Taxonomy of the Brazilian species previously placed in *Mantispa* Illiger, 1798 (Neuroptera: Mantispidae), with the description of three new species

RENATO JOSÉ PIRES MACHADO & JOSÉ ALBERTINO RAFAEL

_Instituto Nacional de Pesquisas da Amazônia–INPA, Coordenação de Pesquisas em Entomologia, Caixa Postal 478, 69011–970, Manaus, Amazonas, Brasil. E-mails: rjpmachado@gmail.com; jarafael@inpa.gov.br_
### Table of contents

Abstract ...................................................................................................................... ......................................................... 2  
Introduction .................................................................................................................. ....................................................... 2  
Material and methods .......................................................................................................... ................................................ 2  
Results and discussion ........................................................................................................ ................................................. 3  
Key to the subfamilies of Mantispidae with records for Brazil ................................................................. ......................... 3  
Key to the genera of Mantispinae with records for Brazil ..................................................................................................  5  
BUYDA Navás, 1926 .................................................................................................................. ...........................................  5  
BUYDA phthisica (Gerstaecker, 1885) .......................................................................................................... ................. 5  
Dicromantispa Hoffman, 2002 .................................................................................................................. ............................................................................................................................................  8  
Key to the Brazilian species of Dicromantispa .................................................................................................................. ............................................................................................................................................  10  
Dicromantispa debilis (Gerstaecker, 1888) ...............................................................................................................  10  
Dicromantispa gracilis (Erichson, 1839) ...............................................................................................................  14  
Dicromantispa hyalina Machado & Rafael, new species .........................................................................................  17  
Dicromantispa leucophaea Machado & Rafael, new species ...................................................................................  21  
Dicromantispa moulti (Navás, 1909), new combination ............................................................................................ 24  
Dicromantispa synapsis Hoffman, 2002 ...............................................................................................................  28  
Haematomantispa Hoffman, 2002 .................................................................................................................. ............................................................................................................................................  31  
Haematomantispa amazonica Machado & Rafael, new species ..............................................................................   32  
Leptomantispa Hoffman, 2002 ................................................................................................................ .................  35  
Key to the species of Leptomantispa with records for Brazil ..................................................................................................  35  
Leptomantispa ariasi (Penny, 1982), new combination............................................................................................. 35  
Leptomantispa axillaris (Navás, 1908), new combination ........................................................................................ 39  
Leptomantispa catarinae Machado & Rafael, 2007 ........................................................................................ 42  
Leptomantispa chaos Hoffman, 2002 ...............................................................................................................  42  
Leptomantispa nympha Hoffman, 2002 ...............................................................................................................  46  
Zeugomantispa Hoffman, 2002 .................................................................................................................. ............................................................................................................................................  49  
Zeugomantispa compellens (Walker, 1860) ..........................................................................................................  49  
Zeugomantispa virescens (Rambur, 1842) ..........................................................................................................  53  
Acknowledgements .............................................................................................................. ............................................. 58  
References .................................................................................................................... ..................................................... 58
Abstract


Key words: Brazil, lacewings, mantis flies, Mantispinae, Neotropical

Introduction

The genus *Mantispa* Illiger, 1798 was originally used for one European species of lacewings, *M. pagana* Fabricius, 1775 (= *M. styriaca* (Poda, 1761)), in the family Mantispidae (Neuroptera), but new species were described worldwide and placed in this genus, which then became the most speciose in the family (Ohl 2004). In the neotropics, the genus was also the most species-rich (Penny 1977; 1982a, b; Penny & Costa 1983) until Hoffman (2002) proposed a new classification that restricted *Mantispa* to the Old World and moved the putative *Mantispa* species from the New World to six other genera: *Buyda* Navás, 1926, *Dicromantispa* Hoffman, 2002, *Haematomantispa* Hoffman, 2002, *Leptomantispa* Hoffmann, 2002, *Xeromantispa* Hoffman, 2002 and *Zeugomantispa* Hoffman, 2002. Although Hoffman (2002) applied this new classification only for the species from Costa Rica, he suggested that it should be adopted for the entire New World fauna and other studies soon followed suit (Ohl 2004; 2005; Cannings & Cannings 2006; Engel & Grimaldi 2007; Machado and Rafael 2007; Reynoso-Velasco & Contreras-Ramos 2008).

According to the Mantispidae catalog by Ohl (2004) part of the Brazilian fauna was already classified in Hoffman (2002) while the remaining species are still in need to reclassification. Thus, here we revise the Brazilian species, including redescription and keys to subfamilies, genera and species.

Material and methods

About 800 specimens were loaned from the main collections of the five geographic Brazilian regions: CZMA, Coleção Zoológica do Maranhão–Caxias; DZUP, Coleção Entomológica Pe. Jesus Santiago Moure–Curitiba; INPA, Coleção de Invertebrados do Instituto Nacional de Pesquisas da Amazônia–Manaus; MNRJ, Museu Nacional do Rio de Janeiro–Rio de Janeiro; MPEG, Museu Paraense Emílio Goeldi–Belém; MZUEFS, Coleção Entomológica Professor Johann Becker do Museu de Zoologia da Universidade Estadual de Feira de Santana–Feira de Santana; MZUSP, Museu de Zoologia da Universidade de São Paulo–São Paulo; UnB, Coleção de Invertebrados da Universidade de Brasília–Brasília.

Terminalia, when dissected, were macerated in hot 85% lactic acid according to Cumming (1992) and examined in glycerin on excavated slides using an optic microscope with a camera lucida. After examination detached parts were placed in microvials with glycerin and pinned with their associated specimen. External characters were photographed with a digital camera on a stereoscopic microscope and edited in the program CombineZM. Morphological terminology follows Lambkin (1986a; b) and Hoffman (2002). Species were identified using Penny & Costa (1983) and Hoffman (2002) keys and also comparisons with type specimens or with specimens previously identified by specialists.

Here, only species once included in the genus *Mantispa* are treated. An identification key is provided for genera with more than one species. All species proposed by Hoffman (2002) that occur in Brazil are redescribed because their terminalia were not illustrated. Synonymic lists are based on Ohl (2004).
Results and discussion

Fifteen species were analyzed, three of which are new and one is a new record for Brazil. The species were placed in five of the six genera proposed by Hoffman (2002): *Buyda* and *Haematomantispa* (first record for Brazil), both with one species; *Zeugomantispa* with two; *Leptomantispa* with five; *Dicromantispa* with six species.

The placement of the species in these genera follows a pattern similar to that proposed by Penny & Costa (1983) for the Brazilian species previously in *Mantispa*: *Buyda* is equivalent to the *phthisica* group, *Dicromantispa* is the same as the *gracilis* group and the *minuta* group was divided between the genera *Leptomantispa* and *Zeugomantispa*. *Haematomantispa* does not correspond to any other previous group because the Brazilian specimens were collected only recently in 2005 and 2006.

Penny & Costa (1983) also proposed another group, *costalis*, with two species, *M. costalis* Erichson, 1839 and *M. januaria* (Navás, 1936). In the Mantispidae catalog (Ohl 2004) the former is now in *Entanoneura* (*E. costalis*), while the latter remains in *Mantispa*. However, *M. januaria* clearly should be placed in the genus *Entanoneura* because it has all of the defining characters of *Entanoneura*. Thus, we consider it to be *E. januaria*, as it was originally described.

The identification keys bellow (Brazilian subfamilies of Mantispidae and the Brazilian genera of Mantispinae) were modified from Hoffman (2002).

Key to the subfamilies of Mantispidae with records for Brazil

1. Foreleg with two tarsal claws .................................................................................................................. 2
1’. Foreleg with one tarsal claw ................................................................................................................. Mantispinae
2. Foretarsomere I with a dentiform process (Fig. 1a). Body length: 5–10 mm ....................................... Symphrasinae
2’. Foretarsomere I without dentiform process (Fig. 1b). Body length: 17–25 mm................................. Drepanicinae
FIGURE 1. a, foreleg of *Anchieta fumosella* (Westwood, 1867) (Symphrasinae); b, foreleg of *Gerstaeckerella chilensis* (Hagen, 1859) (Drepanicinae); c, fore and hindwing of *Climaciella amapaensis* Penny, 1982. Dentiform process (dp), tarsi (ta), tibia (ti).
Key to the genera of Mantispinae with records for Brazil

1. Flagellomeres 3 times wider than long. Prothorax length 2–3 times its width at maculae. Hindwing with one cross-vein between the veins CuA and AA (Fig. 1c) ................................................................. Climaciella
1’. Flagellomeres less than 3 times wider than long. Prothorax length more than 4 times its width at maculae. Hindwing without cross-vein between the veins CuA and AA (Fig. 3) ................................................................. 2
2. Pronotum completely covered by setae .................................................................................................................................................................................................................................................. 3
2’. Pronotum with setae only at anterior and posterior regions .......................................................................................................................... 5
3. Body predominantly dark red. Wings with amber spots in area below cells 1MP and 3M (Fig. 17f). Males with pseudopenis extremely elongated (Fig. 18c, d) and without abdominal pores ................................................. Haematomantispa
3’. Body with other color pattern. Wings without amber spots in area below cells 1MP and 3M. Males with pseudopenis relatively short (Fig. 20d, e) and with abdominal pores ...................................................................................................................... 4
4. Body predominantly green. Pronotal setae arising from distinct bumps. Male with pores in membranes between tergites III, IV and V (Fig. 28a) .......................................................................................................................... Zeugomantispa
4’. Body with different coloration. Pronotal setae arising flush with pronotal surface. Males with the abdominal pores located on tergites (Fig. 20b) ................................................................................................................................................................. Leptomantispa
5. Body with camouflaged pattern (green and dark brown) (Fig. 2a, b). Apex of wings infuscated brown (Fig 3). Male with apex of ectoproct elongated (Fig. 4d), hypomeres long (Fig. 4e, f) and abdominal pores absent. Buyda
5’. Body with different color pattern. Wings hyaline or with large spots on costal area. Male with apex of ectoproct rounded (Fig 6b), hypomeres short (Fig 6e, f) and abdominal pores present .................................................................................................................. 6
6. Body generally brown or tan. Wings hyaline or at least with basal extremity brown. Male ectoprocts with ventromedial lobe completely sclerotized .......................................................................................................................... Dicromantispa
6’. Body generally yellow and black. Wings dark spotted, mainly anteriorly. Male ectoprocts with ventromedial lobe partially sclerotized .......................................................................................................................... 7
7. Wings dark or almost entirely amber. Midtarsomere I shorter than the other tarsomeres combined ...... Paramantispa
7’. Wings only with amber spots in anterior area. Midtarsomere I equal or longer than the other tarsomeres combined . ................................................................................................................................. Entanoneura

Buyda Navás, 1926


Diagnosis: Pronotum with setae restricted to anterior and posterior regions (best seen in lateral view), setae arising directly from the surface. Male terminalia with ectoprocts extended laterally, hypomeres elongated, generally as long as pseudopenis, gonarcus median lobe wider than long. Female terminalia with ectoprocts longer than gonocoxites and spermatheca with proximal region wider.

The genus is comprised of two species that occurs in South and Central America (maybe occurs in Africa, one species has the type locality confused) (Ohl, 2004). Just Buyda phthisica has been reported from Brazil.

Buyda phthisica (Gerstaecker, 1885)
(Figs. 2–4)

Mantispa phthisica Gerstaecker, 1885: 35; Penny 1982a: 221 (cit.); 1982b: 446, Figs. 74–78 (redesc.); Penny & Costa 1983: 646, Figs. 17 (redesc.); Type locality: Brazil, Amazonas. Holotype female (EMAU), not studied.
Entanoneura phthisica; Handschin 1960: 208; Stange 1967: 18 (cat.); Penny 1977: 34 (list.).
Buyda phthisica; Hoffman 2002: 253, Figs. 552, 557, 568, 606; Ohl 2004: 161 (cat.).

