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## A REVISION OF THE NEOTROPICAL SOLENOPSIDINI ANT GENUS *OXYEPOECUS* SANTSCHI, 1926 (HYMENOPTERA: FORMICIDAE: MYRMICINAE).

### 1. THE VEZENYII SPECIES-GROUP

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#### ABSTRACT

*We revise the exclusively Neotropical solenopsidine ant genus Oxyepoecus, starting here with the Vezenyii species-group. We describe five new species (O. browni, O. ephippiatus, O. longicephalus, O. kempfi, and O. quadratus), present new locality records and sum the few data on the biology of the species already described.*

KEY WORDS: Formicidae, Myrmicinae, Solenopsidini, *Oxyepoecus*, revision, Vezenyii group.

#### INTRODUCTION

Among the now recognized 16 ant subfamilies (Baroni Urbani, 2000; Perault, 2000), Myrmicinae is the richest both globally and regionally. Bolton (1995) registered more than 45% of the species, and 52% of the genera of Formicidae belonging to Myrmicinae (respectively 4377 and 155 at December, 31, 1993), in 23 tribes. Myrmicinae is cosmopolitan, especially rich in the Neotropical and Indo-Australian regions.

The myrmicine tribe Solenopsidini was described by Forel (1893), as Solenopsisii, including: *Solenopsis* Westwood, *Oligomyrmex* Mayr, *Carebara* Westwood, *Tranopelta* Mayr, *Melissotarsus* Emery, *Pheidologeton* Mayr, and *Aeromyrma* Forel (= *Oligomyrmex* Mayr). In 1966, Ettershank revised the genera included in Pheidologetini and Solenopsidini by authors, but considered also in his analysis genera transferred or described by other authors since Forel's times. He proposed the use of informal groups centered respec-

tively in *Megalomyrmex*, *Monomorium*, *Solenopsis* and *Pheidologeton*, abandoning the traditional tribes. In 1987, Bolton revised the *Solenopsis* group of genera. Bolton, in 1995, recognized again the cosmopolitan tribe Solenopsidini and *Oxyepoecus* as its member, recording 13 solenopsidine genera with 539 nominal species.

The eleven species now accepted in *Oxyepoecus*, four described in the unique revision of the genus made by Kempf in 1974, are cryptobiotic and exclusively collected in South America; at least four of them are recorded as inquilines in the nest of other ant species (*Pheidole* and *Solenopsis*; see Kusnezov, 1952), although the exact nature of this relationship is still unknown. In his revision, Kempf proposed three synonyms, described the first male and summarised the distributional and biological information.

The references on *Oxyepoecus* published since Kempf's (1974) revision are: Wheeler & Wheeler (1977) described for the first time the larva of *Oxyepoecus* based on specimens of the type series of

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*O. punctifrons* (Borgmeier), Torres (1984) recorded an undetermined species of *Oxyepoecus* on grassland and agricultural habitats in Puerto Rico, and Bolton (1994) figured an *Oxyepoecus* species (Figs. 374-375) in his key to the ant genera of the world.

Kempf (1974) already commented that all known individuals of *Oxyepoecus* were obtained either by chance discoveries or specialized collecting techniques applied sporadically in very few and scattered localities. This is also the case of most of the species here described, collected from 1 m<sup>2</sup> of soil litter samples, submitted to Winkler extractor, efficient to obtain relatively small ants that live in the very rich litter.

The aim of this paper is the description of five new species, discussion of data on the biology, registration of new locality records for the already described species, and presentation of a new version of the key for the identification of *Oxyepoecus* species belonging to the *Vezenyii* species group.

## MATERIAL AND METHODS

The main collection used in this work was that of the Museu de Zoologia de São Paulo (MZUSP); material from other sources is acknowledged in the pertinent examined material sections; after the descriptions or redescriptions of the species we list types, and localities of each studied specimen.

The terms for external morphology and surface sculpturing follow Bolton (1994, 2000), Harris (1979), Shattuck (1999), and Hölldobler & Wilson (1990). The reproductive females are called “gynes”, as suggested by de Andrade & Baroni Urbani (1999).

The morphometric measures follow Kempf (1974) and Bolton (2000); measurements were obtained using micrometric reticule in a binocular stereomicroscope Wild M8<sup>®</sup> with ocular lens 16 X, or using the scale of a LEO 440<sup>®</sup> scanning electron microscope micrographs; all measures are given in mm. The abbreviations for the measurements are:

t.l. – total length: the summed length of head length (h.l.) plus the close mandibles, the mesosoma length (a.l.), the longitudinal axis length of the waist (in dorsal view), and the longitudinal axis length of gaster (in dorsal view) taken separately.  
h.w. – head width: the maximum width of the head capsule measured in full-face view, at a median transverse line that touches the superior margin of the compound eyes.

h.l. – head length: the maximum measurable length of head capsule excluding mandibles, measured in full-face view, in a straight line from the mid-point of the anterior clypeal margin to the mid-point of the occipital margin, in the same view as for the head width.

m.l.e. – maximum length of eye: with the head in profile, through the major axis of the compound eyes, often between superior and inferior margins.

s.l. – antennal scape length: the chord length of the antennal scape, excluding the basal condyle and its neck.

a.l. – mesosoma length: the diagonal length of mesosoma in profile, from the mid-point of the anterior pronotal declivity to the posterior basal angle of the metapleuron.

h.f.l. – hind femur length: the chord length of the hind femur, excluding, of course, the trochanter.

m.w.pr. – maximum width of pronotum: with the mesosoma in dorsal view, measured through the largest axis of pronotum, perpendicular to the longitudinal axis of body.

m.w.p. – maximum width of petiole: with the mesosoma in dorsal view, measured through the largest axis of petiole, perpendicular to the longitudinal axis of body.

m.w.pp. – maximum width of petiole: with the mesosoma in dorsal view, measured through the largest axis of postpetiole, perpendicular to longitudinal axis of body.

c.i. – cephalic index: ratio between the head width (h.w.) and length (h.l.), multiplied by 100.

Other abbreviations are:

r.g.d. – in a row across the greatest diameter.

f.f.v. – full face view.

p.v. – profile view.

d.v. – dorsal view.

The Figs. 3a, 3b and 3c were obtained with a *camera lucida* set to a binocular stereomicroscope Wild M8<sup>®</sup>. First, the contour and few details were made under 40 X. Details were represented under 80 X, without *camera lucida*. Some photographs under scanning electron microscope (SEM) model LEO 440<sup>®</sup> of the MZUSP were used to diagnose and to separate *Oxyepoecus* species based on very small characters. The specimens were previously cleaned, dried up in a Balzer (Bal-Tec<sup>®</sup> CPD 030), and covered (Bal-Tec<sup>®</sup> SCD 050) with gold. After that the specimens were mounted on

stubs supported by a paper triangle that held the ant using silver glue.

The images were obtained under several magnifications (40 to 300 X) according the size of the specimen. The beam size was not always the same (voltage between 0,5 and 20 KV; and I probe between 100 pA and 2 mA). After the images have been saved some editing was made to enhance some details (Adobe® and Kontron® 300), but mostly, the main parameters changed were brightness and contrast.

The coordinates of localities were obtained from the information on the labels and consulting a Gazetteer site (<http://gnpswww.nima.mil/geonames/GNS/>) and ENCARTA World Atlas® from Microsoft; they appear in parenthesis at each locality record and were plotted on the maps extracted from the software Arch View®.

When citing label data, we present additional information, explanation of codes on the labels, eventual corrections to the misprints, and reference to the notebooks from which we took information regarding the localities and/or the biology of the species.

## RESULTS

We have adopted the diagnosis format for the genus based on workers, gynes and males, modified from Kempf (1974). We discuss also the new information and that from the literature that we were able to sum on *Oxyepoecus* species and their biology. From Kempf's revision we noticed that, following the key of identifications, *Oxyepoecus* species could be separated into two groups. Our observations, including those on the new taxa here described, confirmed Kempf's ideas. Here we present our results on the *Oxyepoecus* *Vezenyii* group-species, naming it with the oldest species name in the group. We begin with a general morphological description of the entire group, to avoid repetition of characters that are common to all or some species, allowing easier comparisons, and hopefully an easier use of the identification key.

### *Oxyepoecus* *Santschi*

*Monomorium* (in part): Mayr, 1887:615.

*Monomorium* subgen. *Martia* Forel, 1907:21 (preoc. by Ragonot, 1887), type of the subgenus: *Monomorium* (*Martia*) *vezenyii* Forel, monobasic. Forel, 1911:398. Emery, 1922:182-183 (generic characters). Wheeler, 1922:676 (key to the genera). Borgmeier, 1928:65 (key to the species).

