 3 + 1 dc 3rd and 4th very small each side of suture; acrostichals irregular in some 6 to 8 rows, a few hairs extending to level of 1st dc.

Wing: length in male 3.8, in female 4.2 mm; last section of vein m4 almost two-thirds penultimate.

Legs: mid-tibia with two strong lateral bristles.

Colour: frons black in upper half, brown below, lunule silvery; third antennal segment dark brown; mesonotum mat grey in front, with central rectangular area adjoining scutellum yellow; black of intra-alar area not reaching scutellum and forming two distinct bands divided by narrow strip of yellow (Fig. 3); scutellum largely yellow, without lateral black patches but with faintly grey area adjoining mesonotum; pleura largely bright yellow, pre-sutural bristle on yellow ground, mesopleura black only on front lower margins, sternopleura largely black but distinctly yellow on upper margin; legs black, knees on p1 and p2 narrowly yellow; abdomen largely yellow, with black longitudinal band centrally and tergites partially black laterally, more faintly so in front; wing largely clear but with faint darkening around vein r1; squamae yellowish-grey, fringe black.

Male genitalia: aedeagus as in Figs. 4, 5.

Holotype ♂, Brazil: São Paulo, Cantareira, Nov. 1951; paratype ♀ on same pin (Carrera & d'Andretta); both in coll. Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo.

This species most closely resembles *P. lanei* but is immediately distinguishable by the clear wings, smaller size, weaker 4th dc, longer last section of vein m4, conspicuous lateral black bands on mesonotum and entirely distinct male genitalia.

I have pleasure in naming the species after Dr. M. Kuhlmann who gave me invaluable help with the identification of plants in which I had found leafmines during my visit to São Paulo in July, 1957.

***Phytobia lanei*, sp. n.**

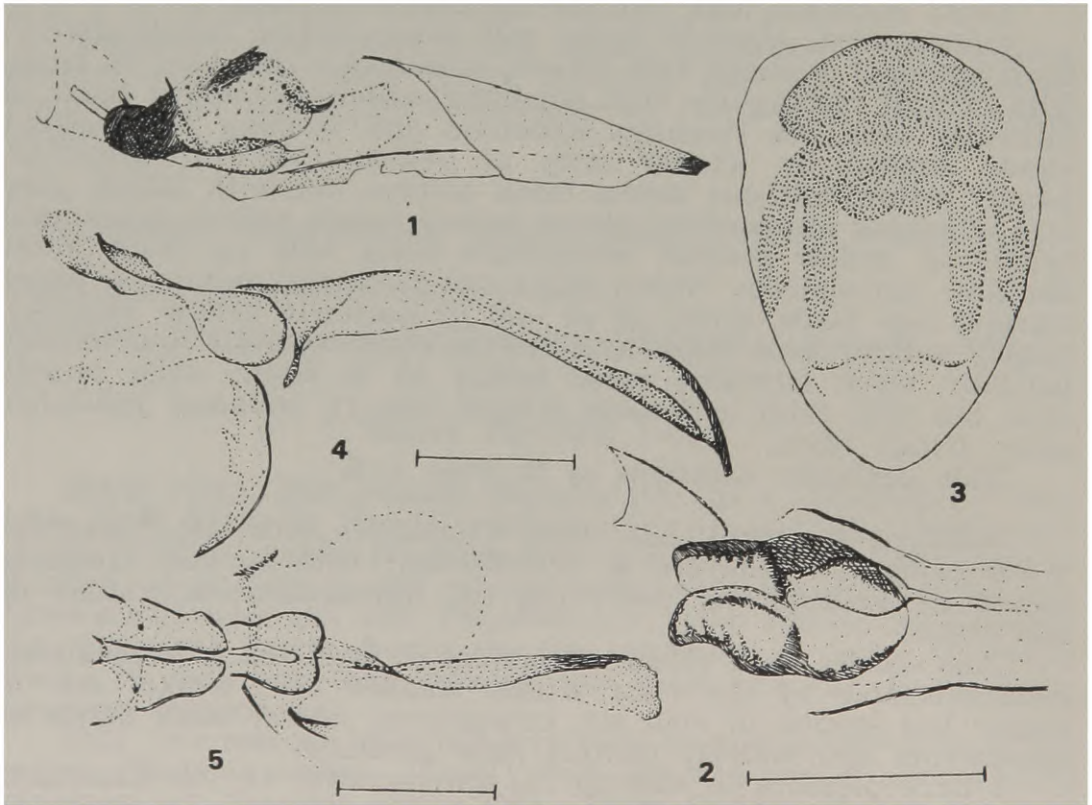
Head: frons one and a half times width of eye, not projecting above eye in profile; frons strong, approximately equal orbital bristles, setulae small, sparse; lunule large, semicircular; cheeks virtually linear, jowls deepest behind, one-eighth vertical height of eye; third antennal segment oval, bearing a patch of irregular spines grouped near base of arista, normally 3 or 4 but varying from 1 to 6.