Redescription, male. Vertex green, except for dark brown spots just behind antennae and at posterior region; most specimens with short longitudinal dark brown spot connecting the two spots (Fig. 2a). In specimens stored for a long time the spots generally more yellow. Head in frontal view with longitudinal dark-brown stripe beginning between antennae, enlarging at frons and ends at labrum. In some specimens longitudinal stripe interrupted at clypeus (Fig. 2c). Frons stripe with green diamond-shaped spot in the middle. Clypeus and labrum yellowish, except for the longitudinal stripe (Fig. 2c). Some specimens with dark color pattern and
head almost entirely brown. Mouthparts reddish-brown with mandibles and apex of palpi slightly dark. Antenna with scape green ventrally and reddish-brown dorsally. Pedicel and flagellum dark brown (Fig. 2c).

Pronotum: nearly straight in lateral view, with few setae at proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 6.1–7.9. Predominantly pale-yellow with large longitudinal dark brown stripe dorsally, wide before maculae and next to the posterior region; two lateral dark brown spots at anterior end, median region and around maculae (Fig. 2a). Pteronotum: dark brown except for dorsal green spots next sutures. Some specimens with spots only in central suture (Fig. 2a). Scutella dark brown with green central spot, generally large in mesoscutellum (Fig. 2a). Scutella with 5–12 pores. Mesopreepimeron, mesepisternum, metapreepimeron and metepisternum green, other pleural sclerites predominantly dark brown with green spots. Mesokatepisternum completely green in some specimens (Fig. 2b).

Foreleg: coxa brown except for a large anterior yellowish spot. Trochanter dark brown. Femur posterior surface pale-yellow with three dark brown spots. First beginning near base and extending to basal third; second beginning after the first one and covering almost all region next to spine row, sometimes extending dorsally; third small and placed distally. Spines yellow at base and brown at apex (Fig. 2e). Femur anterior surface dark brown except for small yellow spot basally; some specimens with a small yellow spot at base of basal spine (Fig. 2d). Tibia pale-yellow except dark brown dorsally. Tarsomere I dark brown except apex as light yellow as other tarsomeres.

Mid and hindlegs: coxae dark brown with three greenish spots (Fig. 2b). Trochanters brown at base, green at apex. Femora pale-yellow except base and apex brown. Tibiae generally pale-yellow, sometimes darker. Tarsomeres slightly darker than tibiae. Tarsal claws with four teeth.

Forewing: length 12.4–18.5 mm, hyaline except apex brown infuscated and space between Sc and RA light brown; 7–9 costal crossveins and 12–17 veins extended posteriorly from RP. Apex of 1AP cell and radial triangle dark brown in some specimens. Pterostigma dark brown. Veins varying between brown and dark brown, except for bases of Sc and RA yellow (Fig. 3). Hindwing: coloration similar to forewing, except vein AP2 and base of AA yellow (Fig. 3); 7–10 costal crossveins and 15–17 veins extended posteriorly from RP.

Abdomen with green to yellow sclerites in specimens stored for long time; central dark brown stripe enlarging posteriorly on tergites and anteriorly on sternites. Pleura dark brown. Specimens darker colored have some sclerites completely dark brown. Pores absent.

Terminalia: ectoprocts extended laterally (Fig. 4a, d). Ventromedial lobe apparently separated from remaining ectoproct, with short, thickened setae (Fig. 4d). Sternite IX sub-pentagonal, with small flattened apical lobe and 5–7 large setae on each side (Fig. 4c). Gonarcus with median lobe wide (Fig. 4b). Gonocoxite straight in lateral view with apex rounded, as wide as or slightly wider than mediuncus in ventral view (Fig. 4f). Mediuncus wide basally in ventral and lateral view (Fig. 4e, f). Pseudopenal membrane shorter than pseudopenis. Hypomere very long and curved (Fig. 4e, f) with small rounded tubercles at expanded apex (Fig. 4g).

Female. Similar to male except forewing length: 13–19.4 mm, 7–10 costal crossveins, 12–18 veins extended posteriorly from RP; hindwing with 6–10 costal crossveins and 13 to 19 veins extended posteriorly from RP.

Terminalia: Ectoproct larger than gonocoxite (Fig. 4j). Sternite VIII large and wide in ventral view, with small median invagination at anterior border in ventral view (Fig. 4h). Spermathecal duct coiled, narrowed at base, expanded medially and narrowed again near the fertilization canal; capsule poorly developed (Fig. 4i).

Geographical data. Neotropical, with records from Honduras to Uruguay (Hoffman 2002; Ohl 2004). In Brazil the specimens seem to be more commonly found in the Amazon (Penny & Costa 1983). Most of the specimens housed in collections are from Central Amazon.

Bionomy. Adults may be collected at any time of year. The immature stages are still unknown, but, however, we obtained eggs and first instar larvae from two female specimens captured in 2005 and kept in laboratory (data not yet published).

Discussion. B. phthsica is easily recognized among other Brazilian species by the color pattern and by the male and female terminalia characters. The illustrations here presented differ from those presented by Penny (1982b), where the apical bifurcation of mediuncus was not represented.
FIGURE 2. *Buyda phthisica*: a, head and thorax, dorsal view; b, pteropleura (metapleura sclerites are not pointed in the figure because they are equivalent to mesopleura, changing only the prefix); c, head, anterior view; d, foreleg, anterior view; e, foreleg, posterior view. Coxa (cx), basal spine (bs), femur (fe), maculae (mac), mesaneupimeron (maem), mesaneupisternum (maet), mesepimeron (mem), mesokatepimeron (mkem), mesokatepisternum (mket), mesopreepimeron (mpem), mesopreepisternum (mpet), mesepisternum (mpt), tarsomeres (ta), tibia (ti), trochanter (tr).

Dicromantispa Hoffman, 2002

Diagnosis: Pronotum setae restricted to anterior and posterior regions (best seen in lateral view); setae arising directly from it surface. Male ectoproct with ventromedial lobe completely sclerotized. Gonarcal membrane with a group of spinules medially. Male with pores at tergites IV to VI. Spermatheca widen distally.

Hoffman (2002) stated that there were eight species in this genus but listed only five: Dicromantispa sayi (Banks, 1897) recorded from south Canada to Panama (Cannings & Cannings 2006); D. interrupta (Say, 1825) in USA and Canada (Ohl 2004; Cannings & Cannings 2006); the remaining three species (D. debilis (Gerstaecker, 1888), D. gracilis (Erichson, 1839), D. synapsis Hoffman, 2002) are Neotropical and found in Brazil. Two fossil species are known from the Cenozoic, D. electromexicana Engel & Grimaldi, 2007 and D. moronei Engel & Grimaldi, 2007. Two new species and a new combination are described below.
FIGURE 4. *Buyda phthisica*: male: a, ectoproct, lateral view; b, gonarcus, dorsal view; c, sternite IX, ventral view; d, terminalia, dorsal view; e, genitalia, ventral view; f, genitalia, lateral view; g, hypomere; female: h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Bursa copulatrix (bcp), ectoproct (ect), fertilization canal (fc), gonocoxite (gcx), gonarcal membrane (gm), gonarcal median lobe (gml), gonarcus (gnc), hypomere (hp), mediuncus (med), pseudopenis (pp), spermathecal duct (spd), sternite (stn), ventromedial lobe (vml). Scales = 0.1 mm.
Key to Brazilian species of *Dicromantispa*

1. Forewing membrane hyaline basally (Fig. 9e) ............................................................................................................ 2
1'. Forewing membrane brown basally (Fig. 5f) ........................................................................................................... 3

2. Pterostigma reddish-brown (Fig 7f). Male: ventromedial lobe straight (Fig. 8b, c); ectoproct with external border yellow and internal one brown.............................................................................. *D. gracilis*
2'. Pterostigma light yellow with apex brown (Fig 9e), Male: ventromedial lobe curved (Fig. 10c, e); ectoproct completely dark brown ........................................................................................................ *D. hyalina* n. sp.

3. Hindwing space between C and Sc completely or at least with basal half brown (Fig. 13f) ....................................... 4
3'. Hindwing space between C and Sc hyaline (Fig. 15g)............................................................................................ 5

4. Pronotum white or light yellow except brown before maculae (Fig. 11d) males with gonarcus lateral lobes distinct in lateral view (Fig. 12f) ..................................................................................... *D. leucophaea* n. sp.
4'. Pronotum light brown with a central dark brown stripe (Fig. 13c) males with gonarcus lateral lobes indistinct in lateral view (Fig. 14h) .......................................................................................... *D. moulti*

5. Head central longitudinal stripe interrupted at frons (Fig. 15a). Pronotum dark brown before maculae (Fig. 15d). Male: gonarcal membrane with medial group of spinules wider than long, touching apex of the gonocoxites (Fig. 16g). Female with subrectangular plate covered by spinules anterior to bursa (Fig. 16k) ........................................................................................................ *D. synapsis*
5'. Head central longitudinal stripe not interrupted at frons (Fig. 5a) Pronotum light brown with three dark brown spots before maculae (Fig. 5c). Male: gonarcal membrane with medial group of spinules longer than wide, not touching apex of the gonocoxites (Fig. 6e). Female without subrectangular plate covered by spinules anterior to bursa (Fig. 6i) .................................................................................................................. *D. debilis*

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*Dicromantispa debilis* (Gerstaecker, 1888)

(Figs. 5–6)

*Mantispa debilis* Gerstaecker, 1888: 114; Penny 1977:35 (list.); Type locality: Brazil, Pará. Holotype (sex not indicated) (EMAU) not studied.

*Mantispilla debilis* var. *nuda* Stitz 1913: 19 Type locality: Suriname. Holotype female (ZMB).

*Dicromantispa debilis*; Hoffman 2002: 259, Figs. 574, 580; Ohl 2004: 168 (cat.).

*Mantispa* (*Mantispilla*) *lineaticollis* Enderlein, 1910: 348. Type locality: Brazil, Pará, Faro. Holotype male (MZPW) images studied. (new synonym)

**Redescription, male.** Vertex predominantly brown except yellow lateral stripes that border the eyes, posterior end and central “Y” shaped spot. Near base of the “Y” spot brown area enlarged; almost touching eyes (Fig. 5c). Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Frons stripe generally exhibits widen variation along its length. Labrum yellow area slightly darker than other head sclerites (Fig. 5a). Mandible and palpi apices dark brown, other mouthparts reddish-brown. Antenna with scape yellow ventrally and light brown dorsally, some specimens with basal half of dorsal surface yellow and apical half light brown. Pedicel light brown, flagellum dark brown (Fig. 5a).

Pronotum: nearly straight in lateral view, with few setae in proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 6.0–8.8. Light brown except for two dark brown lateral spots at anterior end and two dark brown small central stripes, one anterior and other posterior. Central stripes generally short, anterior one does not exceed maculae region and posterior one does not reach pronotum midlength, but in some specimens they are long and fused. Pteronotum: with three longitudinal dark brown stripes, one central and two lateral, with yellow stripes between them (Fig. 5c) and usually with a rounded yellow spot next to wing base (Fig. 5c). Mesoscutellum dark brown except for yellow lateral border (Fig. 5c). Metascutellum dark brown. Both scutella with 4–10 pores each one. Pleural sclerites yellow with dark brown spots (Fig. 5b).

Foreleg: reddish brown except for coxa pale yellow and anterior surface of femur dark reddish-brown (Fig. 5d). Some specimens yellow spotted along femur posterior surface next to spine row (Fig. 5e) and proximal end of tibia yellow. Mid and hindlegs yellow except midcoxa brown, hindcoxa brown spotted in some specimens (Fig. 5b) and trochanters light brown. Tarsal claws with five or six teeth.
FIGURE 5. *Dicromantispa debilis*: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
**FIGURE 6.** *Dicromantispa debilis*: **male:** a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, posterior view; e, genitalia, ventral view; f, genitalia, lateral view; **female:** g, fertilization canal; h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Capsule (cap), fertilization canal duct (fcd), gonarcal membrane (gm), hypomere (hp), pore (po), pseudopenal membrane (ppm), scar (sc), ventromedial lobe (vml). Scales = 0.1 mm, except for a.