*Oxyepoecus* *Santschi*, 1926:6, type of the genus: *O. bruchi* *Santschi*, 1926, monobasic. Brown, 1955:68 (syn.). Ettershank, 1966:144-146 (generic revision).

*Mitara* (in part): *Santschi*, 1927:246 (identification error).

*Martia*: *Santschi*, 1929:295. Kusnezov, 1952:720-722 (key to the Argentine species). Kusnezov, 1957:269 (generic characters).

*Forelifidis* M.R. Smith, 1954:17 (new name). Brown, 1955:68 (synonymy).

*Oxyepoecus*: Kempf, 1974:471-512 (revision).

Mayr described the first species that now belongs to the genus *Oxyepoecus* in 1887 as *Monomorium rastratum*. In 1907, Forel described the subgenus *Martia* of *Monomorium*, to which he transferred Mayr's species; he also described *Monomorium* (*Martia*) *vezenyii*. Emery (1913) described *Monomorium* (*Martia*) *mandibulare*. *Santschi* (1926) described the genus *Oxyepoecus*, with *O. bruchi* as the type species, by monotypy, based on several "queens" (gynes) which were found in a nest of *Pheidole obtusopilosa*. In 1928, Borgmeier described *Monomorium* (*Martia*) *punctifrons*, while in 1933 *Santschi* described *Martia daguerrei*, and Kusnezov, in 1952, described *Martia inquilina*. M.R. Smith (1954) recognized that the name *Martia* was first used by Ragonot in 1887 as a name for a genus of Phycitinae (Pylalidae) moths and proposed the name *Forelifidis* as a replacement. Brown (1955) realized that Smith ignored the name *Oxyepoecus* *Santschi*, which he reestablished, synonymizing *Forelifidis* under *Oxyepoecus*.

### Generic Diagnosis

*Worker*: Monomorphic. t.l.= 1.9-3.4; h.l.= 0.46-0.79; h.w.= 0.37-0.67; s.l.= 0.23-0.57; m.l.e.= 0.05-0.16; m.w.pr.= 0.20-0.47; a.l.= 0.52-0.98; h.f.l.= 0.28-0.68; m.w.p.= 0.17-0.28; m.w.pp.= 0.20-0.36; c.i. 70-96. Mandibles triangular, short to elongate; masticatory margin with 4 teeth (dental formula 1+3; one apical, closely followed by a smaller subapical, a subbasal, and a basal tooth; the mandibular teeth separated from each other by clefts or diastemata). Palpal formula 2, 2. Clypeus with the median apron elevated, projecting forward, bicarinate, anteriorly bidentate, each tooth laterally with another small denticle; clypeal setae as in *Solenopsis*: median seta, first paracarinial setae and lateral setae always well developed. Anterior tentorial pits closer to frontal carinae than to genae, but not quite as close as in *Solenopsis*. Triangular area inconspicuous. At least the

internal area of the frontal carinae with rough longitudinal sculpture. Antennal sockets not margined by sculpture. The whole head disk may be variously covered by rough sculptures. Antennae 11-segmented with a slightly distinct 3-segmented apical club, the apical segment always longer than the two immediately preceding ones combined. Eyes small to medium sized, 6-50 ommatidia. Pronotum shoulders smooth and continuously rounded or marked by an angle. Promesonotal suture absent on dorsum of mesosoma, promesonotum continuous. Metanotal groove gently to scarcely impressed. Anepisternum and katepisternum not separated by a carina, can be distinguished one from the other by different superficial sculpture. Propodeum with the dorsal face usually transversely costulate, the posterior corners sharply angulate to dentate, the latter connected with the rounded and prominent propodeal lobes by the propodeal carinae that margin each side of the declivous face. Propodeal spiracle round, vestibulate and obliquely directed caudad. Propodeal lobes not joined above by a carina. Petiole pedunculate, node high, often antero-posteriorly compressed and laterally expanded in a scale-like fashion; subpetiolar process either simply dentiform or prolonged anteriorly into a sharp, longitudinal, sometimes somewhat elaborate, ridge; posteriorly the process may bulge ventrally. Postpetiole nodiform, not as high as the petiole, always equal to or broader than the petiolar node, laterally produced into bulky to subconical lobes; both anterior and posterior subpostpetiolar processes weak to well developed in the form of pronounced transverses ridges; the margin of first tergite of gaster not excised.

*Gyne*: Total length 2.4-3.8 mm; not conspicuously longer than the respective worker, sharing with the latter the same general features: shape and dentition of mandibles, the carinate, dentate and projecting median apron of clypeus, the 11 – segmented antennae with a 3 – segmented apical club, the shape of the petiole and postpetiole; the latter also with a constriction behind, in front of the insertion of the gaster, and the same sculpturing pattern. Wing venation of the *Solenopsis*-type: fore wing with an elongate, open radial cell (Rs not reaching the anterior margin), a large cubital cell and usually a well formed discoidal cell (crossvein m-cu present).

*Male*: Total length about 3.0 mm; mandibles well developed, elongate triangular, meeting along the masticatory borders when mandibles are closed; masticatory

margin with four distinct teeth (dental formula 1+3). Palpal formula 2, 2; labial palps geniculate. Clypeus rounded and swollen, only slightly touching the virtual transverse line that links the anterior margins of the antennal sockets; clypeal setae roughly in the same pattern as in workers and gynes. Antennae 13-segmented; scape as long as funicular segment II; first funicular segment (pedicellus) not globular, shorter than segment II; segments II-XI nearly twice as long as broad, of approximately similar length. Mesoscutum without notauli. Parapsidal furrows very faint. Middle and hind tibiae without apical spurs. Petiole either claviform or pedunculate with a differentiated and laterally expanded node. Postpetiole distinctly constricted in front of gaster, not broadly attached to the latter. Wings as in gynes.

### Comments

As Kempf (1974) said, *Oxyepoecus* is clearly a compact and homogeneous taxon. It is the unique genus within the *Solenopsis* genus group to combine 11-segmented antennae with a 3-segmented apical club; the clypeus with four teeth is also an exclusive character of *Oxyepoecus* within this genus group, but in a few species of *Megalomyrmex* of the *Incisus* group (specially some populations of *M. drifti*), but this is probably associated to the very small size of workers in this group (Brandão, 1990); all *Megalomyrmex*, on the other hand, have 12-segmented antennae. The differences between *Oxyepoecus* and *Solenopsis* are mainly the dentate propodeum, the integument always more extensively sculptured (especially on the mesosoma pleura) and the relatively small size of gynes when compared to the conspecific workers. In *Solenopsis* the gyne has one antennal segment more than the workers do.

With the study of the material recently arrived at the Museu de Zoologia da Universidade de São Paulo collection, it was possible to add important information to the known distribution to *Oxyepoecus* species. In particular, some new species described from Peru and Ecuador, and from the Brazilian states of Piauí and Amazonas, which are localities far from the previous limits established by Kempf. We have found in the literature the record of an undetermined species of *Oxyepoecus* from Puerto Rico (Torres, 1984), but we did not study this sample.

As stated in a previous work by Brandão *et al.* (1999), it is questionable whether *Oxyepoecus* and other minute ants are to be considered truly rare, or whether the low numbers in collections represents an artifact. It seems to be a common feature in ant systematics at

the moment that rare ants turn out to be more common than previously assumed, based on published records and specimens available in collections. The most important reason for such a change is the recent use of specialized mass collection techniques, such as the Winkler extraction apparatus, soil samples or Berlese funnels. Thus, rare ants seem to be suddenly much more widespread and common. To give an example, the South American species of *Probolomyrmex*, which were earlier recorded only from two localities (Taylor, 1965), are known now from almost the entire range of the tropical wet forests (Agosti, 1995). However, this is not an exclusively tropical phenomenon. It has also been documented in the temperate regions, where in the vicinity of a small swimming pool in suburban Barcelona, many of the ants considered to be extremely rare in Spain were recently found (Espadaler & López-Soria, 1991).

Unfortunately we were not able to test the hypothesis of some previous authors that *Oxyepoecus* could be inquiline or lepto-biotic in nests of *Pheidole* and *Solenopsis* (Kempf, 1974).