Mesonotum: 3+1 strong dc, slightly and regularly diminishing in size; acrostichals regularly in 6 rows in front, extending irregularly to level of 1st dc.

Wing: length in male 5.1 mm, in female 5.5 mm; last section of m4 short, half length of penultimate; wing distinctly pictured, slightly fainter but essentially as in *P. rabelloi* (cf. Fig. 9).

Legs: mid-tibiae with 2 strong lateral bristles.

Colour: frons black behind but broadly orange in front and extending almost to apex of ocellar triangle; lunule silvery-orange; all antennal segments brownish-orange; face black; palpi brown; mesonotum mat black, with central yellow patch rectangular in front at level of 2nd dc, broadening behind adjoining scutellum (Fig. 6); scutellum largely yellow, faintly black at sides; humerus and notopleural area entirely yellow, pre-sutural bristle on black ground; mesopleura largely black, yellow on upper and



Ophiomyia spicatae Spencer: 1, aedeagus, side view; 2, same, ventral view. *Phytobia kuhlmanni*, sp. n.: 3, mesonotum; 4, aedeagus, side view; 5, same, ventral view. (Scale line for genitalia drawing = 0.1 mm.)

hind margins; sternopleura almost entirely black; legs black, faintly yellow at knees on p1 and p2; abdomen largely yellow with central black band longitudinally; wing base bright yellow, squamae yellowish-grey, fringe black.