Forewing: length: 8.6–12.4 mm, 7 costal crossveins and 11 to 14 veins extended posteriorly from RP. Hyaline except cells 1M, 1Cu, radial triangle and space between Sc and RA brown. Apex of 1AP cell light
yellow. Pterostigma reddish-brown with base yellowish. Veins brown, except AP2, AA, AP1 and CuA yellow. Veins C, Sc and RA brown at base and same color as pterostigma at apex (Fig. 5f). Hindwing: 7 costal crossveins and 11 to 16 veins extended posteriorly from RP. Hyaline, except basal extremity light brown. Pterostigma reddish-brown. Veins color similar to forewing, except for CuA, brown (Fig. 5f).

Abdomen mainly yellow with a central longitudinal dark brown stripe dorsally and ventrally except last two sternites. Stripe wider on sternites and posteriorly on tergites. Tergites IV-VI with 2 groups of 6–14 pores in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 6a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized, curved, with wide internal bend (Fig. 14b) with 5–12 stout setae and narrow external bend with 4–8 stout setae (Fig. 6b). Sternite IX posterior border rounded in ventral view (Fig. 6c) but in some specimens with small lobe at apex. Gonarcus without median lobe but with two small lateral lobes, easily seen in posterior view (Fig. 6d), and basal extremity narrow in lateral view (Fig. 6f). Gonocoxite with constant width with base bent laterally in ventral view (Fig. 6e); apex wider than base in lateral view (Fig. 6f). Basal third of mediuncus wider in lateral view and apex bifurcate in ventral view (Fig. 6e, f). Gonarcus membrane with medial group of spinules longer than wide, extended beyond meduncus midlength (Fig. 6e). Pseudopenal membrane with small scales on dorsal surface and generally as long as pseudopenis (Fig. 6e). Hypomere apex rounded with small granules (Fig. 6e).

Female. Similar to male except forewing length: 11–13.5 mm, 12–14 veins extended posteriorly from RP, hindwing with 6–8 costal crossveins and 13–14 veins extended posteriorly from RP.

Terminalia: Ectoproct slightly larger than gonocoxite (Fig. 6j). Sternite VIII large and easily seen in lateral view; in ventral view with posterior border straight (Fig. 6h). Spermathecal duct with few bends and wide distally (Fig. 6i). Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 6g).

Geographical data. Neotropical, with records from Costa Rica to Brazil (Hoffman 2002). Largely distributed in Brazil, with records for Amazonia, northeast and southern regions.

Bionomy. There is little information about Brazilian specimens because the species was not recorded by Penny & Costa (1983). Labels suggest that this species may be collected at any time of year; September is the only month not recorded. Nothing is known about its biology.

Discussion. Dr. Michael Ohl (ZMB) sent us high resolution images of the type specimen of M. lineaticolis and from these images we establish it as a new synonym of D. debilis. All recent specimens treated as M. lineaticolis (Penny 1982; Penny & Costa 1983; Carvalho & Corseuil 1995) actually are D. synapsis.

In contrast to the illustrations and descriptions here presented, the Hoffman (2002) illustration shows only the smaller branches of the “Y” spot on vertex. However, this variation is very common, easily found in other species of the genus, such as D. gracilis, for example.

**Dicromantispa gracilis** (Erichson, 1839)

(Figs. 7–8)


*Mantispa gounellei*; Penny 1977: 35 (list.).

**Dicromantispa gracilis**; Hoffman 2002: 260. Figs. 572, 575, 581; Ohl 2004: 168 (cat.).

Redescription, male. Vertex does not show a fixed color pattern, but most examined specimens are brown with yellow lateral stripes that border the eyes and a yellow central “Y” shaped spot (Fig. 7c). Some specimens only with smaller branches of “Y” spot, some others the brown area restricted to anterior region of vertex. Head, in frontal view, almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae, ending at labrum. Stripe usually with widen variation along its length. Labrum and clypeus yellow area slightly dark (Fig. 7a). Mandible and palpi apices dark brown, other mouthparts reddish-brown or yellow. Antenna with scape yellow, some specimens with dorsal surface light brown. Pedicel light brown and flagellum dark brown (Fig. 7a).

Pronotum: nearly straight in lateral view, with few setae in proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 4.8–7.5. Pale yellow to light brown except for two anterior lateral spots and two generally short dark brown central stripes. The anterior one does not exceed maculae and the posterior one does not reach midlength of pronotum (Fig. 7c). Some specimens with three small rounded brown spots between maculae and anterior lateral spots. Mesonotum: with three longitudinal dark brown stripes, one central and two lateral, with yellow stripes between them and a rounded yellow spot next to wing bases (Fig. 7c). Metanotum: most specimens dark brown, but in some similar to mesonotum (Fig. 7c). Mesoscutellum dark brown except for yellow lateral border (Fig. 7c). Metascutellum dark brown. Both scutella with 6–12 pores each one. Pteropleura predominantly yellow. Meso- and metaneupisterna, anepimera, katepisterna e katepimera usually dark brown spotted (Fig. 7b).

Foreleg: coxa pale yellow, except distal end brown. Trochanter pale yellow to brown; femur posterior surface pale yellow, except yellow base of spines and reddish brown apex (Fig. 7e). Some specimens with reddish brown spot in central region. Femur anterior surface dark reddish brown medially and light reddish brown laterally (Fig. 7d). Tibia and tarsomeres reddish-brown except for yellow base of tibia. Mid and hindlegs with coxae brown, yellow spotted in some specimens (Fig. 7b). Trochanters pale yellow to brown. Femora, tibiae and tarsomeres pale yellow. Tarsal claws with five or six teeth.
Forewing: length: 7.1–12.8 mm, 7 costal crossveins and 9–14 veins extended posteriorly from RP. Hyaline except for apex of 1AP cell light yellow. Pterostigma reddish-brown. Veins brown, except AP2, AA, AP1, C, Sc, RA and base of CuA yellow. Sc same color as pterostigma at apex (Fig. 7f). Hindwing: 7 costal crossveins and 10–15 veins extended posteriorly from RP, hyaline except it base sometimes brown. Pterostigma reddish-brown. Veins with color pattern similar to forewing, except CuA and RA base brown (Fig. 7f).

Abdomen mainly yellow with a central longitudinal dark brown stripe dorsally and ventrally except last two sternites. Stripe enlarging posteriorly in each sclerite. Ectoproct internal border brown and external yellow. Tergites IV–VI with 2 groups of 3–9 pores in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 8a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized (Fig. 8b), straight and flattened with long external surface with 36–41 stout setae and short internal surface with 4–11 stout setae (Fig. 8c). Sternite IX, in ventral view, subpentagonal and apically rounded (Fig. 8d). Gonarcus without median lobe but with two small lateral lobes, easily seen in posterior view (Fig. 8g), wider than gonocoxites in lateral view (Fig. 8f). Gonocoxite base bent laterally in ventral view (Fig. 8e). Apex wider than base in lateral view (Fig. 8f). Mediumunc enlarged in lateral view, apex bifurcate in ventral view (Fig. 8e, f). Gonarcal membrane with medial group of spinules which does not extend beyond the medianus apex in ventral view (Fig. 8e). Pseudopenal membrane generally as long as pseudopenes with small scales on dorsal surface (Fig. 8e). Hypomere apex rounded with small granules (Fig. 8e, f).

Female. Similar to male except forewing length: 9–12.8 mm, 9–13 veins extended posteriorly from RP, hindwing with 11–14 veins extended posteriorly from RP.

Terminalia: Ectoproct larger than gonocoxite (Fig. 8j). Sternite VIII with small medial invagination on posterior border, in ventral view (Fig. 8h). Spermathecal duct with few bends and wide distally (Fig. 8i). Fertilization canal narrow, and capsule covered by minuscule setae, except base (Fig. 8i).

Geographical data. Neotropical, with records from Costa Rica to Argentina (Hoffman 2002). Widely distributed in Brazil, with records in all regions.

Bionomy. There is a record of one larva in a spider egg sac from inundated area in Central Amazon (Carico et al. 1985). Labels suggest that specimens may be collected at any time of year.

Discussion. The illustration in Penny (1982b) did not show the group of spinules in the gonarcal membrane of male terminalia. However, this character does not have great importance for the identification of this species. It is easily recognized due to the straight and flattened ventromedial lobe.

FIGURE 7. *Dicromantispa gracilis*: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
FIGURE 8. Dicromantispa gracilis: male: a, abdominal tergites; b, terminalia, dorsal view; c, ectoproct, ventral view; d, sternite IX, ventral view; e, genitalia, ventral view; f, genitalia, lateral view; g, gonarcus, posterior view; female: h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Gonarcus (gnc), sternite (stn), ventromedial lobe (vml). Scale = 0.1 mm, except for a.
FIGURE 9. *Dicromantispa hyalina*: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, posterior view; e, fore and hindwing.
FIGURE 10. *Dicromantispa hyalina*: male: a, abdominal tergites; b, sternite IX, ventral view; c, terminalia, dorsal view; d, gonarcus, posterior view; e, ventromedial lobe; f, genitalia, ventral view; g, genitalia, lateral view. gonarcal lateral lobe (gll). Scale = 0.1 mm, except for a.
**Dicromantispa hyalina** Machado & Rafael, new species (Figs. 9–10)

**Diagnosis.** Ventromedial lobe completely sclerotized and curved; wings hyaline; ectoprocts dark brown.

**Holotype male.** Vertex predominantly brown; except median region yellow dark brown spotted (Fig. 9c). Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning just behind antennae and ending at labrum (Fig. 9a). Mandible reddish-brown, except for base yellow. Palpi reddish-brown. Antenna with scape yellow, pedicel light brown, and flagellum dark brown (Fig. 9a).

Pronotum: nearly straight in lateral view, with few setae in proximal and distal regions arising directly from its surface. Length-width-ratio at maculae: 6.1. Yellow, except for two brown lateral spots in anterior end and two brown small central stripes, one anterior and other posterior (Fig. 9c). Central stripes short, anterior stripe does not exceed maculae, and posterior one does not reach pronotum midlength. Between maculae and pronotum midlength there is a transverse brown stripe (Fig. 9c). Mesonotum: with three longitudinal dark brown stripes, one central and two lateral, with yellow stripes between them (Fig. 9c). Metanotum and both scutella completely dark brown (Fig. 9c). Scutella with 2 pores each one. Pteropleura predominantly yellow with anterior border dark brown (Fig. 9b).

Foreleg: coxa reddish brown, except yellow base. Trochanter and tarsomeres reddish brown (Fig. 9d). Femur dark reddish brown, except area near spine row slightly light on the posterior surface (Fig. 9d). Basal spine light reddish brown, except base dark reddish brown. Tibia reddish brown, except for slightly dark dorsal area. Mid and hind legs yellow, except coxae dark brown (Fig. 9b). Tarsal claws with four teeth.

Forewing: length: 7.9 mm, 7 costal crossveins and 9 or 10 veins extended posteriorly from RP. Hyaline, except light yellow cell 1AP apex. Pterostigma light yellow with apex brown. Veins brown, except C, Sc, RA, AP2 and AP1 basal half (Fig. 9e). Hindwing: 5 costal crossveins and 9 veins extend posteriorly from RP; membrane color pattern similar to forewing. Veins brown, except for RA end of 1RA, C, Sc, AA and base of MP and CuA yellow (Fig. 9e).

Abdomen with the first three tergites and sternites dark brown, others yellow with dark brown central longitudinal stripe enlarging posteriorly. Ectoproct completely dark brown. Tergites IV–VI with 2 groups of 1–2 pores in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 10a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized, curved, with wide internal bend (Fig. 10c, e) with 6–7 stout setae and narrow external bend with 4–5 stout setae (Fig. 10c, e). Sternite IX, in ventral view, subpentagonal, with large medial rounded lobe at posterior border (Fig. 10b). Gonarcus without median lobe but with two large lateral lobes, easily seen in posterior and lateral view (Fig. 10d, g). Gonocoxite with constant width in ventral view (Fig. 10f), and apex slightly wide in lateral view (Fig. 10g). Basal two-thirds of mediuscens wider in lateral view and apex bifurcate in ventral view (Fig. 10f, g). Gonarcal membrane with subtriangular medial group of spinules (Fig. 10f). Pseudopenal membrane shorter than pseudopenis and with small scales on dorsal surface (Fig. 10f). Hypomere apex rounded with small granules (Fig. 10f, g).