### Vezenyii Group

The following species were grouped because they share a smooth and shining cephalic dorsum and a head sculpture that, if present, is restricted to the anterior portion of genae and to the insides of the frontal carinae, from where it may be prolonged caudad into two patches always separated by a smooth median frontal stripe. This group includes:

- *O. browni* sp.nov.
- *O. bruchi* Santschi, 1926  
= *O. minutus* (Kusnezov, 1952)
- *O. crassinodus* Kempf, 1974
- *O. ephippiatus* sp.nov.
- *O. inquilinus* (Kusnezov, 1952)  
= *O. turgidus* Kempf, 1969
- *O. longicephalus* sp.nov.
- *O. kempi* sp.nov.
- *O. punctifrons* (Borgmeier, 1928)
- *O. quadratus* sp.nov.
- *O. vezenyii* (Forel, 1907)
- *O. vivax* Kempf, 1974

#### **General description for the Vezenyii species group**

**Color:** integument shading from lighter yellowish to dark brown, with mandibles, the antennal club and scape, and the legs usually yellowish. In *O. punctifrons* the whole

body and appendages share the same color. The integument can be almost smooth and shining when observed under the stereomicroscope, or present the following microsculpture types: costulae, straight, curved or sinuous, short or covering large areas of the body (some could be arranged in a network, we then describe the sculpture as irregularly reticulate); rugae straight or curved; striae usually thinner than rugae; piligerous punctuations. The longitudinal costulate sculpture between the frontal carinae can either surpass the level of a virtual line crossing the inferior margins of the compound eyes, or reach, or even surpass the level of a line that crosses the superior margins of the compound eyes. Accordingly we will refer to this as the level of inferior or superior margins of the compound eyes. The hairs can appear as a ground-pilosity or be described individually, showing decumbent to erect inclinations; in general we find a fine pubescence on antennal clubs, coxae and tarsomera; gaster without pubescence. The occipital border of the head has a straight margin or is gently convex; except for *O. crassinodus* workers that show a brief median concavity. The mandibles are subtriangular, but range from elongate to short. The posterior region of the frontal carinae, above the antennal sockets, can be subparallel or convex externally with a posterior constriction (f.f.v.). The maximum width between their outer edges (always taken in the median region of the carinae) can range from one fifth to one third of the head width. The compound eyes can have as few as 3 facets (r.g.d.) and as many as 12. The total number of ommatidia can range from 6 to 50; and the size of the compound eyes greatest diameter in relation to the malar area can be equal, bigger or smaller. The shoulders can be marked or rounded; also the lateral margins of the pronotum could form an angle or be rounded. The metanotal groove can be somewhat impressed, at maximum equal to the greatest diameter of the metapleural spiracle. The dorsal face of the propodeum can be smooth or present transverse costulae; their margins either marginate or not. The declivous face of the propodeum can be smooth or present some transversal rugae or striae and be marginate or not. The petiole can be pedunculate, antero-posteriorly compressed forming a node, or not compressed and club-like. The postpetiole can be as high as the petiolar node (p.v.), and its width larger than that of the petiolar node (d.v.).

#### **Key for identification of *Oxyepoecus* workers of the Vezenyii species-group (*O. vivax* was not included because it is known only by gynes)**

1. Irregularly reticulate sculpture present on the mesosoma (better seen over 80X magnifications);

- head length clearly greater than width, (c.i. 70)  
 ..... *O. longicephalus* sp. nov.
- 1'. Irregularly reticulate sculpture absent on the mesosoma; head length not clearly greater than width, (c.i. more than 70) ..... 2
  2. Compound eyes with more than 7 ommatidia across the greatest diameter, total number of ommatidia more than 30 ..... 3
  - 2'. Compound eyes with less than 7 ommatidia across the greatest diameter, total number of ommatidia less than 30 ..... 5
  3. Petiole antero-posteriorly compressed, scale-like, pronotum convex and rounded above, propodeum and metapleuron with well marked costulae ..... 4
  - 3'. Petiole not antero-posteriorly compressed, club-shaped, integument almost smooth and shining ..... *O. punctifrons*
  4. Propodeum saddle-shaped; posterior border of the katepisternum and posterior face of the postpetiole smooth and shining .....  
 ..... *O. ephippiatus*
  - 4'. Propodeum not saddle-shaped; posterior end of the katepisternum and posterior face of the postpetiole longitudinally costulate .....  
 ..... *O. inquilinus*
  5. Pronotum shoulders not marked, rounded ..... 6
  - 5'. Pronotum shoulders marked by angles ..... 7
  6. Metanotal groove not impressed (p.v.), overall size minute, the smallest of this species-group (1.7 mm) ..... *O. kemphi*
  - 6'. Metanotal groove impressed (p.v.), overall size relatively median compared with other species in this species-group (2.7 mm) ..... *O. crassinodus*
  7. Pronotum ventrolateral angle rounded, not forming an angle ..... *O. vezenyii*
  - 7'. Pronotum ventrolateral angle forming an angle ..  
 ..... 8
  8. Pronotal disk without costulate sculpture, anterior portion of the subpostpetiolar process twice more developed than the posterior process .....  
 ..... *O. bruchi*
  - 8'. Pronotal disk with costulate sculpture, anterior and posterior portion of the subpostpetiolar process similar in size ..... 9
  9. Superior face of the notch of the petiole rounded; length of the declivous face of the propodeum relatively small (less than half of the dorsal face length) ..... *O. browni*
  - 9'. Superior face of the notch of the petiole subquadrate; length of the declivous face of the propodeum relatively median ..... *O. quadratus*

***Oxyepoecus browni* sp. nov.**

(Figs. 1a-c)

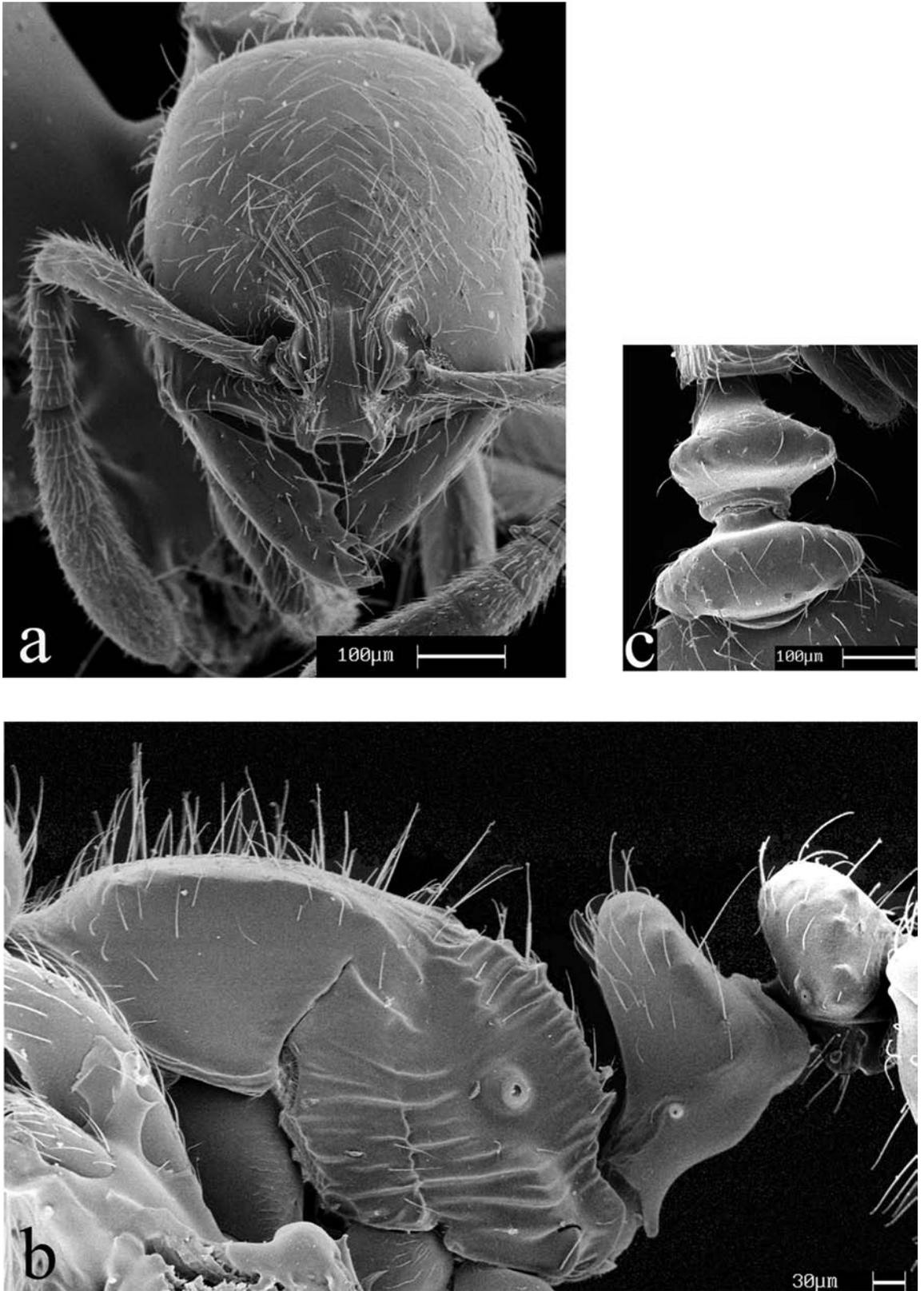
*Oxyepoecus browni* Albuquerque and Brandão. Holotype worker, Brasil: Minas Gerais: Atalaia [18°03'S 41°06'W], 27.i.[19]94, I[van] Cardoso col., deposited in MZSP (coated with gold for SEM examination).