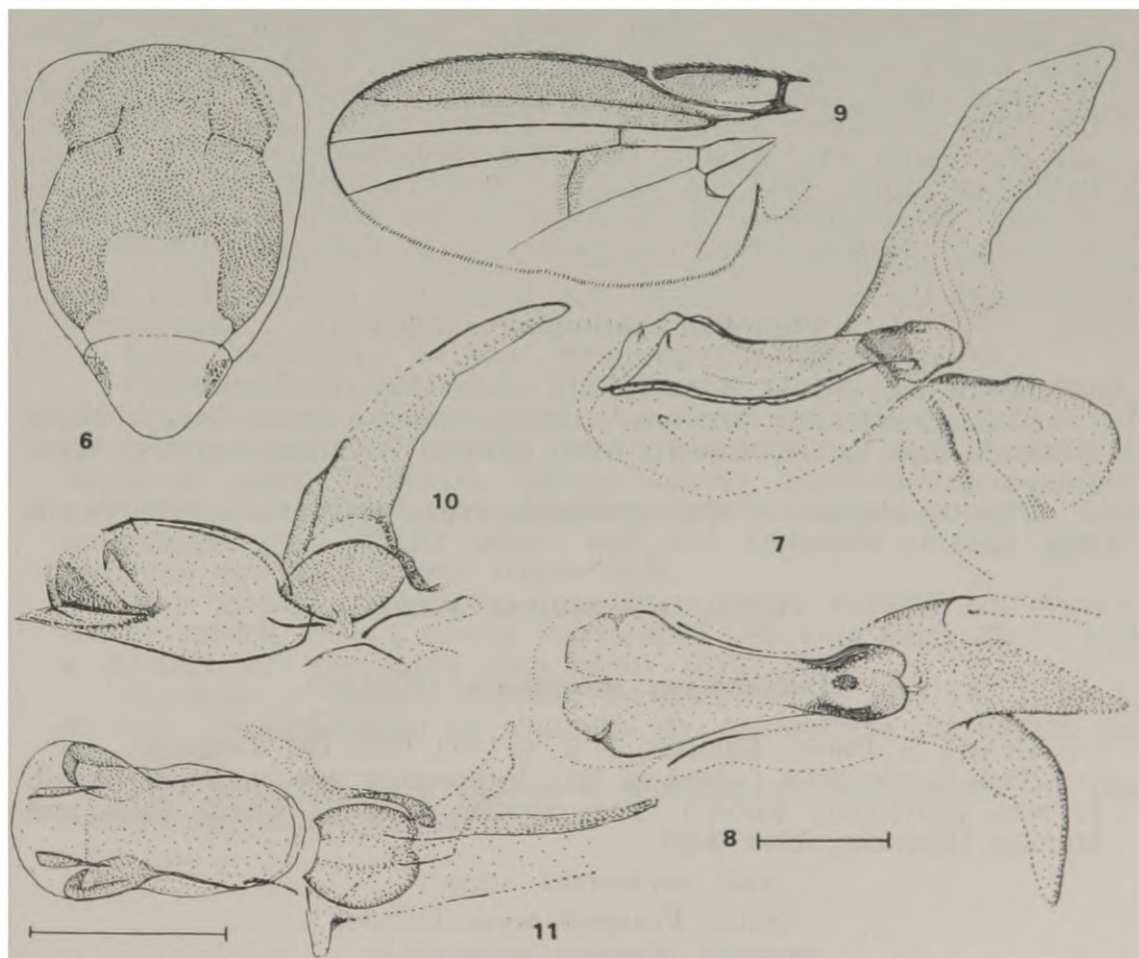
Male genitalia: aedeagus distinctive, as in Figs. 7, 8.

Holotype ♂, Brazil, Minas Gerais, Sapucaí-Mirim, Cidade Azul, 1400 m, 7.XI.1953 (Travassos F.º, Kuhlmann, Gans & Medeiros); two ♀ paratypes, same data. Holotype and one paratype in coll. Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo, one paratype author's collection.

I have pleasure in naming this magnificent species after the late Prof. J. Lane, who gave me great assistance with my collecting when visiting São Paulo in August, 1957.

***Phytobia rabelloi*, sp. n.**

Head: frons slightly wider than eye, not projecting above eye in profile; 2 ors, 2 ori, all approximately equal, orbital setulae short, sparse; ocellar triangle scarcely differentiated; lunule large,



Phytobia lanei, sp. n.: 6, mesonotum; 7, aedeagus, side view; 8, same dorsal view. *Phytobia rabelloi*, sp. n.: 9, wing; 10, aedeagus, side view; 11, same, ventral view. (Scale line for genitalia drawings = 0.1 mm.)

semicircular; cheeks linear, jowls narrow, one-twelfth vertical height of eye; third antennal segment large, slightly longer than broad, arista long, distinctly pubescent.

Mesonotum: 4 + 1 dorso-centrals, first two strong, others substantially weaker, half length of first, 4th immediately before, 5th just behind suture; acrostichals numerous, in some 8 rows in front, a few hairs extending to level of first dc; weak pre-scutellars present, widely spaced, between 1st and 2nd dc.

Wing: length in male 2.7 mm, last section of m4 two-thirds penultimate; wing conspicuously pictured (Fig. 9).

Legs: mid-tibia without lateral bristles.

Male genitalia: aedeagus as Figs. 10, 11.