**Paratypes.** None.

**Geographical data.** Species known only from the male holotype from Tocantins State, Brazil, collected in March.

**Discussion.** *D. hyalina* seems to be close to *D. gracilis* because of the hyaline membrane of the wings and the absence of the gonarcus median lobe, but is clearly separated by the color pattern, ectoprocts completely dark brown and ventromedial lobe curved.

**Etymology.** The specific name is derived from the Greek *hyalos* (= clear) and refers to the hyaline wing membrane.

**Type material:** Holotype male: Brazil: Tocantins: Pindorama: Rio Balsas, 340 m, 11°01’04”S–47°29’08”W, 28.iii.2008, luz, J. A. Rafael e F. F. Xavier F° (printed on rectangular white paper)–INPA.

Holotype condition: good. Apex of the left antenna lost. Abdomen dissected, cleared and preserved in a microvial with glycerin.
Dicromantispa leucophaea Machado & Rafael, new species.
(Figs. 11–12)

**Diagnosis.** Ventromedial lobe completely sclerotized and curved; pseudopenis shorter than pseudopenal membrane; lateral lobe of gonarcus large; hindwing with basal space between C and Sc brown; pronotum white to light yellow, except brown area between anterior border and maculae.

**Holotype male.** Vertex brown medially, yellow laterally and in a central “Y” shaped spot (Fig. 11d). Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Stripe narrow at frons. Labrum and clypeus yellow area slightly darker than other head sclerites (Fig. 11a). Mandibles and palpi dark brown at apex, other mouthparts reddish brown. Antenna with scape yellow ventrally and reddish brown dorsally. Pedicel and first three flagellomeres reddish brown; other flagellomeres dark brown (Fig. 11a).

Pronotum: nearly straight in lateral view, with few setae on proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 6.1. Between anterior border and maculae brown, remainder white to light yellow, except two dark brown small central stripes, one anterior and other posterior (Fig. 11d).

Pteronotum: with three longitudinal dark brown stripes, one central and two lateral, with light brown stripes between them (Fig. 11d). Mesoscutellum dark brown, except for yellow lateral border (Fig. 11d). Metascutellum completely dark. Both scutella with 5–6 pores each one. Pteropleura predominantly yellow, mesopreepisternum, mesepisternum, mesanepisternum and mesokatepisternum with dark brown spots at the anterior border (Fig. 11b).

Forewing: length: 12.5 mm, 7 costal crossveins and 12 veins extended posteriorly from RP. Hyaline, except 1M, 1Cu, bases of AA and 1AP, radial triangle and space between Sc and RA brown. Cell1AP apex light yellow. Pterostigma reddish-brown. Veins brown, except AP1, AP2 and AA yellow. RA and C light brown basally, yellow medially, and reddish brown apically (Fig. 11g). Hindwing: 6 costal crossveins and 13 veins that extend posteriorly from RP, hyaline except for cell 1M, space between Sc and RA and beginning of space between C and Sc brown. Pterostigma reddish-brown. Veins color similar to forewing, except for AP1 brown, RA, C and Sc yellow, with apex reddish-brown (Fig. 11g).

Abdomen yellow scattered by reddish brown spots ventrally and dorsally. Tergites IV and V separated by a large membrane. Pleura dark-brown. Tergites IV–VI with 2 groups of 6–9 pores in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 12a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized, curved, with wide internal bend (Fig. 12b, c) with 8–9 stout setae; and narrow external bend with 5–6 stout setae (Fig. 12c). Sternite IX posterior border rounded in ventral view (Fig. 12d). Gonarcus with small median lobe, hardly visible in posterior view (Fig. 12g, h), and two large lateral lobes, easily seen in posterior and lateral view (Fig. 12g, f). Gonocoxite with constant width and with apex bent medially in ventral view (Fig. 12e). Basal two-thirds of mediuncus wider in lateral view and apex bifurcate in ventral view (Fig. 12e, f). Gonarcal membrane with medial group of spinules, group wider than long, touching gonocoxite apex (Fig. 12e). Pseudopenal membrane slightly shorter than pseudopenis and with small scales on dorsal surface (Fig. 12e). Hypomere apex rounded with small granules (Fig. 12e, f).

**Paratype female.** Similar to male except length-width-ratio at maculae: 5.6–6.4; pteronotum central stripe slightly wider than others; scutella completely dark brown or with yellow spots laterally; pterothorax pleurites predominantly brown with yellow spots at border (Fig. 11c); forewing length: 9.6–12.9; scutella with 2–6 pores each one.

Terminalia: ectoproct larger than gonocoxite (Fig. 12l). Sternite VIII large and easily seen in lateral and ventral view; in ventral view with posterior border larger than anterior (Fig. 12j). Spermathecal duct with few bends (Fig. 12k), Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 12i).
FIGURE 11. *Dicromantispa leucophaea*: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
Variation, paratype male. First three flagellomeres dark brown; dark reddish brown spot on femur anterior surface slightly light; Length-width-ratio at maculae: 6.2–6.5; forewing length: 11.0–11.2 mm; number of abdominal pores in each group: 6–10; membrane between tergites IV and V absent.
Geographical data. Neotropical, with records only for Brazil, except South and Southeast regions.

Bionomy. Specimens collected in April, May, September and October. Nothing is known about its biology.

Discussion. Some characteristics indicate that *D. leucophaea* is close to *D. moulti*: space between C and Sc brown in the hindwing; small size of gonarcus median lobe and length of group of spinules in the gonarcal membrane. However, the pronotum color pattern and the length of pseudopenis, gonarcal lateral lobes and forewing, clearly separate these two species.

Etymology. The specific name is a combination of two Greek adjectives *leukos* (= white) and *phaios* (= brown, dusky) and refers to the pronotum color pattern.


Holotype condition: excellent. Abdomen dissected, cleared and preserved in a microovial with glycerin.

*Dicromantispa moulti* (Navás, 1909), new combination.

(Figs. 13–14)


Redescription, male. Vertex predominantly brown except yellow lateral stripes that border the eyes and central “Y” shaped spot (Fig. 13c). Some species with yellow medial transverse spot dividing the brown area in two; anterior part darker than posterior. Other specimens with dark color pattern, where the yellow is almost imperceptible. Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Labrum yellow area slightly darker than other head sclerites (Fig. 13a). Mandible and palpi apices dark brown, other mouthparts reddish brown. Antenna with scape yellow ventrally and dark to reddish brown dorsally. Pedicel and flagellum dark brown (Fig. 13a).

Pronotum: nearly straight in lateral view, with few setae in proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 4.2–6.4. Light brown, except two dark brown lateral spots at anterior end and two small dark brown central stripes, one anterior and other posterior. Central stripes generally short, anterior one does not exceed the maculae region and posterior one does not reach midlength of the pronotum (Fig. 13c). Some specimens without two lateral spots at anterior end. Maculae pointed and prominent, in lateral view. Mesonotum: with three longitudinal dark brown stripes, one central and two lateral, with yellow stripes between them (Fig. 13c). Metanotum: some specimens similar to mesonotum and others with yellow stripes enlarged and brown ones reduced. Mesoscutellum dark brown, except yellow lateral border (Fig. 13c). Metascutellum dark brown. Both scutellum with 0–5 pores each one, metascutellum usually without pores. Pteropleura yellow, except for mesopreepisternum, mesepisternum, mesanepisternum and mesokatepisternum, with dark brown spots at anterior border in some specimens (Fig. 13b).

Foreleg: coxa light brown, except for yellow base and dark brown apex. Femur posterior surface reddish brown with yellow spot near spine rows, spines with dark reddish brown apex (Fig. 13e). Femur anterior surface dark reddish brown medially and reddish brown laterally. Tibia yellow at base, dark brown at apex, and remainder reddish brown same color as tarsomeres and trochanter. Mid and hindlegs yellow or light brown, except for midcoxa dark-brown (Fig. 13b). Tarsal claws with four to six teeth.
FIGURE 13. *Dicromantispa moulti*: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
FIGURE 14. Dicromantispa moulti: male: a, abdominal tergites; b, terminalia, dorsal view; c, ventromedial lobe; d, sternite IX, ventral view; e, gonarcus, posterior view; f, gonarcus, dorsal view; g, genitalia, ventral view; h, genitalia, lateral view; female: i, fertilization canal; j, sternite VIII, ventral view; k, spermatheca; l, terminalia, lateral view. gonarcal lateral lobe (gll), gonarcal median lobe (gml). Scale = 0.1 mm, except for a.
Forewing: length: 13.9–19.6, 7–9 costal crossveins and 14 to 16 veins extended posteriorly from RP. Hyaline, except cells 1M, 1Cu, 1AA, 1AP base, radial triangle and space between Sc and RA brown. Cell 1AP apex light yellow. Pterostigma reddish brown. Veins brown, except AP2, AA, AP1 and bases of C and CuA yellow. Apex of C, Sc and RA same color as pterostigma (Fig. 13f). Hindwing: 7–8 costal crossveins and 14 to 20 veins extended posteriorly from RP; hyaline, except cell 1M and space between C and Sc brown. Pterostigma reddish brown, in some specimens slightly dark. Veins with color pattern similar to forewing, except CuA and C brown (Fig. 13f).

Abdomen mainly yellow with a central longitudinal dark brown stripe dorsally and ventrally except last two sternites. Pleura dark brown. Tergites IV–VI with 2 groups of 6–10 in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 14a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized, curved with wide internal bend (Fig. 14b) with 10–14 stout setae; and narrow external bend with 4–5 stout setae (Fig. 14b, c). Sternite IX posterior border rounded with small lobe at apex, in ventral view (Fig. 14d). Gonarcus with small median lobe (Fig. 14e, f) and two small lateral lobes, as seen in posterior view (Fig. 14e) and with basal extremity narrow in lateral view (Fig. 14h). Gonocoxite with constant width or with apex slightly wide in ventral view (Fig. 14g). Meduncus basal half wide in lateral view and with apex bifurcate in ventral view (Fig. 14g, h). Gonarcal membrane with medial group of spinules extending beyond meduncus apex (Fig. 14g). Pseudopenal membrane generally as long as pseudopenis and with small scales on dorsal surface (Fig. 14g). Hypomere apex rounded with small granules (Fig. 14g, h).

**Female.** Similar to male, except forewing length: 14.4–19.7 mm, 7–10 costal crossveins, 13–18 veins extend posteriorly from RP, hindwing with 7 costal crossveins and 13 to 21 veins extend posteriorly from RP.

Terminalia: Ectoproct almost twice as long as gonocoxite (Fig. 14i). Sternite VIII wide and easily seen in lateral and ventral views, posterior border rounded with small medial invagination (Fig. 14j). Spermathecal duct coiled and wide distally (Fig. 14k). Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 14l). Terminalia: ectoproct posterior border rounded (Fig. 14l). Ventromedial lobe completely sclerotized, curved with wide internal bend (Fig. 14b) with 10–14 stout setae; and narrow external bend with 4–5 stout setae (Fig. 14b, c). Sternite IX posterior border rounded with small lobe at apex, in ventral view (Fig. 14d). Gonarcus with small median lobe (Fig. 14e, f) and two small lateral lobes, as seen in posterior view (Fig. 14e) and with basal extremity narrow in lateral view (Fig. 14h). Gonocoxite with constant width or with apex slightly wide in ventral view (Fig. 14g). Meduncus basal half wide in lateral view and with apex bifurcate in ventral view (Fig. 14g, h). Gonarcal membrane with medial group of spinules extending beyond meduncus apex (Fig. 14g). Pseudopenal membrane generally as long as pseudopenis and with small scales on dorsal surface (Fig. 14g). Hypomere apex rounded with small granules (Fig. 14g, h).

**Geographical data.** Neotropical, with records from Brazil and French Guiana (Penny & Costa 1983; Ohl 2004). Most Brazilian records are from Amazon Region; however, there are records from Espírito Santo state (Penny & Costa 1983), indicating that the species probably occurs in other regions.

**Bionomy.** Labels suggest that specimens may be collected at any time of year, May and June are the only months that have not been recorded. Nothing is known about its biology.