*Paratype*: same data as holotype, deposited in CPDC (coated with gold for SEM examination).

*Etymology*: In memory of the late myrmecologist William (Bill) L. Brown Jr.

*Worker*. Holotype, paratype within brackets t.l.= 2.29 (2.62); h.l.= 0.57 (0.58); h.w.= 0.46 (0.49); s.l.= 0.31 (0.40); m.l.e.= 0.09 (0.10); m.w.pr.= 0.42 (0.41); a.l.= 0.63 (0.74); h.f.l.= 0.38 (0.49); m.w.p.= 0.25 (0.32); m.w.pp.= 0.31 (0.34); c.i. 81 (84). Color reddish ferruginous. Integument smooth and shining, with the following exceptions: some moderately coarse costulae between the frontal carinae (Fig. 1a), obliquely prolonged caudad, surpassing the level of the superior margins of the compound eyes where the costulae become faint to vestigial, not reaching the occiput; the two patches of costulae separated by a smooth stripe; genae with few longitudinal rugae that do not reach the inferior orbit of the compound eyes; promesonotum with superficial, fine, and longitudinal costulae on disc, specially near the shoulders, reaching the sides of mesonotum; dorsal face of the propodeum with 10-12 transverse well marked costulae; meso and metapleuron covered by longitudinal irregular costulae, the costulae prolonged over the metapleural gland region. Hairs moderately abundant, short to long, suberect on head, dorsum of mesosoma, petiole, postpetiole and gaster; subdecumbent hairs also present on head disc; most hairs inclined mesad dorsally on discs, forwards on the sides; decumbent on the mandibles.

Head as shown in Fig. 1a (f.f.v.); mandibles elongate with a broad and relatively shallow diastema between the basal and subbasal tooth. Anterior teeth of the clypeus directed inwards with lateral external lobe-like denticles. Frontal carinae gently convex over the antennal sockets, posteriorly and obliquely prolonged laterad, the maximum width between their outer edges always less than one fourth of the head width. Compound eyes with 5-7 facets r.g.d., which is less than the distance between the anterior orbit and the mandibu-



**FIGURE 1.** Scanning electron micrograph of the workers of *O. browni* sp.nov.; a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

lar insertion; total number of ommatidia not exceeding 20. Antennal scape failing to reach the occipital corner by a distance less than the scape maximum thickness. Funicular segment I longer than II-IV combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma as shown in Fig. 1b (p.v.). Dorsal disc of pronotum elevated and marginate, with the dorsal surface separated from the sides by well marked angles. Margination continuous until the metanotal groove. Metanotal groove shallowly to not at all impressed; distinct by a break in the sculpture before the transverse costulae of the propodeum (d.v.). Dorsal face of the propodeum immarginate on sides, curved and convex as seen from the side; posteriorly with two obliquely pointed and very small teeth. Small declivous face well marginate and carinate laterally.

Petiole as shown in Figs. 1b-c, node high and convex, antero-posteriorly compressed and laterally expanded in a scalelike fashion (d.v.); subpetiolar process with the shape of a sinoidal curve in profile, in the form of a shallow sagittal keel, with an anterior small blunt tooth pointing obliquely forwards (p.v.). The postpetiole is broad, a little broader than the petiole (d.v.); subpostpetiolar process in the shape of two parallel crests which when seen from the side appear as distinct swellings, with the two crests of equivalent size.

Gyne unknown.

Male unknown.

### **Diagnosis, distribution and comments**

The exclusive character that separates workers of *O. browni* is the very modified shape of the dorsal face of the very convex propodeum. *O. browni* is known from one locality (shown in fig. 8) in Central Brasil, collected by submitting leaf litter to Berlese funnels. We took notes on the color pattern before both type specimens were coated with gold for SEM exam.

*Examined material*: Brasil: Minas Gerais: Atalaia [18°03'S 41°06'W] (2 workers: Holotype and Paratype).

### ***Oxyepoecus bruchi* Santschi**

*Oxyepoecus bruchi* Santschi, 1926:6-7, Figs. a-d (♀ Argentina). Ettershank, 1966:146. Kempf, 1972:173.

*Mitara bruchi*: Santschi, 1927:246 (error for *Martia*!)

*Martia bruchi*: Santschi, 1929:295 (♀ from Argentina, Córdoba: Alta Gracia). Kusnezov, 1952:717, 720 (biology; key to Argentine species).

*Martia minuta* Kusnezov, 1952:718, S 720-21 (♀ Argentina). Kusnezov, 1953:337 (Argentina, Tucumán). Kempf, 1974:478 (synonymy).

*Oxyepoecus minutus*: Ettershank, 1966:146. Kempf, 1972:173.

*Oxyepoecus bruchi*: Kempf, 1974:478; Figs. 43-46 (lectotype designation).

*Worker* (descriptions based on paratypes of *Martia minuta* Kusnezov): t.l.= 2.30; h.l.= 0.57; h.w.= 0.47; s.l.= 0.35; m.l.e.= 0.09; m.w.pr.= 0.36; a.l.= 0.63; h.f.l.= 0.36; m.w.p.= 0.20; m.w.pp.= 0.28; c.i. 81. Color yellowish brown; gaster chestnut brown. Integument smooth and shining, with the following exceptions: frontal carinae longitudinally costulate, prolonged caudad obliquely, surpassing the level of the superior margins of the compound eyes, where they become faint to vestigial; genae with longitudinal costulae that reach the inferior margin of the compound eyes and the inferior margin of clypeus, close to the mandibular insertion; postero-lateral corner of the dorsal disc of pronotum with some piligerous punctuations longitudinally oriented; sides of the pronotum smooth and shining; inferior region of the katepisternum, anepisternum, sides of the propodeum and all metapleuron longitudinally costulate, varying in their degree of distinctness, weak to clearly visible; dorsal face of the propodeum with 10-13 costulae, 8 strong ones, the others weak; sides of the petiolar node with a few, widely spaced horizontal longitudinal costulae; sides and posterior surface of postpetiole with several rows of indistinct to well-expressed costulae. Hairs moderately abundant, short to long, suberect on the head, dorsum of mesosoma, petiole, postpetiole and gaster; subdecumbent on the head; most hairs inclined mesad dorsally on disc, forwards on the sides; decumbent on the mandibles; fine pubescence on antennal clubs, coxae and tarsomera; gaster without ground hairs.

Head (f.f.v.) with the mandibles relatively elongated, with a broad and relatively shallow diastema between the basal and the subbasal tooth. Anterior teeth of clypeus divergent with lateral, relatively sharper, denticles. Frontal carinae with their superior ends convergent and relatively near, the maximum width between their outer edges always less than one third of the head width. Compound eyes relatively small, with about 6-7 facets r.g.d., which is less than the distance between the inferior orbit and the mandibular insertion: total number of ommatidia *circa* 20. Antennal scape failing to reach the occipital corner by

a distance approximately equal to the maximum thickness of the scape. Funicular segment I as long as II-V combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma (p.v.) with the shoulders shallowly marked, sides of the pronotum submarginate. Metanotal groove shallowly to not at all impressed in profile, metanotal suture indistinct. Dorsal face of the propodeum immarginate on sides, posteriorly with two pointed, backward oriented and elongated teeth. Declivous face laterally marginate and weakly carinate.

Petiole pedunculate, node antero-posteriorly compressed and laterally expanded in a scalelike fashion, nearly 2/3 as broad as postpetiole (d.v.); subpetiolar process anteriorly blunt and somewhat lobe-like (p.v.). The postpetiole unusually broadened due to the drawn out lateral bulky lobes. Subpostpetiolar process with two subparallel crests, the anterior more developed downwards.

*Gyne* (dealate): t.l. = 2.50 (2.40); h.l. = 0.60 (0.59); h.w. = 0.48 (0.51); s.l. = 0.35; m.l.e. = 0.13 (0.12); m.w.pr. = 0.42; a.l. = 0.76 (0.73); h.f.l. = 0.40; m.w.p. = 0.23; m.w.pp. = 0.29 (0.32); c.i. 80 (87). Color reddish brown; anterior portion of head, mandibles and sides of mesosoma lighter; antennae and legs ochraceous. Integument smooth and shining, with the following exceptions: frons with two patches of fine longitudinal rugulae subparallel to the frontal carinae, which fade out at the level of the ocelli, not attaining the occipital border posteriorly (f.f.v.), nor the superior orbits of the compound eyes laterally; pronotum shining, the dorsum finely yet indistinctly and obliquely costulate, the sides smooth. Scutum smooth and shining. Scutellum shining with superficial and weak longitudinal costulae. Dorsal face of the propodeum shining and rather smooth, transverse costulae widely spaced and at best vestigial, practically absent. Upper posterior corner of katepisternum with a few horizontal costulae that continue caudad on sides of metapleuron over the bulla of metapleural gland; posterior face of postpetiole with very distinct transverse costulae. Hairs abundant, erect on dorsum of mesosoma, on petiole, postpetiole and on gaster, shorter and decumbent on head and appendages.