Colour: frons mat black, lunule silvery-grey, third antennal segment black; mesonotum shining black in front, broadly yellow behind adjoining scutellum; 2nd dc just on black ground, 1st on yellow but black forms two bands extending slightly beyond 1st dc laterally; scutellum entirely yellow; pleura almost entirely yellow, pre-sutural bristle also on yellow ground; mesopleura black along lower margin, sternopleura black, faintly yellow on upper margin; legs entirely black, fore-knees faintly yellow; abdomen variable, either entirely black or front tergites entirely yellow or largely yellow with black central band longitudinally; wing base bright yellow; squamae yellowish-grey, fringe black.

Holotype ♂, Brazil, Mato Grosso, Faz. Primavera, Rio Paraná, Oct. 1954 (Rabello); paratypes: 4 ♂, two same data as holotype, one São Paulo, Pto. Albano, Oct. 1954 (Rabello), one Mato Grosso, Palmeiras, June, 1944 (A. Zopei). Holotype and two paratypes in coll. Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo, two paratypes in author's collection.

Phytobia xanthophora (Schiner)

Brazil, São Paulo, Barueri, 1 ♂, 5.II.1956 (K. Lenko).

This species has previously been recorded from Brazil, Nova Teutônia and is also known from Central America and the West Indies.

The aedeagus of the specimen from Barueri is shown in Fig. 12.

Genus **Calycomyza** Hendel

Calycomyza meridiana (Hendel)

Brazil, S. Paulo, Barueri, 1 ♀, 6.VIII.1955 (K. Lenko).

This is the first record of this interesting species from Brazil. It was previously known from British Guiana, Costa Rica and Mexico (Spencer, 1963: 348).

Genus **Praspedomyza** Hendel

Hendel (1931-36:77) erected *Praspedomyza* as a sub-genus of *Dizygomyza* (= *Phytobia* Lioy, *sensu* Frick, 1952); *P. approximata* Hendel, a leaf-miner on *Daphne mezereum* L. (Thymeleaceae), was designated as type of the sub-genus.

Most sub-genera of *Dizygomyza* Hendel or *Phytobia* Lioy, *sensu* Frick, have now been either combined with other genera (*Dizygomyza* Hendel, *s.s.*, *Poemyza* Hendel, *Icteromyza* Hendel) or given full generic rank (*Amauromyza* Hendel, *Calycomyza* Hendel) [Nowakowski, 1962]. I now propose that *Praspedomyza* should be raised to generic rank. *P. peullae* (Malloch) from Chile (cf. Spencer, 1963: Fig. 51) and also a new species from Brazil, *P. flaviantennata*, described below, are clearly congeneric with the genotype, as indicated both by external characters and male genitalia. The genitalia of the palaeartic grass-feeders, *L. flaveola* Fallén (Spencer, in press a) and *L. pedestris* Hendel (Spencer, in press b) agree closely with typical *Praspedomyza* species and it seems possible that this whole group may represent a natural genus. I do not propose to transfer further species to *Praspedomyza* at the present time, however, as this should best await a more detailed revisionary study of the genus *Liriomyza* on a world basis.

***Praspedomyza flaviantennata*, sp. n.**

Head: orbits well-differentiated, not significantly projecting above eye in profile; four orbital bristles, upper three equal, lowest somewhat weaker; orbital setulae short, sparse, reclinate; jowls deepest at rear, at midpoint below eye, one-sixth vertical height of eye; third antennal segment small, round; arista long, equal to eye height.

Mesonotum: 3+1 dc, the 4th not greatly smaller than 1st; acrostichals in 4 rows in front, only a few scattered hairs at level of 1st dc.

Wing: length in male 1.9 mm, costa extending strongly to vein m_1+2 ; discal cell small, last section of vein m_4 three times penultimate.

Legs: mid-tibiae without differentiated lateral bristle.

Colour: frons and orbits dark-brown, almost black in front, jowls dark-brown; third antennal segment bright yellow, second partially yellow, first brown; mesonotum shining black, scutellum distinctly paler, brownish; pleura largely blackish-brown, upper and hind margins of mesopleura narrowly yellow, humerus and notopleural area faintly paler; legs and abdomen entirely black; squamae yellowish-brown, fringe dark.