**Discussion.** Our illustrations have some differences from that presented in other papers: the group of spinules on the gonarcal membrane is not clearly illustrated in Penny (1982b); the “Y” spot, on the vertex, not illustrated in Penny & Costa (1983); but the main difference is that the descriptions in Penny (1982b) and Penny & Costa (1983) indicate that the gonarcal median lobe is absent. However the specimens analyzed here, and others analyzed by themselves have shown the gonarcal median lobe. This mistake was probably induced by the small size of the lobe that makes its recognition difficult.

Dicromantispa synapsis Hoffman, 2002
(Figs. 15–16)


Dicromantispa synapsis Hoffman, 2002: 260, Figs. 573, 577, 583; Ohl 2004: 169 (cat.) Type locality: Brazil, Santa Catarina, Nova Teutônia. Holotype male (PMNH) not studied.

Redescription, male. Vertex predominantly brown except yellow lateral stripes that border eyes and a transverse stripe on anterior half. Some specimens with yellow narrow longitudinal central stripe on posterior half (Fig. 15d). Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. This stripe is interrupted at frons. Labrum yellow area slightly darker than other head sclerites (Fig. 15a). Mandible dark brown; other mouthparts reddish brown to yellow. Some specimens with mandible apex reddish brown. Antenna with scape yellow ventrally and light brown to yellow dorsally. Flagellum dark brown, pedicel light brown or with dorsal surface yellow in some specimens (Fig. 15a).

Pronotum: nearly straight in lateral view, with few setae in proximal and distal regions arising directly from it surface. Length-width-ratio at maculae: 6.5–8.2. Light brown to yellow except between the anterior border and maculae dark brown. Some specimens with a small, slightly dark, longitudinal stripe in brown area (Fig. 15d). Mesonotum: with three longitudinal dark brown stripes, one central and two lateral, with yellow stripes between them. Yellow stripes bent laterally at anterior border (Fig. 15d). Most specimens with rounded yellow spot near wing base. Metanotum: dark brown (Fig. 15d). Mesoscutellum dark brown, except yellow lateral border. Metascutellum completely dark brown or similar to mesoscutellum. Both scutella with 5–11 pores each one. Pteropleura predominantly yellow, except for a few small dark brown spots in mesanepisternum and mesokatepisternum (Fig. 15b). Some specimens with small brown spots on posterior border of pleurites.

Foreleg: coxa yellow, trochanter, tibia, tarsomerses and femur posterior surface reddish brown (Fig. 15f), femur anterior surface dark reddish brown medially and light reddish brown laterally (Fig. 15e). Mid and hindlegs yellow; some specimens with midcoxa light brown (Fig. 15b). Tarsal claws with five or six teeth.

Forewing: length 8.5–11.9 mm, 7–8 costal crossveins and 9–13 veins extend posteriorly from RP. Hyaline, except at base of cells 1M, 1Cu, 1AA, 1AP, radial triangle, and space between Sc and RA brown. Cell 1AP apex light yellow. Pterostigma reddish-brown. Veins brown, except AP2, AP1, and base of CuA and AA yellow. Apex of C, Sc, and RA with same color of pterostigma (Fig. 15g). Hindwing: 5–6 costal crossveins and 9–13 veins extended posteriorly from RP; hyaline, except light brown basally. Pterostigma reddish-brown to slightly light in some specimens. Veins with color pattern similar to forewing, except CuA, brown and C, Sc, and RA yellow in medial region (Fig. 15g).

Abdomen mainly yellow with a central longitudinal dark brown stripe dorsally and ventrally. Stripe wider on sternites and posteriorly on tergites. Pleura dark brown. Ectoproct black in southern specimens. Tergites IV–VI with 2 groups of 2 pores in the Amazonian specimens and 5–6 pores in the southern species, in two transverse parallel rows anterolaterally; each group with one or two large pores or a scar between them (Fig. 16a).

Terminalia: ectoproct posterior border rounded. Ventromedial lobe completely sclerotized, curved with wide internal bend (Fig. 16b) with 2–9 stout setae; and narrow external bend with 2–7 stout setae (Fig. 16c). Sternite IX subpentagonal with small lobe at apex in ventral view (Fig. 16d). Gonarcus without median lobe (Fig. 16f), but with two small lateral lobes, easily seen in posterior view (Fig. 16e); basal extremity narrow in lateral view (Fig. 16h). Gonocoxite with apex bent medially in ventral view (Fig. 16g). Mediuncus basal half wider in lateral view and apex bifurcate in ventral view (Fig. 16g, h). Gonarcal membrane with medial group of spinules wider than long, touching gonocoxite apex (Fig. 16g). Pseudopenal membrane as long as or slightly shorter than pseudopenis and with small scales on dorsal surface (Fig. 16g). Hypomere apex rounded with small granules (Fig. 16g, h).
FIGURE 15. *Dicromantispa synapsis*: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
FIGURE 16. *Dicromantispa synapsis*: male: a, abdominal tergites; b, terminalia, dorsal view; c, ectoproct, ventral view; d, sternite IX, ventral view; e, gonarcus, posterior view; f, gonarcus, dorsal view; g, genitalia, ventral view; h, genitalia, lateral view; female: i, fertilization canal; j, sternite VIII and posterior border of sternite VII, ventral view; k, spermatheca; l, terminalia, lateral view. Gonarcus (gnc), lateral expansion (le), sclerotized plate (sp). Scale = 0.1 mm, except for a.
Female. Similar to male, except pteropleura darker, mesopreepisternum, mesepisternum, mesanepisternum and metanepisternum black (Fig. 15c), mid and hindcoxae dark brown (Fig. 15c), forewing length 8.9–12.7 mm, 6–7 costal crossovals, 9–12 veins extend posteriorly from RP.

Terminalia: ectoproct as long as or slightly shorter than gonocoxite (Fig. 16l). Sternite VIII with constant width in lateral view; in ventral view, apex rounded and partially covered by sternite VII, in some specimens. Sternite VII apex with small median lobe (Fig. 16j). Anterior to bursa, there is subrectangular plate covered by spinules (Fig. 16k). Spermathecal duct coiled with small lateral basal expansion (Fig. 16k), Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 16i).

Geographic data. Neotropical, with records from Costa Rica to Brazil (Hoffman 2002). Is widely distributed in Brazil, from Amazonia to southern states (Penny & Costa 1983; Carvalho & Corseuil 1995) (mentioned as *M. lineaticollis*).

Bionomy. Labels suggest that this species may be collected at any time of year; June is the only month that is not on the labels. Known about its biology.

Discussion. During this study, we realized that descriptions of some specimens, such as *M. lineaticollis* in Penny & Costa (1983), were very similar to the original description of *D. synapsis* (Hoffman, 2002). We requested the *M. lineaticollis* type material from the MZPW and discovered that it was on loan to Dr. Michael Ohl at the ZMB, who sent us high resolution images of the type specimen. From these images, we established it as a new synonym of *D. debilis*. Based on this, we concluded that some specimens, such as *M. lineaticollis* (Penny & Costa 1983), are in fact a new species that was later described by Hoffman (2002) as *D. synapsis*. Penny & Costa (1983) predicted this possible misidentification because they did not analyze the type material of *M. lineaticollis*. Carvalho & Corseuil (1995) also erred with this species in describing the Mantispinae from Rio Grande do Sul. Based on this new proposal, all specimens previously attributed to *M. lineaticollis* in Penny & Costa (1983) and Carvalho & Corseuil (1995) are now *D. synapsis*.


*Haematomantispa* Hoffman, 2002


Diagnosis: Pronotum completely covered by setae (best seen in lateral view), setae arising directly from the surface. Body almost completely reddish brown. Male ectoprocts with the ventromedial lobe not sclerotized. Pseudopenis extremely long. Pores absent.

Before this work there was only one species recognized on the genus, *H. nubeculosa* (Navás, 1933) with records from Costa Rica and Panama (Hoffman 2002; Ohl 2004). An additional species is described here.
*Haematomantispa amazonica* Machado & Rafael, new species
(Figs. 17–18)

**Diagnosis.** Body almost completely dark reddish brown, pseudopenis extremely long (about 6 times longer than gonarcus median lobe) and hypomere absent.

**Holotype male.** Head pale yellow at frons, light brown at labrum and clypeus with central longitudinal reddish brown stripe beginning between antennae and ending at labrum, in frontal view (Fig. 17a). Vertex reddish brown, except for two light brown lateral stripes that border eyes (Fig. 17c). Mandible and palpi dark reddish brown, other mouthparts light brown. Antenna dark brown, except for pale yellow scape ventrally (Fig. 17a).

Pronotum: dark reddish brown, nearly straight in lateral view and completely covered by setae arising directly from it surface (Fig. 17c). Length-width-ratio at maculae: 6.8. Pteronotum: dark reddish brown, pteropleura slightly light (Fig. 17b, c). Scutella without pores.

Foreleg: dark reddish brown, femur and tibia slightly light (Fig. 17d, e). Tarsomere I apex and other tarsomeres yellow. Mid and hindlegs with coxae (Fig. 17b), trochanters, base and apex of femora and tibiae dark reddish brown, other parts pale yellow. Tarsal claws with six teeth.

Forewing: length: 9.7 mm, 7 costal crossveins and 8 veins extended posteriorly from RP. Hyaline, except space between Sc and RA, cell 3M, and area beneath it brown. Cell 1AP apex dark brown. Pterostigma dark reddish brown at apex and yellow at base. Veins brown, except AP2 and bases of AA and AP1 yellow; RA, C, and Sc dark yellow at base, yellow medially, and reddish brown at apex (Fig. 17f). Hindwing: 7 costal crossveins and 9 veins extended posteriorly from RP. Membrane, pterostigma, and veins with color pattern similar to forewing (Fig. 17f).

Abdomen with sclerites reddish brown and pleura dark brown. Pores absent.

Terminalia: ectoproct posterior border rounded. Ventromedial lobe apparently separated from ectoproct, in dorsal view, not sclerotized, with more than 60 stout setae (Fig. 18b). Sternite IX, subpentagonal with large, medial, rounded lobe at posterior border in ventral view (Fig. 18a). Gonarcus median lobe long in ventral view (Fig. 18c). Gonarcus with two small lateral lobes, one small group of scales on dorsal region, and basal extremity wider in lateral view (Fig. 18c, d, e). Gonocoixite apex wider in ventral and lateral view and with small scales (Fig. 18d, e). Meduncus apex bifurcate, in ventral view (Fig. 18e). Gonarcal membrane without scales (Fig. 18e). Pseudopenal membrane short (Fig. 18e). Pseudopenis extremely long, more than 6 times longer than gonarcus median lobe, narrow and with apex bent (Fig. 18d, e). Hypomere absent (Fig. 18d, e).

**Paratype female.** Similar to male, except for forewing length: 9.4–13.4 mm, and 9–10 veins extended posteriorly from RP. Hindwing with 10–13 veins extended posteriorly from RP. Terminalia: ectoproct as long as or slightly smaller than gonocoixite (Fig. 18i). Sternite VIII slightly reduced, but easily seen in lateral and ventral views; in ventral view posterior border rounded with small invagination medially (Fig. 18g). Spermathecal duct coiled with small folds basally (Fig. 18h), Fertilization canal narrow. Capsule and canal covered by minuscule setae, except for canal base (Fig. 18f).

**Variation, paratype male.** Similar to holotype, except for length-width-ratio at maculae: 6.1–7.1; forewing length 8.1–11.3 mm, 8–10 veins extended posteriorly from RP, hindwing with 10–11 veins extended posteriorly from RP, cell 1Cu in hindwing, basally amber.

**Geographical data.** Neotropical, until now with records only from Brazil: one specimen collected in November (2005) in Manaus (AM) and seven specimens collected in April (2006) in Vilhena (RO), cities located in the Amazon Region. This is the first record of this genus in South America.

**Discussion.** *Haematomantispa amazonica* differs from *H. nubeculosa* by: hypomere absent, pseudopenis longer and flagellum completely dark brown.