Head (f.f.v.) with lateral and occipital borders scarcely convex, occipital corners broadly rounded. Mandibles relatively less elongate with the basal tooth as long as the subbasal, without a broad diastema or a deep cleft between them. Median apron of clypeus raised and protruding in front, laterally marginated by

a pair of carinae that converge caudad and terminate cephalad in the form of a prominent pointed tooth, flanked laterally by a small and rather blunt denticle. Frontal carinae mostly subparallel, short, reaching the level of the inferior orbits of the compound eyes posteriorly; the maximum width between their outer edges always less than one third of the head width. Compound eyes slightly convex, with over 10 ommatidia (11-12) r.g.d. and a total of approximately 50 ommatidia. Ocelli very small, their diameter equaling the minimum thickness of antennal scape. The latter, when laid back over the head as much as possible, failing to attain the occipital border by a distance exceeding its own thickness. Funicular segment I as long as II-V combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma with the shoulders bluntly marked (p.v.), pronotum entirely declivous in the middle; its dorsal face anteriorly and laterally submarginate. Dorsal face of the propodeum with spines horizontally oriented, slightly diverging caudad, the distance between their apices subequal to the maximum width of the petiolar node.

Petiole pedunculate, anteriorly dentate, lobe-like subpetiolar tooth (p.v.); node strongly compressed antero-posteriorly, well expanded laterad (d.v.). Postpetiole likewise compressed antero-posteriorly, slightly lower than petiole, the sides projecting laterad and downward as blunt cones; anterior subpostpetiolar process very prominent and bidentate.

Male unknown.

### ***Diagnosis, distribution and comments***

The exclusive character of the workers of *O. bruchi* is the very elongate anterior portion of the subpetiolar process, compared to the posterior portion, more than twice longer. The distribution of *O. bruchi* includes three localities in Argentina, as shown in fig. 8, all samples found as inquilines of *Pheidole silvestrii*, found at the nests of *Pheidole obtusopilosa*, found in the same alcohol tube (Kusnezov, 1952).

The gyne runs near those of *O. vezenyii* in Kempf's (1974) key, however it is quite different by the smaller eyes, the pronotum, which is not entirely declivous in the middle, and the relatively small mesonotum in the latter.

Kempf (1974) was not clear on who designated lectotype and paralectotypes, although he cites the specimens as belonging to CTB (Coleção T. Borgmeier), suggesting he was the designator, as Borgmeier collection was incorporated to Kempf's collection, and as far as we know, Kusnezov has never studied these specimens.

*Examined material:* Argentina: Córdoba, Sierras de Córdoba, Alta Gracia, La Granja, # 1694, C. Bruch leg. [31°39'S 64°25'W] (3 ♀ lectotype and paralectotypes); [although the label says "paratype" to the paralectotypes; the lectotype mounted with a worker of host species, *Pheidole obtusopilosa*; and one paralectotype incomplete, just the mesosoma left]; Tucumán, Quebrada Cainzo, 8.iv.1948, N. Kusnezov # 1590 [26°53'S 65°28'W] (2 ♀ paratypes of *Martia minuta*).

### *Oxyepoecus crassinodus* Kempf

*Oxyepoecus crassinodus* Kempf, 1974:482, Figs. 2, 8, 15 and 21 (♀ Brasil).

*Worker* (Holotype): t.l.= 2.70 (2.60); h.l.= 0.68 (0.54); h.w.= 0.55 (0.52); s.l.= 0.41 (0.49); m.l.e.= 0.09 (0.08); m.w.pr.= 0.40 (0.37); a.l.= 0.76 (0.70); h.f.l.= 0.44 (0.43); m.w.p.= 0.20; m.w.pp.= 0.28 (0.31); c.i. 80 (82). Color reddish brown. Integument smooth and shining, with the following exceptions: frons finely costulate between the frontal carinae, prolonged caudad and obliquely laterad reaching the level of the superior orbit of the compound eyes where they become faint to vestigial, not reaching the occiput; sides of the mesosoma and dorsal face of the propodeum equally with fine costulae; anterior half of the promesonotum entirely smooth, the posterior portion of the dorsal surface with a few short longitudinal costulae; mesopleuron horizontally costulate, the costulae near the dorsum of the mesosoma more inclined; dorsal face of the propodeum with 10-15 transverse costulae, prolonged obliquely down and forward on sides of the propodeum; metapleural region densely horizontally costulate, the costulae covering the metapleural gland region; posterior face of the postpetiole with faint transverse costulae. Hairs abundant, long, suberect on the head, dorsum of the mesosoma, petiole, postpetiole, and gaster; on the head, decumbent and shorter hairs, inclined mesad dorsally on the head disc, forwards oriented on head sides; gaster without these interspersed shorter and decumbent hairs.

Head with the mandibles relatively not elongated, with the basal tooth separated from the subbasal by a deep cleft. Anterior teeth of clypeus with lateral and somewhat lobe-like denticles. Frontal carinae short, gently expanded laterad, subparallel, with the posterior end at the level of the inferior orbit of the compound eyes, the maximum width between their outer

edges always less than one third of the head width. Compound eyes relatively small, with some 5-6 facets r.g.d.; total number of ommatidia not exceeding 20. Antennal scape failing to reach the occipital corner by a distance bigger than the maximum thickness of the scape. Funicular segment I longer than VIII and IX taken individually, as long as II-V combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma with the promesonotum not marked on the shoulders, dorsal disk with a pronounced convexity. Metanotal groove impressed in profile, metanotal suture indistinct. Dorsal face of the propodeum immarginate on sides, posteriorly with two pointed, obliquely directed short teeth. Declivous face laterally marginate and weakly carinate.

Petiole pedunculate, node scarcely compressed antero-posteriorly and much narrower than postpetiole in dorsal view; subpetiolar process elaborate and foliaceous. Postpetiole very broad and antero-posteriorly compressed in a scalelike fashion, not as high as petiole; subpostpetiolar process relatively simple and obliquely directed forwards.

Gyne unknown.

Male unknown.

### *Diagnosis, distribution and comments*

The diagnostic character of the workers of *O. crassinodus* in relation to the other species of the Vezenyii group is the deepest metanotal groove. The distribution of *O. crassinodus* includes three localities at South Brazil (fig. 8), two of them in Paraná State and one in Santa Catarina State.

*Examined material:* Brasil: Paraná: Bocaiúva do Sul, xii. 1963, F. Plaumann [col.] # 8108, [25°12'S 49°07'W] (4 ♀ holotype and 3 paratypes); Santa Catarina: Nova Teutônia, xii. 1958, F. Plaumann [col.] # 8308 [27°02'S 52°24'W] (1 ♀ paratype).

### *Oxyepoecus ephippiatus* sp. nov.

(Figs. 2a-c)

*Oxyepoecus ephippiatus* Albuquerque and Brandão. Holotype worker, Brasil: Amazonas: Manaus, Rs 1301 [01°30'S 46°11'W], 16.xii.[19]93, A.B. Casimiro [col.] # H-49, deposited in INPA.