Male genitalia: aedeagus as in Figs. 13, 14; surstyli not separated by suture, with a strong bristle and two long hairs above and a distinctively chitinised area below (Fig. 15).

Holotype ♂, Brazil, S. Paulo, Barueri, 8.VIII.1955 (K. Lenko), in coll. Departamento de Zoologia da Agricultura do Estado de São Paulo.

This generally dark species is immediately recognisable by the contrasting yellow antennae.

Genus ***Liriomyza*** Mik

Liriomyza insignis Spencer

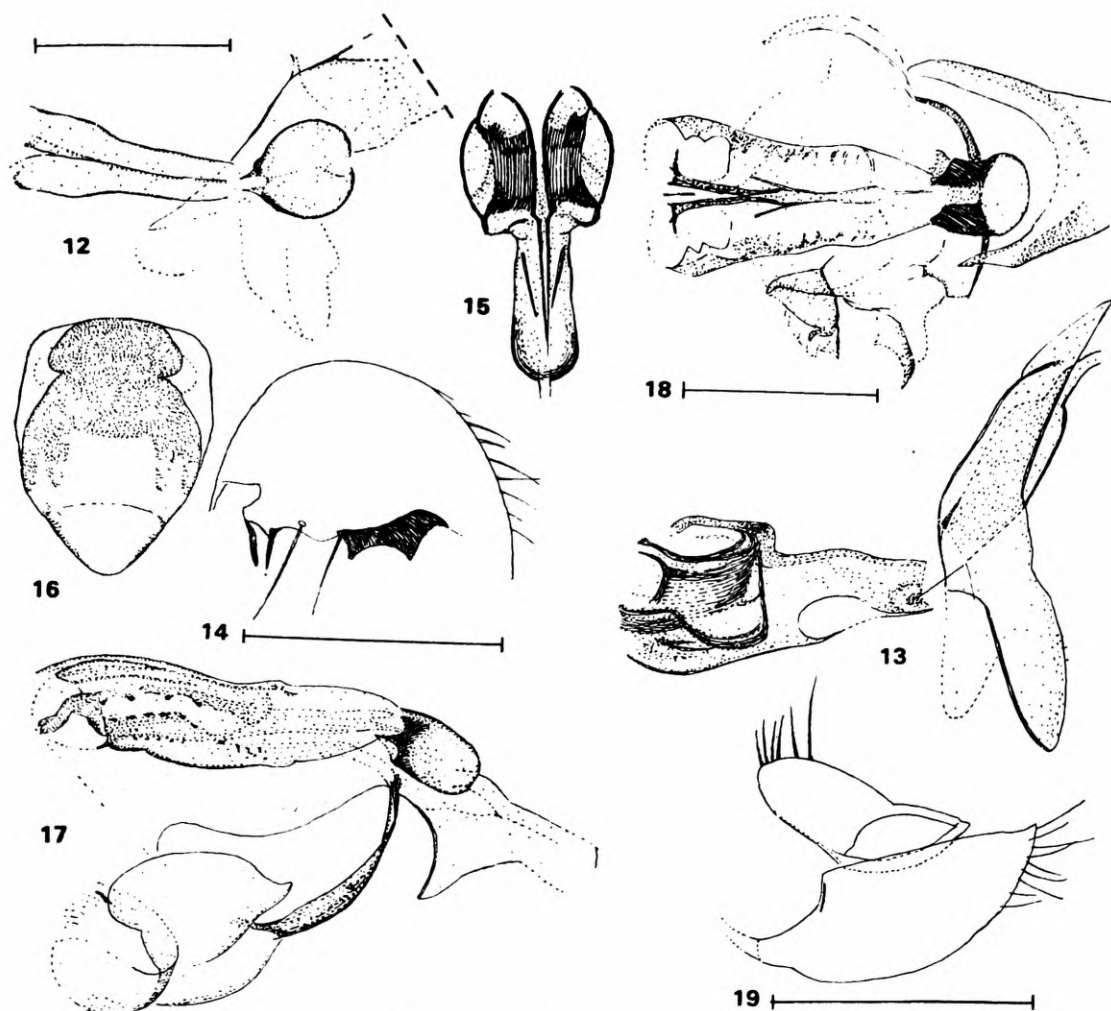
Brazil: São Paulo, Barueri, 2 ♀, 6.VIII.1955 (K. Lenko); Campos do Jordão, 1950 m, 2 ♂, March, 1953 (Travassos F.º & Rabello); Cubatão, 1 ♀, 15.II.1955 (Werner & D'Andretta).