**Etymology.** Named for the Amazon forest, where the types were collected.

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34 · Zootaxa 2454 © 2010 Magnolia Press
FIGURE 17. Haemomantispa amazonica: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
FIGURE 18. *Haematomantispa amazonica*: male: a, sternite IX, ventral view; b, terminalia, dorsal view; c, gonarcus, dorsal view; d, genitalia, lateral view; e, genitalia, ventral view; female: f, fertilization canal; g, sternite VIII, ventral view; h, spermatheca; i, terminalia, lateral view. Gonocoxite (gcx), gonarcal median lobe (gml), ventromedial lobe (vml). Scale = 0.1 mm, except for a.

Holotype condition: excellent. Abdomen dissected, cleared and preserved in a micro vial with glycerin.

**Leptomantispa Hoffman, 2002**


Diagnosis: Pronotum completely covered by setae (best seen in lateral view), setae arising directly from the surface. Male ectoproct with ventromedial lobe not sclerotized. Gonarcal membrane without scales. Male with pores at tergites IV and V (most specimens with pores at tergite III, too). Spermatheca widening distally.

Hoffman (2002) stated that there were eight species in the genus but listed only three. *L. pulchella* (Banks, 1912) is found from Canada to Costa Rica (Cannings & Cannings 2006), remaining two species (*L. chaos* Hoffman, 2002 and *L. nymphe* Hofmann, 2002) are Neotropical and found in Brazil. Machado & Rafael (2007) described a fourth species of the genus, *L. catarinae*, until now found only in Brazil. More two species are treated here: *L. ariasi* (Penny, 1982) n. comb and *L. axillaris* (Navás, 1908) n. comb.

**Key to the species of Leptomantispa with records for Brazil**

1. Wing with pterostigma red and space between Sc and RA hyaline (Fig. 21g), male: hypomere as four small sclerotized marks on pseudopenal membrane (Fig. 22e, f) .................................................................................. L. axillaris

1’. Wing with pterostigma dark or light reddish brown and space between Sc and RA light brown (Fig. 19g), male: hypomere absent or as two small sclerotized marks on pseudopenal membrane (Fig. 20d, e) .........................................................................2

2. Forefemur anterior surface light brown or at least with a light reddish brown spot near basal spine (Fig 25e), male gonocoxite with external border bent medially, in ventral view (Fig 26e) .......................................................... L. nymphe

2’. Most of forefemur anterior surface dark brown or dark reddish brown (Fig 19e), male gonocoxite with external border not bent medially, in ventral view (Fig 20d) ................................................................................................. 3

3. Wing base hyaline (Fig. 19g); male pseudopenis as long as or slightly shorter than gonarcus median lobe (Fig. 20e) ......................................................................................................................................................... L. ariasi

3’. Wing base light brown (Fig. 23g); male pseudopenis longer than gonarcus median lobe (Fig. 24f) .............................................................................................................. 4

4. Male: hypomere absent; gonocoxite with small scales at apex; tergite III without pores. Female: ectoproct as long as gonocoxite; spermathecal duct with few bends ........................................................................ L. catarinae

4’. Male: hypomere as two small sclerotized marks on pseudopenal membrane; gonocoxite without small scales at apex; tergite III with pores in posterior border (Fig. 24a). Female: ectoproct shorter than gonocoxite; spermathecal duct coiled (Fig. 24i) .............................................................................................................................. L. chaos

**Leptomantispa ariasi** (Penny, 1982), new combination

(Figs. 19–20)


**Redescription, male.** Vertex reddish brown, except yellow round spot behind each antenna and yellow lateral stripes that border eyes (Fig. 19d). Some specimens with the round spots fused. Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Stripe generally with widen variation along its length. Labrum and clypeus yellow area slightly darker than other head sclerites (Fig. 19a). Some specimens with round yellow spot at beginning of
longitudinal stripe. Mandible and palpi apices dark brown, other mouthparts reddish brown. Antenna with scape yellow ventrally and light brown dorsally, pedicel light brown, and flagellum dark brown (Fig. 19a).

Pronotum: nearly straight, in lateral view, and completely covered by setae arising directly from it surface. Length-width-ratio at maculae: 5.6–7.3. Reddish brown (Fig. 19d), some specimens with median region slightly light. Pteronotum: reddish brown; some specimens with small yellow rounded spots near wing base. Both scutella yellow (Fig. 19d) and with 8–11 pores each one. Pleurral sclerites light brown with yellow spots (Fig. 19b).

Foreleg: coxa yellow, except reddish brown distally. Trochanter, tibia (except for yellow base), tarsomeres, and most femur posterior parts reddish brown. Femur posterior surface yellow near spine row (Fig. 19f); anterior surface predominantly dark reddish brown, except reddish brown extremities and spines (Fig. 19e). Mid and hindlegs yellow, except light brown coxae, trochanters and femora base (Fig. 19b). Tarsal claws with four teeth.

Forewing: length: 8.1–10.9 mm, 5–7 costal crossveins and 6–8 veins extended posteriorly from RP. Hyaline, except space between Sc and RA, and cell 1AP apex light brown. Pterostigma dark reddish brown to dark brown. Veins brown, except AP1 base light yellow (Fig. 19g). Hindwing: 4–7 costal crossveins and 7–9 veins extended posteriorly from RP. Color pattern similar to forewing, except cell 1AP apex hyaline and vein AA base light yellow (Fig. 19g).

Abdomen reddish brown dorsally and ventrally, except small yellow transverse spots at tergite ends. Pleura brown. Tergites with eight groups of pores: two posterolaterally at tergites III–IV each one with 7–8 pores in one or two curved rows; two anterolaterally at tergites IV–V each one with 15–24 pores; each group with one or two large pores or a scar between them (Fig. 20a).

Terminalia: ectoproct subtriangular, ventromedial lobe not sclerotized and with 8–10 stout setae (Fig. 20b). Sternite IX subpentagonal with posterior border rounded in ventral view (Fig. 20c). Gonarcus median lobe as long as or slightly longer than pseudopenis (Fig. 20e, f). Gonocoxite with base bent laterally in ventral view, and wider in lateral view (Fig. 20d). Mediuncus basal third wide in lateral view, and apex bifurcate in ventral view (Fig. 20d, e). Gonarcal membrane without group of spinules (Fig. 20d, e). Pseudopenal membrane with small scales on dorsal surface and generally as long as or slightly longer than pseudopenis (Fig. 20d). Hypomere as two small sclerotized marks on pseudopenal membrane (Fig. 20d, e).

**Female.** Similar to male, except pteropleura with sclerites predominantly dark brown with yellow spots at posterior border; mid and hindcoxae dark brown (Fig. 19c). Forewing length 8.5–10.3 mm.

Terminalia: ectoproct generally as long as or slightly shorter than gonocoxite (Fig. 20i). Sternite VIII slightly reduced laterally and ventrally; in ventral view apex rounded (Fig. 20g). Spermathecal duct with few bends and enlarged distally (Fig. 20h). Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 20h).

**Geographical data.** Neotropical, with records only from Brazil (Ohl 2004). The type series is from Amazonas state, but there are other specimens collected in the southeastern and southern regions.

**Bionomy.** Specimens until now collected only in January, July, October and November. Nothing is known about its biology.

**Type material:** Holotype male: Brazil: Amazonas: AM-010 Km 246, 15.vii.1979, Jorge R. Arias (written on a rectangular white label) INPA. Allotype female: similar to holotype. **Paratypes:** similar to holotype (4 ♀, 2 ♂ and 2 ?–INPA); 12.vii.1979 (2 ♂ and 1 ?–INPA); 16.vii.1979 (1 ♂ and 1 ?–INPA).

**Types condition:** holotype with head smashed, distal area of the right fore and hindwing absent, left foreleg lost, except coxa. Allotype hindwing damaged and foreleg with fungus. Paratypes with some damage, mainly in the wings, mid and hindlegs and abdomen; mostly with fungus.

FIGURE 19. *Leptomantispa ariasi*: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
FIGURE 20. Leptomantispa ariasi: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, genitalia, ventral view; e, genitalia, lateral view; f, gonarcus, dorsal view; female: g, sternite VIII, ventral view; h, spermatheca; i, terminalia, lateral view. Gonarcal membrane (gm), hypomere (hp), sternite (stn), ventromedial lobe (vml). Scales = 0.1 mm, except for a.
Leptomantispa axillaris (Navás, 1908), new combination
(Figs. 21–22)


Redescription, male. Vertex light yellow to white, except for large central dark brown spot, generally enlarging in posterior region (Fig. 21d). Head, in frontal view, almost completely light yellow to white, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Stripe generally with widen variation along its length (Fig. 21a). Labrum and clypeus yellow area slightly darker than in other head sclerites. Mandible dark brown; other mouthparts reddish brown. Antenna with scape light yellow to white ventrally and reddish brown dorsally; pedicel light brown, and flagellum dark brown (Fig. 21a). Northeastern and southeastern specimens with a dark color pattern, the yellow to white areas brown.

Pronotum: nearly straight in lateral view and completely covered by setae arising directly from it surface. Length-width-ratio at maculae: 5.9–7.5. Light yellow to white, except for four small longitudinal dark spots: three distally (two laterally and one medially) and one medial proximally, some specimens with scattered small dark spots dorsally (Fig. 21d). Pteronotum: predominantly dark brown, except for pale yellow “V” shaped spot on both segments and four small rounded spots near wing base (Fig. 21d). Width of “V” spot varies among specimens. Both scutella light yellow with dark brown spot medially and with 0–4 pores each one (Fig. 21d). Pleural sclerites predominantly light yellow to white with dark spots (Fig. 21b). In northeastern and southeastern specimens yellow to white areas are brown.

Foreleg: coxa yellow, except reddish brown distally in some specimens. Trochanter reddish brown. Femur posterior surface dark reddish brown, except extremities slightly light (Fig. 21f) and yellow spot near spine row in some specimens. Femur anterior surface similar to posterior, except the yellow spot (Fig. 21e). Tibia base yellow, remainder dark reddish brown as tarsomeres. Mid and hindlegs yellow, except for dark spots at coxae and trochanters in some specimens (Fig. 21b). Tarsal claws with four or five teeth.

Forewing: length: 9.6–11.1 mm, 6–7 costal crossveins and 9–11 veins extended posteriorly from RP. Hyaline, except cell 1AP apex light brown. Pterostigma red. Veins brown, except AP2 and bases of AP1, AA, and RA light yellow (Fig. 21g). Hindwing: 6–7 costal crossveins and 9–10 veins extended posteriorly from RP. Color pattern similar to forewing, except hyaline cell 1AP apex and light yellow base of veins AA, AP2, and CuA (Fig. 21g).

Abdomen mainly dark brown with small lateral yellow spots. Pleura dark brown. Tergites with eight groups of pores: two posterolaterally at tergites III–IV each one with 5–8 pores in one or two curved rows, some specimens pores in unique central group; two anterolaterally at tergites IV–V each one with 22–26 pores, each group with one or two large pores or a scar between them (Fig. 22a).

Terminalia: ventromedial lobe elongated, with 15–20 stout setae (Fig. 22b). Sternite IX subtrapezoidal, with posterior border flattened in ventral view (Fig. 22c). Gonarcus median lobe shorter than pseudopenis (Fig. 22d). Gonocoxite apex bent medially in ventral view and wider in lateral view (Fig. 22e, f). Mediuncus basal half wider in lateral view with apex bifurcate in ventral view (Fig. 22e, f). Gonarcal membrane without group of spinules (Fig. 22e, f). Pseudopenal membrane with small scales on dorsal surface and generally as long as pseudopenis (Fig. 22e). Hypomere as four small sclerotized marks on the pseudopenal membrane (Fig. 22e, f).

Female. Similar to male, except pteropleura, mid and hindcoxae predominantly dark brown with some white to yellow spots (Fig. 21c). Forewing length: 9.2–13.1 mm, 7–8 costal crossveins, hindwing with 8–10 veins extended posteriorly from RP.