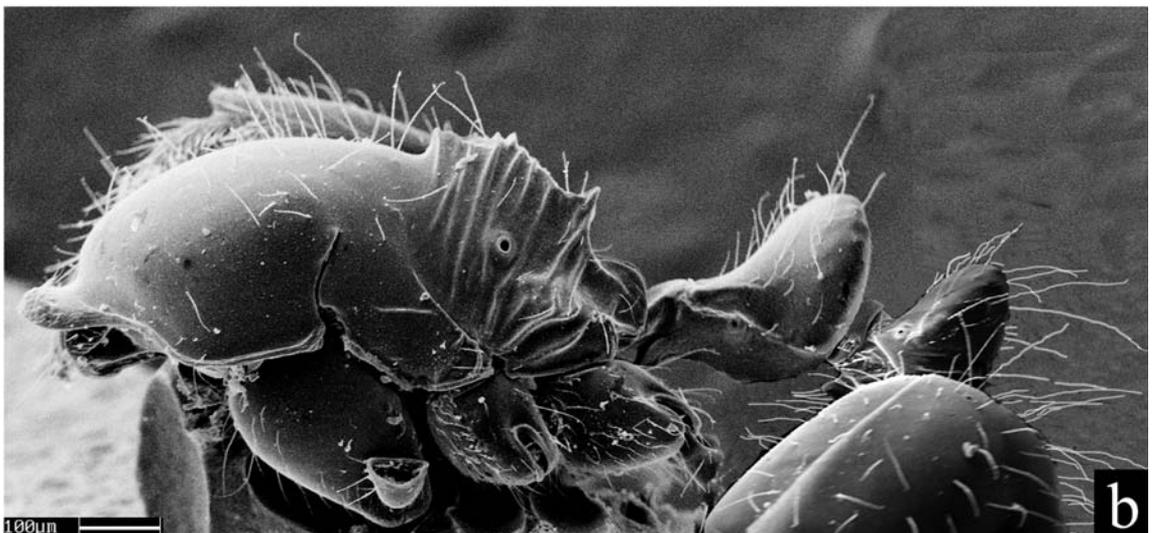
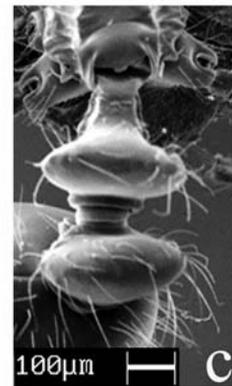
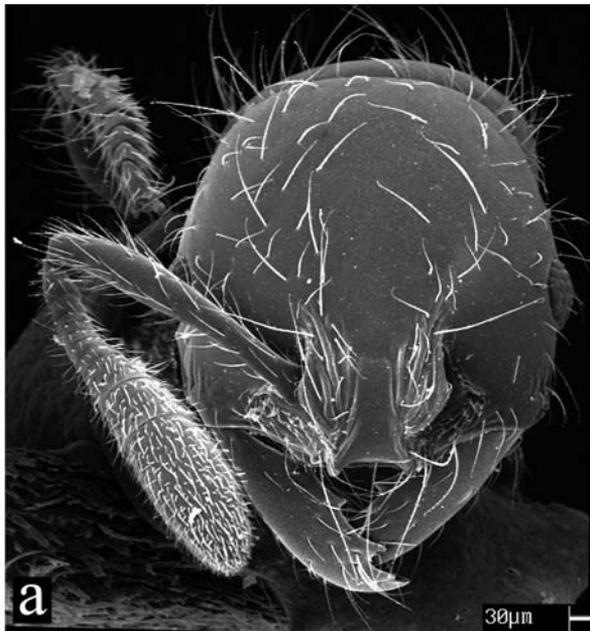
*Paratypes:* worker. Brasil: Amazonas: Manaus, 29.ix.[19]93, A.B. Casimiro [col.] # 2306, deposited in MZSP (coated with gold for SEM examination)

[paratype incomplete, just the mesosoma and petiole].  
Gyne. Brasil: AM: Manaus, Rs 1104, 16.xii.[19]93, A.B.  
Casimiro [col.] # L-9, deposited in MZSP.

*Etymology*: Referring to the saddle shape of the propodeum (Latin: ephippium = saddle).

*Worker*: Holotype and paratype within brackets t.l.= 2.62 (2.57); h.l.= 0.58 (0.58); h.w.= 0.49 (0.49); s.l.= 0.40 (0.38); m.l.e.= 0.10 (0.10); m.w.pr.= 0.41 (0.41); a.l.= 0.74 (0.74); h.f.l.= 0.49 (0.48); m.w.p.= 0.32 (0.31);

m.w.pp.= 0.34 (0.31); c.i. 84 (84). Color ferruginous brown. Integument smooth and shining, with the following exceptions: frontal carinae with 4-6 short but well formed costulae that are not prolonged posteriorly, ending before the level of the inferior orbits of the compound eyes; genae with few longitudinal short rugae that do not reach the inferior orbit of the compound eyes; promesonotum smooth and shining; dorsal face of the propodeum with 6-8 well marked transverse costulae that cover the metapleural region; declivous face smooth and shining. Hairs abundant,



**FIGURE 2.** Scanning electron micrograph of the workers of *O. ephippiatus*; a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

long, but without a regular orientation on head, suberect and relatively curved anteriorly on pronotal dorsum, mesonotum and petiolar node; suberect, but curved backwards on the postpetiole.

Head as shown in Fig. 2a (f.f.v.). Mandibles relatively elongated, with a broad and shallow diastema between the basal and subbasal teeth. Anterior teeth of clypeus with lateral blunt and scarcely developed denticles. Frontal carinae gently convex, with the posterior ends at the level of the middle of the compound eyes, the maximum width between their outer edges approximately two fifths of the head width. Compound eyes medium sized, with about 6-8 facets r.g.d., which is almost equal to the distance between the anterior orbit and the mandibular insertion: total number of ommatidia about 30. Antennal scape failing to reach the occipital corner by a distance approximately equal to the maximum thickness of the scape. Funicular segment I as long as II-V combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma as shown in Fig. 2b (p.v.). Pronotum shoulders not at all marked, sides of the pronotum completely rounded. Metanotal groove not at all impressed with the mesosoma in profile. Propodeum very modified, with the shape of a pronounced horse saddle, the level of the dorsal face much higher than the level of the rest of the mesosoma, dorsal face of the propodeum immarginate on sides; posteriorly with two medium sized teeth. Declivous face laterally weakly marginate and carinate.

Petiole as shown in Figs. 2b-c, node high and round, antero-posteriorly compressed and laterally expanded in a scalelike fashion, almost with the same width as the postpetiole (d.v.); subpetiolar process with an anterior end as a prominent and blunt tooth directed obliquely forwards (p.v.). The postpetiole very broad, antero-posteriorly compressed, the subpostpetiolar process forming a small and continuous plate with its ventral margin bearing three regularly spaced minute notches.

*Gyne*: t.l. = 3.32; h.l. = 0.69; h.w. = 0.58; s.l. = 0.35; m.l.e. = 0.21; m.w.pr. = 0.55; a.l. = 0.88; h.f.l. = 0.61; m.w.p. = 0.35; m.w.pp. = 0.34; c.i. 84. Color chestnut ferruginous brown. Integument almost as in the conspecific workers, with the following exceptions: genae rugae almost reaching the inferior orbit of the compound eyes; scutellum weakly marginate and smooth and shining; Propodeum as in the workers, although the level of the dorsal face is similar to the level of the scutellum. Hairs as in the workers.

Head (f.f.v.) more elongate than in the workers, occipital corners broadly rounded. Compound eyes with 12-14 ommatidia r.g.d. and a total of approximately 70 ommatidia. Ocelli equally developed, very small, with the same diameter of the thinnest part of the antennal scape. The antennal scapes when laid back over the head as much as possible, almost attaining the occipital border. Funicular segment as in the workers.

Petiolar node, in relation to that of the workers, more antero-posteriorly compressed.

Male unknown.

### **Diagnosis, distribution and comments**

The exclusive character of the workers of *O. ephippiatus* is the very modified shape of the dorsal face of the propodeum (saddle shaped) with its level elevated in regard to the rest of mesosoma. *O. ephippiatus* was found in only one locality in the Amazonian Region (fig. 8).

*O. ephippiatus* gyne runs near those of *O. vezenyii* in Kempf's key (1974), however its propodeum is different, as discussed above.

*Examined material*: Brasil: Amazonas: Manaus [01°30'S 46°11'W] (2 ♀: holotype and paratype, see comments on paratype; 1 ♀ paratype).

### ***Oxyepoecus inquilinus* (Kusnezov)**

*Martia inquilina* Kusnezov, 1952:720 (♀ Argentina).  
Kusnezov, 1953:337 (Argentina: Tucumán).

*Oxyepoecus inquilinus*: Ettershank, 1966:146. Kempf, 1972:278. Kempf, 1974:489, Figs. 4, 7, 12 and 18. Bolton, 1995:309.

*Oxyepoecus turgidus* Kempf, 1969:278-280. Kempf, 1974:489 (synonymy).

*Worker*: t.l. = 2.70 (2.50-2.90); h.l. = 0.60 (0.53-0.64); h.w. = 0.51 (0.46-0.53); s.l. = 0.41 (0.35-0.44); m.l.e. = 0.16 (0.12-0.16); m.w.pr. = 0.44 (0.38-0.44); a.l. = 0.80 (0.68-0.80); h.f.l. = 0.48 (0.43-0.51); m.w.p. = 0.27 (0.22-0.28); m.w.pp. = 0.33 (0.27-0.36); c.i. 83-91. Color dark chestnut brown; gaster darker; mandibles, antennae and legs yellowish brown. Integument smooth and shining, with the following exceptions: very conspicuous piligerous punctures on the head dorsum; frontal carinae finely and longitudinally costulate, which prolong caudad and obliquely laterad, surpassing the level of the inferior orbits of the compound eyes where they become faint to vestigial, not reaching the level

of the superior orbits; genae longitudinally striate linking the inferior orbit of the compound eyes to the posterior margin of the clypeus; dorsal face of the propodeum fine and transversely costulate, with *arc* 10 costulae curving downwards, becoming fine to vestigial at the propodeum sides; one costula joins the two propodeal spines; posterior end of mesopleuron and inferior part of metapleuron with some curved and well marked costulae that cover the bulla of the metapleural gland region; posterior face of postpetiole with some fine and weak transverse costulae. Hairs relatively scarce, long, suberect on head, dorsum of mesosoma and on gaster; on head, besides the erect hairs there are shorter decumbent hairs, inclined mesad dorsally on head disc, forwards on the sides of the head; postpetiole with some subdecumbent well spaced hairs.