These are the only records of this species apart from the female holotype from Costa Rica. I have recently seen a further long series in the Deutsches Entomologisches Institut, Berlin from Costa Rica, including males, and the male genitalia will be illustrated in a later paper.

***Liriomyza paranaensis*, sp. n.**

Head: four orbital bristles, the lowest somewhat weaker; orbital setulae minute; jowls narrow, one-tenth vertical height of eye; arista conspicuously long, equal to eye height.

Mesonotum: 3+1 dorso-centrals, 1st and 2nd long, 3rd and 4th equal, very small, less than half length of second; acrostichals in some 6 rows; ending at level of 2nd dc.



Phytobia xanthophora (Schiner): 12, aedeagus, ventral view. *Praspodymyza flaviantennata*, sp. n.: 13, aedeagus, side view; 14, distiphallus, ventral view; 15, surstylus. *Liriomyza paranaensis*, sp. n.: 16, mesonotum; 17, aedeagus, side view; 18, same, dorsal view; 19, surstylus.

(Scale line for genitalia drawings = 0.1 mm.)

Wing: length 2.3 mm, costa extending strongly to vein m 1+2, last and penultimate segments of m+1 slightly variable but approximately equal.

Legs: mid-tibia with one strong lateral bristle.

Colour: frons, jowls, face bright yellow; hind-margin of eye black, both vertical bristles on black ground; mesonotum mat, greyish-black, broadly yellow in centre, with two black bands laterally (Fig. 16); scutellum largely yellow, with small black patches in front corners; notopleural area and humerus behind bristle yellow, mesopleura divided diagonally, black in front and below, yellow above and behind, sternopleura largely black but conspicuously yellow on upper margin; pteropleura yellow in front, black behind; hypopleura black but conspicuously yellow on upper margin; pteropleura yellow in front, black behind; hypopleura black with yellow upper margin; legs black apart from narrow yellow knees on p1; abdomen mainly yellow, with black patches centrally on hind-tergites and also laterally; squamae yellowish-grey, margin and fringe black; halteres yellow.

Male genitalia: aedeagus as in Figs. 17, 18; surstyli as in Fig. 19; ninth sternite U-shaped rather broad at apex; aedeagal apodeme slender, translucent.

Holotype ♂, Brazil: São Paulo, Rio Paraná, Pôrto Cabral, 20-31.III.1944 (Travassos F.º, Carrera & Dente), in coll. Departamento de Zoologia da Secretaria da Agricultura do Estado de São Paulo; one ♂ paratype, same data, in author's collection.

This species can be included in an extension to couplet 4 of the author's (1963) key to neotropical *Liriomyza* species:

4. Large species, wing length 4.5 mm *braziliensis* Frost
 Smaller species, wing length up to 2.5 mm 4a
- 4.^a Third antennal segment brown; femora mottled, yellowish-black; mesonotum shining black with two yellow triangular patches adjoining scutellum laterally, narrow black area extending to scutellum centrally *andina* Malloch
 Third antennal segment black; femora black with yellow knees; mesonotum mat-grey with large central rectangular yellow patch adjoining scutellum *paranaensis*, sp. n.

The genitalia suggest that this species does not correctly belong in the genus *Liriomyza* Mik s. s. However, it is best retained in *Liriomyza* until the generic affiliation of neotropical *Liriomyza* species can be revised in detail.

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