Terminalia: ectoproct generally as long as or slightly shorter than gonocoxite (Fig. 22j). Sternite VIII slightly reduced laterally and ventrally; in ventral view with apex rounded (Fig. 22h). Spermathecal duct with few bends and enlarged distally (Fig. 22i) Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 22g).
FIGURE 21. *Leptomantispa axillaris*: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
FIGURE 22. Leptomantispa axillaris: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, dorsal view; e, genitalia, ventral view; f, genitalia, lateral view; female: g, fertilization canal; h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Gonarcal membrane (gm), hypomere (hp). Scale = 0.1 mm, except for a.
Geographical data. Neotropical, with records only from Brazil (Ohl 2004). The previous records were from southern and southeastern states and Goiás state (Penny & Costa 1983; Carvalho & Corseuil 1995; Ohl 2004). This is the first record for the North and Northeastern regions, expanding significantly its distribution.

Bionomy. February and June are the only months that are not on the labels. Nothing is known about its biology.

Discussion. Penny & Costa (1983) stated that the hypomere in male terminalia is absent. However, it is present as two small marks on each side of the pseudopenal membrane.


Leptomantispa catarinae Machado & Rafael, 2007

Leptomantispa catarinae Machado & Rafael, 2007: 37. Figs. 1–2. Type locality: Brazil: Amazonas, Manaus. Holotype male (INPA) studied.

This species was recently described with detailed figures (Machado & Rafael 2007), so we opted to not redescribe it. Beyond the type series we analyzed another three specimens, collected very near to the type locality and similar to the type specimens. 


Leptomantispa chaos Hoffman, 2002

(Figs. 23–24)


Redescription, male. Vertex dark brown, except yellow stripes that bordered the eyes and another posteriorly (Fig. 23d). Some specimens with rounded yellow spot behind each antenna. Head, in frontal view, almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Stripe generally with wide variation along its length. Labrum yellow area slightly darker than other head sclerites (Fig. 23a). Some specimens with rounded yellow spot at beginning of longitudinal stripe. Mandible and palpi apices dark brown, other mouthparts reddish brown to light brown. Antenna dark brown, except yellow scape ventrally (Fig. 23a).
Pronotum: nearly straight in lateral view and completely covered by setae arising directly from it surface. Length-width-ratio at maculae: 6.5–8.4. Dark reddish brown; some specimens with median region slightly light (Fig. 23d). Pteronotum: reddish brown, except for yellow small rounded spots near wing base (Fig. 23d). Some specimens with yellow spots around central suture. Both scutella yellow with reddish brown spot medially and with 0–2 pores each one (Fig. 23d). Pleural sclerites predominantly yellow, except dark brown border (Fig. 23b).

Foreleg: coxa yellow. Trochanter, tibia (except yellow base) and tarsomeres, reddish brown. Femur posterior surface reddish brown except for two yellow spots, one at proximal end and other around base of spines extending to area near spine row (Fig. 23f). Femur anterior surface predominantly dark reddish brown, except for dorsal and apical extremities slightly light and base light brown (Fig. 23e). Mid and hindlegs yellow, except for some dark brown spots at coxae (Fig. 23b). Trochanters and base of femora light brown. Tarsal claws with four teeth.

Forewing: length: 7.4 mm, 6 costal crossveins and 5 veins extended posteriorly from RP. Hyaline, except space between Sc and RA and apex of cell 1AP brown and wing base light brown. Pterostigma dark reddish brown. Veins dark brown, except AP2 and bases of AP1 and AA yellow. Hindwing: 5 costal crossveins and 5 veins extended posteriorly from RP. Color pattern similar to forewing, except cell 1AP apex hyaline and vein AA yellow.

Abdomen with tergites dark brown, except for small lateral yellow spots. Sternites predominantly light brown with some yellow lateral spots. Pleura dark brown. Tergites with eight groups of pores: two posterolaterally at tergites III–IV each one with 5–10 pores in one or two curved rows; two anterolaterally at tergites IV–V each one with 12–19 pores; each group with one or two large pores or a scar between them, small pores not completely encircling large ones (Fig. 24a).

Terminalia: ectoproct subtriangular, with 15–18 stout setae in ventromedial lobe (Fig. 24b). Sternite IX subpentagonal in ventral view (Fig. 24c). Gonarcus median lobe slightly shorter than pseudopenis (Fig. 24d). Gonarcus with constant width in lateral view (Fig. 24f). Gonocoxite straight in ventral view and with apex wide in lateral view (Fig. 24e, f). Mediuncus with basal half wide in lateral view, apex bifurcate and median region narrow in ventral view (Fig. 24e, f). Gonarcal membrane without group of spinules (Fig. 24e, f). Pseudopenal membrane with small scales on dorsal surface and generally as long as pseudopenis (Fig. 24e). Hypomere as two small sclerotized marks on pseudopenal membrane (Fig. 24e, f).

**Female.** Similar to male, except metenepisterna, epimera and katepisterna yellow; other pteropleural sclerites dark brown with some yellow spots; mid and hindcoxae predominantly dark brown (Fig. 23c). Forewing length: 8–10.5 mm, 6 or 7 costal crossveins, 8–9 veins extended posteriorly from RP. Hindwing with 6 costal crossveins and 7–9 veins extended posteriorly from RP (Fig. 23g).

Terminalia: ectoproct shorter than gonocoxite (Fig. 24j). Sternite VIII slightly reduced laterally and ventrally, apex with two small lobes at posterior border in ventral view (Fig. 24h). Spermathecal duct coiled (Fig. 24i). Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 24g).

**Geographical data.** Neotropical, with records from Guatemala to Brazil (Hoffman 2002; Ohl 2004). In previous work there was only one record from Brazil: Tucuruí (PA) (Hoffman 2002). This is the first record for the Amazonas state, eight specimens collected in Manaus and one in Presidente Figueiredo, both cities located in the central Amazon.

**Bionomy.** Until now specimens not collected in February, May and August (Hoffman 2002). Nothing is known about its biology.

**Discussion.** There are some differences in color pattern between specimens here examined and description of type series (Hoffman 2002): some specimens do not have yellow spots behind antenna and others do not have scutella completely yellow (Fig. 23d). However, these are small variations that do not complicate the identification.

**Material examined: Brazil: Amazonas:** Manaus, ZF2, torre 40 m, 02°35’21”S–60°06’55”W, i.ix–x.xii.2004, luz (5 ♂–INPA); x–xi.2003 (1 ♂, 1 ♀–INPA); xi.2005, luz móvel (1 ♀–INPA); Presidente Figueiredo: AM 240: Km 24, x.2008, luz (1 ♀–INPA).
FIGURE 23. Leptomantispa chaos: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
FIGURE 24. Leptomantispa chaos: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, dorsal view; e, genitalia, ventral view; f, genitalia, lateral view; female: g, fertilization canal; h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Scale = 0.1 mm, except for a.
**Leptomantispa nympha** Hoffman, 2002
(Figs. 25–26)


**Redescription, male.** Vertex brown, except for yellow stripes that border the eyes and another at posterior border. Some specimens with a dark brown spot between antennae (Fig. 25d), others with yellow rounded spot behind each antenna. Head in frontal view almost completely yellow, except for central longitudinal dark brown stripe beginning between antennae and ending at labrum. Stripe generally with widen variation along its length (Fig. 25a). Labrum yellow area slightly darker than other head sclerites. Mandible apex dark brown, other mouthparts reddish brown. Antenna with scape yellow ventrally and reddish brown dorsally, pedicel reddish brown, and flagellum dark brown (Fig. 25a).

Pronotum: nearly straight in lateral view and completely covered by setae arising directly from it surface. Length-width-ratio at maculae: 6.6–8.0. Reddish brown; some specimens with anterior region slightly light; (Fig. 25d). Pteronotum with three longitudinal yellow stripes, one central and two lateral, with reddish brown stripes between them (Fig. 25d). Scutella yellow with reddish brown spot medially (Fig. 25d) and with 0–3 pores each one. Pteropleura yellow or light brown (Fig. 25b).

Foreleg: coxa and femur light brown (Fig. 25f), except reddish brown spot in femur anterior surface at base (Fig. 25e). Trochanter, tibia, and tarsomers reddish brown. Mid and hindlegs yellow except coxae and trochanters light brown; midcoxa generally slightly darker (Fig. 25b). Tarsal claws with four teeth.

Forewing: length: 8.2–11.5 mm, 6–7 costal crossveins and 7–9 veins extended posteriorly from RP. Hyaline, except space between Sc and RA and cell 1AP apex light brown. Pterostigma reddish brown to light reddish brown. Veins brown, except AP2 and bases of AP1, AA, and RA yellow (Fig. 25g). Hindwing: 6–8 costal crossveins and 8–9 veins extended posteriorly from RP. Color pattern similar to forewing, except cell 1AP apex hyaline, vein AA yellow, and some specimens with space between C and Sc light brown (Fig. 25g).

Abdomen tergites yellow laterally with longitudinal dark brown stripe medially. Sternites yellow with some dark brown spots on posterior border. Some specimens with abdomen completely light brown. Pleura dark brown, except yellow proximal region. Tergites with eight groups of pores: two posterolaterally at tergites III–IV each one with 15–26 pores in one or two curved rows; two anterolaterally at tergites IV–V each one with 22–26 pores, each group with one or two large pores or a scar between them (Fig. 26a).

Terminalia: ectoproct with 25–35 stout setae on ventromedial lobe (Fig. 26b). Sternite IX subpentagonal and with posterior border rounded in ventral view (Fig. 26c). Gonarcus median lobe slightly shorter than pseudopenis (Fig. 26d). Gonarcus with apex slightly narrow in lateral view (Fig. 26f). Gonocoxite in ventral view with external border bent medially, in lateral view with apex widen (Fig. 26e, f). Mediuncus with basal third wide in lateral view, and with apex bifurcate; median region narrow in ventral view (Fig. 26e–f). Gonarcal membrane without group of spinules (Fig. 26e, f). Pseudopenal membrane with small scales on dorsal surface, except base medially with a triangular area without scales (Fig. 26e); generally as long as or slightly longer than pseudopenis. Hypomere as two small sclerotized marks on gonarcal membrane (Fig. 26e, f).

**Female.** Similar to male except: pteropleura reddish brown, same color as coxae and trochanters (Fig. 25c). Forewing length: 8.2 mm; 7 costal crossveins; 8 veins extended posteriorly from RP; hindwing with 7 costal crossveins and 9 veins extended posteriorly from RP.

Terminalia: ectoproct as long as gonocoxite (Fig. 26j). Sternite VIII slightly reduced laterally and ventrally, posterior border with small invagination, in ventral view (Fig. 26h). Spermathecal duct coiled (Fig. 26i). Fertilization canal narrow. Capsule covered by minuscule setae (Fig. 26g).

**Geographical data.** Neotropical, with records from Costa Rica, French Guiana and Panama (Hoffman 2002; Ohl 2004). This is the first record for Brazil (Amazonas, Pará and São Paulo states), increasing its geographical distribution considerably southward.
FIGURE 25. *Leptomantispa nymphe*: a, head, anterior view; b, male pteropleura; c, female pteropleura; d, head and thorax, dorsal view; e, foreleg, anterior view; f, foreleg, posterior view; g, fore and hindwing.
FIGURE 26. *Leptomantispa nympha*: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, dorsal view; e, genitalia, ventral view; f, genitalia, lateral view; female: g, fertilization canal; h, sternite VIII, ventral view; i, spermatheca; j, terminalia, lateral view. Scale = 0.1 mm, except for a.
Bionomy. Brazilian specimens collected in January, May, June, September and November. The specimens from other countries also collected in March, July and December (Hoffman 2002). Nothing is known about its biology.


Zeugomantispa Hoffman, 2002


Three species comprise the genus occurring in the New World (Ohl 2004). Zeugomantispa minuta (Fabricius, 1775) occurs from USA to Argentina, but not registered in Brazil. The other two species are exclusively Neotropical and have been reported in Brazil.

Key to the species of Zeugomantispa with records for Brazil

1. Pterostigma and most parts of pronotum reddish-brown (Fig. 27c, f). Abdominal membranes completely divided into two distinct patches (Fig. 28a)...........................................................................................................Z compellens
1’. Pterostigma and most parts of pronotum light green (Fig. 29c, f). Abdominal membranes with central invagination, not completely separated into two distinct patches (Fig. 30a).................................................................................................Z virescens

Zeugomantispa compellens (Walker, 1860)
(Figs. 27–28)

Mantispa uniformis; Penny, 1982a: 217. Figs. 18. (cit.).