Head (f.f.v.) with the mandibles markedly elongated, and with a shallow diastema between the basal and the strong subbasal tooth. Anterior teeth of clypeus with lateral well developed denticles, better seen in oblique view. Frontal carinae short, moderately expanded laterad, ending at the level of the inferior orbit of the compound eyes; the maximum width between their outer edges at least one third of the head width. Compound eyes very big, relatively convex with about 10 facets r.g.d., total number of ommatidia close to 50. Antennal scape relatively long, but failing to reach the occipital corner when laid back over the head. Funicular segment I longer than VIII and IX taken individually, segments II-VII distinctly broader than long, VIII and IX as long as broad and almost equal.

Mesosoma very robust. Promesonotum evenly convex and weakly margined in front but not laterally. Shoulders very rounded, not angulate nor subdentate. Metanotal groove shallowly to not at all impressed (p.v.), metanotal suture indistinct. Dorsal face of the propodeum twice as long as broad, posteriorly with two pointed and prominent teeth. Declivous face laterally marginate by an acute carina.

Petiole compressed antero-posteriorly and laterally expanded in a scalelike fashion, with the node rounded above, high; subpetiolar process acute as a keel ending anteriorly in a prominent blunt tooth; when seen from the side the ventral margin of the subpetiolar process is sinuous. The postpetiole broad, but less high than the petiolar node; subpostpetiolar process with the ventral margin of the unique plate with a minute notch, interrupting its profile.

Gyne unknown.

Male unknown.

### **Diagnosis, distribution and comments**

Workers of *O. inquilinus* are distinguished by the combination of two characters: the very large compound eyes with about 50 ommatidia, and the developed spines of the propodeum. The distribution of *O. inquilinus* seems to be discontinuous, as shown in fig. 8, and includes localities at Central and Southern Brasil and at Tucumán, Argentina. However, it will be necessary to look for this species in *Pheidole radoskowskii*, *Pheidole schwarzaieri* and *Pheidole claviscapa* samples, to verify possible identification errors in other localities.

In Kempf's collection accession book we found the information that the paratypes of *O. turgidus* were found in the "Cerrado do Seminário", that is in a savanna close to the convent where Father Kempf was living at the time. He reported also that sample # 3852 may have come from a nest of an unidentified *Pheidole* (Kempf's acc. # 3853).

*Examined material:* Brasil: Goiás: Anápolis; 18.iii.1964, Kempf # 3852, W. Kempf [col.] [16°19'S 48°57'W] (2 ♀, paratypes of *Oxyepoecus turgidus* Kempf, 1969); same locality, 2.i.1966, Kempf # 4300, W. Kempf [col.] (1 ♀ paratype of *Oxyepoecus turgidus* Kempf, 1969). São Paulo: Agudos; 23.ix.1954, W. Kempf [col.] [22°27'S 49°00'] (♀ holotype of *Oxyepoecus turgidus* Kempf, 1969); same locality, 25.i.1953, Kempf # 740, same collector (1 ♀ paratype of *Oxyepoecus turgidus* Kempf, 1969). Argentina: Tucumán, Jard[im] del Instit[uto] M[iguell] Lillo, 6.xii.1948, N. Kusnezov # 111 [26°53'S 65°28'W] (3 ♀ paratypes of *Martia inquilina*); same locality, 5.iv.1952, N. Kusnezov # 8006 (3 ♀); same locality, 23.xi.1953, N. Kusnezov # 9133 (3 ♀); same locality, 24.xi.1953, N. Kusnezov # 9146 (3 ♀).

### ***Oxyepoecus kempfi* sp. nov.**

(Figs. 3a-c)

*Oxyepoecus kempfi* Albuquerque and Brandão. Holotype worker, Brasil: Piauí: Corrente [10°26'S 45°09'W], 23-27.xi.1991, C.R.F. Brandão [col.], deposited in MZSP.

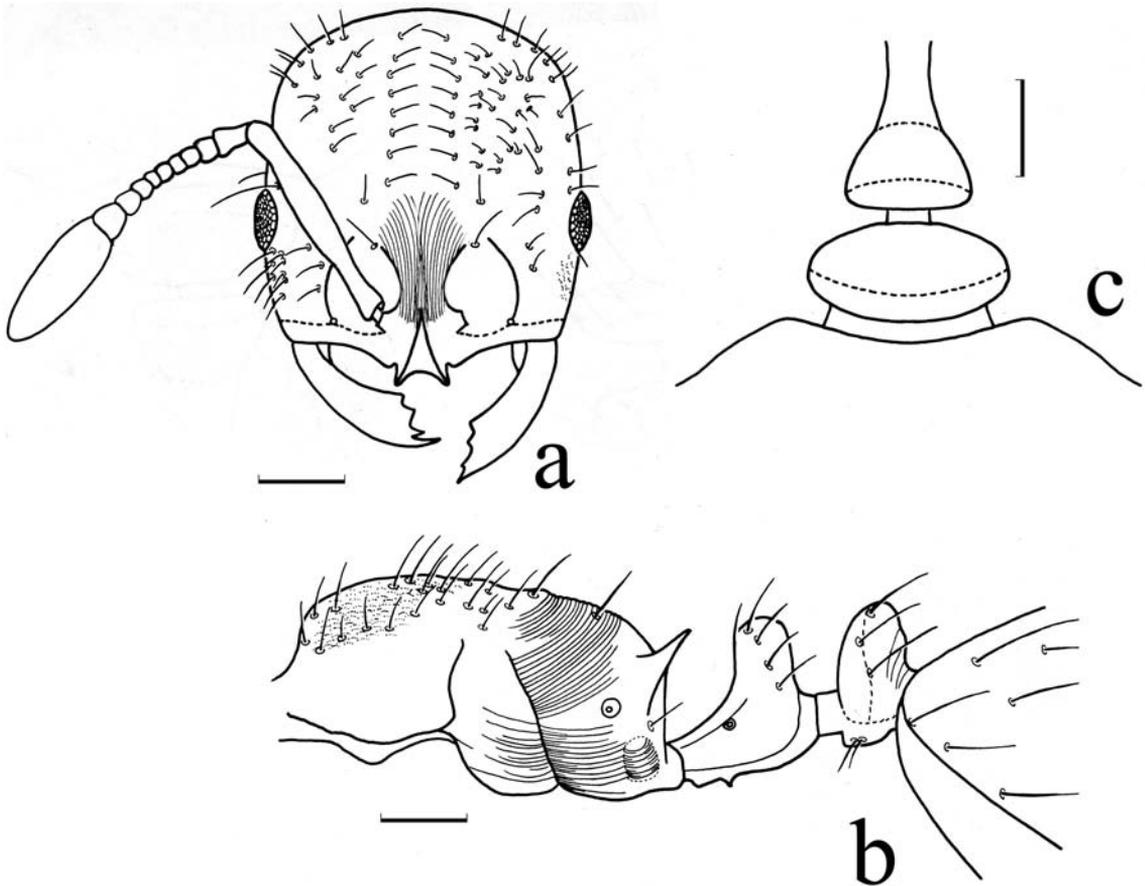
*Paratype:* same data as holotype.

*Etymology:* In memory of the Brazilian myrmecologist Walter W. Kempf; an inspiration to the study of this genus.

*Worker:* Holotype and paratype within brackets t.l.= 1.71 (1.77); h.l.= 0.45 (0.46); h.w.= 0.35 (0.37); s.l.=

0.21 (0.23); m.l.e. = 0.10 (0.10); m.w.pr. = 0.32 (0.31); a.l. = 0.49 (0.52); h.f.l. = 0.26 (0.28); m.w.p. = 0.18 (0.21); m.w.pp. = 0.21 (0.22); c.i. 78 (80). Color reddish brown. Integument smooth and shining, with the following exceptions: posterior area between frontal carinae longitudinally faintly striate, the striations prolong caudad and obliquely laterad, reaching the level of the superior orbit of the compound eyes; genae with few vestigial rugae that reach the inferior orbit of the compound eyes; dorsal disc of pronotum with piligerous punctuations; posterior area of the katapisternum, and whole metapleuron longitudinally costulate, the costulae prolonged to the bulla of the metapleural gland; the dorsal face of the propodeum with 6-8 transverse curved costulae. Hairs moderately abundant, long, suberect and relatively curved on mesosoma, petiolar node with some subdecumbent and suberect hairs; some decumbent hairs on the postpetiole.