Redescription, male. Vertex without a stable color pattern, anterior part generally green, posterior varies among yellow, green, red or brown (Fig. 27c). Specimens stored for a long time generally yellowish. Head, in frontal view, almost completely green except labrum and clypeus pale yellow (Fig. 27a). Some specimens with central longitudinal red or reddish brown stripe beginning between antennae and ending at labrum, generally bifurcate towards antennae. Mandible apex reddish brown, other mouthparts pale yellow. Antenna with scape green to light brown ventrally and reddish brown dorsally. Pedicel reddish brown, and flagellum dark brown (Fig. 27a).

Pronotum: nearly straight in lateral view and completely covered by setae, arising from dorsal bumps. Length-width-ratio at maculae: 5.5–7.5. Reddish brown, except green anteriorly; some specimens with small
yellow spot at posteriorly (Fig. 27c). Pteronotum: without a stable color pattern, generally green with some yellow or brown spots in sutures and near wing base (Fig. 27c). Metanotum generally slightly light. Both scutella green to yellow with central brown spot (Fig. 27c) and with 2–8 pores each one. Pteropleura green (Fig. 27b). Specimens stored for a long time generally with some yellowish spots.

Foreleg: coxa yellow to green. Trochanter pale yellow. Femur pale yellow to green (Fig. 27e, f), some specimens with brown spot on anterior surface, around base of basal spine. Tibia with base green andremainder pale yellow, same color as tarsomeres. Mid and hindlegs green on basal half of tibiae; remainder pale yellow. Coxae dark in some specimens (Fig. 27b). Tarsal claws with three or four teeth.

Forewing: length: 7.7–11.7 mm, 4–7 costal crossveins and 8–10 veins extended posteriorly from RP. Hyaline, except cell 1AP apex light brown to yellow. Pterostigma reddish brown to red. Veins dark brown, except AA, AP1, AP2, CuA and base of CuP green. RA, C and Sc with base green and apex same color as pterostigma (Fig. 27f). Hindwing: 5–6 costal crossveins and 8–11 veins extended posteriorly from RP. Color pattern similar to forewing, except cell 1AP apex hyaline and MP base green (Fig. 27f).

Abdomen reddish brown, except for small green spots and yellow central spots dorsally and ventrally. Pleura green. Pores in membranes between tergites III–V. These membranes completely divided into two distinct patches. Each group with 3–5 pores (Fig. 28a).

Terminalia: ectoproct subtriangular, with 19–35 stout setae on ventromedial lobe (Fig. 28b). Sternite IX subpentagonal and with small rounded lobe at posterior border in ventral view (Fig. 28c). Gonarcus median lobe short and rounded (Fig. 28d, e). Gonarcus with constant width in lateral view (Fig. 28g). Gonocoxite apex large in ventral and lateral views (Fig. 28f). Mediuncus with base wider in lateral and ventral views and with apex bifurcate (Fig. 28f, g). Gonarcal membrane without group of spinules (Fig. 28f, g). Pseudopenal membrane with small scales on dorsal surface (Fig. 28f). Hypomere irregularly shaped with small granules (Fig. 28f, g).

Female. Similar to male, except for forewing length: 7.9–14.1 mm, 6–7 costal crossveins and 7–10 veins extended posteriorly from RP, hindwing with 7–11 veins extended posteriorly from RP.

Terminalia: ectoproct as long as gonocoxite (Fig. 28k). Sternite VIII, in ventral view, very reduced and usually covered by sternite VII (Fig. 28i). Spermathecal duct coiled and wide distally (Fig. 28j) Fertilization canal narrow, capsule covered by minuscule setae, except at canal base (Fig. 28h).

Geographical data. Neotropical, with records from Mexico to Brazil (Penny & Costa 1983; Hoffman 2002; Ohl 2004; Reynoso-Velasco & Contreras-Ramos 2008). There are many records from several states in Brazil (Penny & Costa 1983).

Bionomy. Specimens may be collected at any time of year. Nothing is known about its biology.

Discussion. Mantispa parvula was described by Penny (1982b) based in one pair of specimens from Pará state. Holotype male is deposited at INPA collection, in bad condition; there is only part of the cleared abdomen, preserved in a micro vial with glycerin; and allotype female deposited at the MPEG collection. We analysed the abdominal pores of the holotype with high definition images of the allotype, and conclude that M. parvula and Z. compellens are the same species, the oldest name that prevails is Z. compellens.

In Penny’s (1982b) study the description and illustration of M. compellens did not mention the hypomere. However, it is present and is easily seen.


Other material examined: Brazil: Roraima: Pacaraima, 04°29’42”N–61°07’28”W, x.2004, luz (1 ♀–INPA); Amazonas: Barcelos: Igarapé Erere/Coruja, 0°06’16”N–63°01’51”W, vi.2008, luz (1 ♀–INPA); Rio Urubu, 02°10’S–59°48’W, ix.1982, luz (1 ♀–INPA); Am 010 Km 246, vii.1979, luz 40m, Mantispa compellens Walker, det. N. D. Penny 1981 (1 ♀, 3 ?:–INPA); Manaus, Silviculture, BR-174 Km 43, iv.2003, luz (1 ♂–INPA); [reserva] Ducke, iv.1990 (1 ♂–INPA); iii.1977, Mantispa flavomaculata Latreille, det. N.D.Penny 1982 (1 ♀–INPA); ZF-2, torre 40 m, 02°35’21”S–60°06’55”W, i–x.2004, luz (3 ♂, 2 ♀–INPA);
FIGURE 27. *Zeugomantispa compellens*: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
FIGURE 28. Zeugomantispa compellens: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, dorsal view; e, gonarcus, posterior view; f, genitalia, ventral view; g, genitalia, lateral view; female: h, fertilization canal; i, sternite VIII and posterior border of sternite VII, ventral view; j, spermatheca; k, terminalia, lateral view. Membrane (mbn), pore (po), sternite (stn). Scale = 0.1 mm, except for a.

**Zeugomantispa virescens** (Rambur, 1842) (Figs. 29–30)


Redescription, male. Vertex green, except for yellow lateral stripes, that border eyes and posterior margin (Fig. 29c). Some specimens with small red spots behind antennae and others with vertex almost completely yellow. Specimens stored for a long time generally yellowish. Head, in frontal view, almost completely green, except labrum and clypeus pale yellow (Fig. 29a); some specimens with small red longitudinal medial stripe. Mandible apex dark reddish brown, other mouthparts pale yellow. Antenna with scape green ventrally, reddish brown dorsally; pedicel reddish brown; and flagellum dark brown (Fig. 29a).

Pronotum: nearly straight in lateral view and completely covered by setae arising from dorsal bumps. Length-width-ratio at maculae: 4.9–7.0. Green, some specimens with anterior border red laterally and others with central longitudinal yellow stripe (Fig. 29c). Peronotum: green, except for some specimens with central longitudinal yellow stripe. Both scutella green in specimens without yellow stripe, yellow in those with stripe; 2–9 pores each other (Fig. 29c). Steropleura green or yellow when stored for a long time (Fig. 29b).

Foreleg: coxa, trochanter, femur basal spine, tibia apex and tarsomeres light yellow. Femur green, except for spines apex yellow (Fig. 29d, e); some specimens with yellow dorsal spot. Tibia green, except at apex. Mid and hindlegs green, except tibiae apex yellow. Tarsal claws with 3–4 teeth.

Forewing: length: 6.2–11.6 mm, 6 costal crossveins, 8–13 veins extended posteriorly from dorsal bumps. Veins green, except vein junctions, apices, and
crossveins dark brown. RA, C and Sc completely green (Fig. 29f). Hindwing: 5–6 costal crossveins and 8–14 veins extended posteriorly from RP. Color pattern similar to forewing, except for cell 1AP apex hyaline (Fig. 29f).

Abdomen green, some specimens with yellowish longitudinal stripe dorsally and ventrally, others with sternites completely yellow and, others with small red spots. Pleura dark green with red spots in some specimens. Pores in membranes between tergites III–V. Membranes with central invagination, not completely separating in two distinct patches. Each group with 5–8 pores (Fig. 30a).

Terminalia: ectoproct with posterior border rounded, ventromedial lobe not sclerotized and with 36–48 stout setae (Fig. 30b). Sternite IX subpentagonal, with small rounded lobe at posterior border, in ventral view (Fig. 30c). Gonarcus median lobe short and rounded (Fig. 30d, e). Gonoxite base large in dorsal view (Fig. 30f). Median base wide in lateral and dorsal view, apex bifurcate (Fig. 30f, g). Gonarcal membrane without group of spinules (Fig. 30f, g). Pseudopenal membrane with small scales on dorsal surface (Fig. 30f). Hypomere irregularly shaped with small granules (Fig. 30f, g).

Female. Similar to male, except forewing length 7.7–13.1 mm, 8–14 veins extend posteriorly from RP. Hindwing with 8–15 veins extended posteriorly from RP.

Terminalia: ectoproct as long as gonoxite (Fig. 30k). Sternite VIII very reduced and usually covered by sternite VII in ventral view (Fig. 30i). Spermathecal duct coiled and widen distally (Fig. 30j) Fertilization canal, and capsule covered by minuscule setae, except at canal base (Fig. 30h).

Geographical data. Neotropical, from Central Mexico to Argentina (Ohl 2004; Reynoso-Velasco & Contreras-Ramos 2008). This is the most common species in Brazil, reported from all regions.

Bionomy. Specimens may be collected at any time of year. Biology is poorly known. Berti-Filho et al. (2002) observed six individuals emerge from one egg sac of the web spider Parawixia bistriata (Rengger).

Discussion. Zeugomantispa virescens is quite variable in size and color pattern. This variability may have caused confusion with the result that it was described many times by different authors. The complete synonymic list, according to Ohl (2004) is presented above. The Brazilian species has always been treated as Mantispa minuta (Fabricius, 1775) (Penny 1982; Penny & Costa 1983; Carvalho & Corseuil 1995; Berti-Filho et al. 2002).

Based on the type analysis, Hoffman (2002) separated in two species the green mantispids of the New World, Z. minuta and Z. viridula (Erichson, 1839). Z. minuta occurs from USA to Argentina, but not Brazil, while Z. viridula is found from central Mexico to Argentina, including Brazil.

Although, Hoffman (2002) stated that the valid name of the species was Z. viridula, Ohl (2004) studied the types and found that Z. virescens has priority over Z. viridula. This name is a junior secondary homonym of M. viridula (Houttuyn in Stoll, 1813) which was synonymized with Z. minuta (Fabricius) by Ohl (2004) therefore that name is no longer available.

Consequently, the oldest name that prevails is Z. virescens (Rambur). The specimens treated as M. minuta in Brazilian studies (Penny 1982; Penny & Costa 1983; Carvalho & Corseuil 1995; Berti-Filho et al. 2002) must now be considered to be Z. virescens. We confirm this treatment here, where we analyzed more than 300 specimens (see the list below) from several states in Brazil and they are all recognizable as Z. virescens.

Penny (1982b) did not mention hypomere in the descriptions nor the illustrations of M. minuta. However it is present and is easily seen.

BRAZILIAN SPECIES PREVIOUSLY PLACED IN MANTISPA

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FIGURE 29. Zeugomantispa virescens: a, head, anterior view; b, pteropleura; c, head and thorax, dorsal view; d, foreleg, anterior view; e, foreleg, posterior view; f, fore and hindwing.
FIGURE 30. Zeugomantispa virescens: male: a, abdominal tergites; b, terminalia, dorsal view; c, sternite IX, ventral view; d, gonarcus, dorsal view; e, gonarcus, posterior view; f, genitalia, dorsal view; g, genitalia, lateral view; female: h, fertilization canal; i, sternite VIII and posterior border of sternite VII, ventral view; j, spermatheca; k, terminalia, lateral view. Sternite (stn). Scale = 0.1 mm, except for a.
Here, all Brazilian species previously classified in *Mantispa* (Carvalho & Corseuil 1995; Penny 1982; Penny & Costa 1983) are now updated following Hoffman (2002). The genera created by Hoffman (2002) are very consistent and all are based mainly on the male terminalia, the body parts that are of great taxonomic importance for insects.

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