Head as shown in Fig. 3a (f.f.v.), mandibles elongate, with a broad and relatively shallow diastema between the basal and the subbasal tooth, and also a slightly larger diastema between the subbasal tooth and the subapical. Anterior teeth of the clypeus with lateral denticles, better seen when the clypeus margin is in oblique view. Frontal carinae relatively short, concave behind the antennal sockets, reaching the level of the inferior orbit of the compound eyes, the maximum width between their outer edges approximately 2/5 of the head width. Compound eyes small, with about 5-6 facets r.g.d., which is less than the distance between the inferior orbit and the mandibular insertion: total number of ommatidia about 18. Antennal scape failing to reach the occipital corner by a distance larger than the maximum thickness of the scape. Funicular segment I as long as II-IV combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.



**FIGURE 3.** Schematic drawing of the worker of *O. kempi*, a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view (scale bar = 0,10 mm).

Mesosoma as shown in Fig. 3b. Shoulders not at all marked, sides of the pronotum rounded, but the dorsal and lateral faces clearly distinguished. Metanotal groove not impressed (p.v.). Dorsal face of the propodeum immarginate on sides; posteriorly with two acute and prominent spines. Declivous face laterally marginate, the margin as weak carinae.

Petiole as shown in Figs. 3b-c, node high and round, slightly higher than the postpetiole, antero-posteriorly compressed and a little expanded laterally, almost 2/3 of the postpetiole width (d.v.); subpetiolar process minute, subquadrate, followed by one posterior very small denticle. The postpetiole very broad, in a scalelike fashion, subpostpetiolar process small with two subparallel crests of similar size, but curved forwards.

Gyne unknown.

Male unknown.

#### ***Diagnosis, distribution and comments***

The exclusive character of the workers of *O. kemphi* is the minute size (t.l.), and the pattern of sculpture inside the frontal carinae.

*O. kemphi* was recorded in only one locality (fig. 8); the only record for the genus in northeast Brasil, a poorly collected region in terms of ants. This specimen was collected from sifted litter samples in "cerrado" (Brazilian savanna).

Both specimens were broken while being examined, the postpetiole and gaster were glued in the same paper triangle of the respective head and mesosoma.

*Examined material:* Brasil: Piauí: Corrente [10°26'S 45°09'W] (2 ♀, holotype and paratype).

#### ***Oxyepoecus longicephalus* sp. nov.**

(Figs. 4a-c)

*Oxyepoecus longicephalus* Albuquerque and Brandão. Holotype worker, Brasil: Rio Grande do Sul: Itati 29°30'S, 50°10'W, 28.v.1997, J. Ketterl [col.], CPCN Pró-Mata, deposited in MZSP.

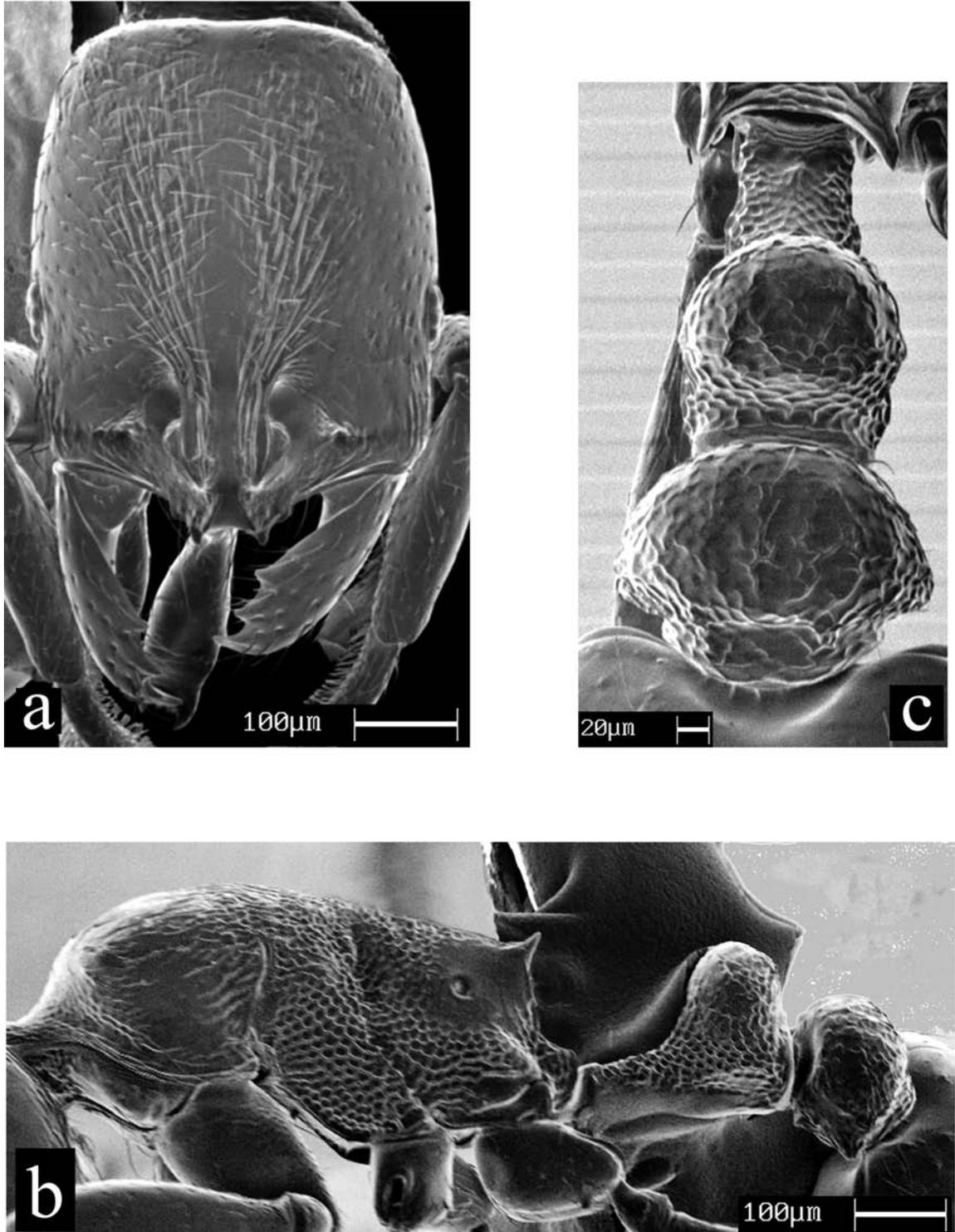
*Paratype* workers. Brasil: Rio Grande do Sul: Itati 29°30'S 50°10'W, 29.v.1997, J. Ketterl [col.], CPCN Pró-Mata deposited in MZSP. São Paulo: Cunha 23°15'S, 45°00'W, 21-22.iv.2001, A.A. Tavares, R.R. Silva cols, P.E. Serra do Mar, Winkler, deposited in MZSP.

*Etymology:* The shape of the head (f.f.v.) where the length is more developed than the width.

*Worker:* Holotype and paratype within brackets t.l.= 3.00 (3.06); h.l.= 0.72 (0.72); h.w.= 0.48 (0.50); s.l.= 0.42 (0.46); m.l.e.= 0.08 (0.12); m.w.pr.= 0.42 (0.45); a.l.= 0.84 (0.84); h.f.l.= 0.41 (0.45); m.w.p.= 0.18 (0.22); m.w.pp.= 0.30 (0.30); c.i. 66 (69). Color chestnut brown to dark brown. Integument smooth and shining, with the following exceptions: frontal carinae longitudinally costulate, prolonged posteriorly, surpassing the level of the superior orbit of the compound eyes; genae with well marked longitudinal rugae that do not reach superiorly the inferior orbit of compound eyes but reach inferiorly the mandibular insertion; pronotum with some irregular and superficial rugae; the neck, the mesopleuron (anepisternum and katepisternum), the metapleuron and the propodeum almost entirely covered by irregularly reticulate sculpture, except around the propodeal spiracle, which is smooth; the inferior region of the metapleuron with two longitudinal and well marked costulae that prolong over the metapleural gland bulla; superior face of the petiole peduncle and lateral face of the petiole also with the irregularly reticulate sculpture; the superior and lateral face of the postpetiole with some irregular rugae that give a rough aspect. Hairs abundant, short and decumbent, irregularly distributed on cephalic disc; scarce, long, suberect and relatively curved forwards on pronotum; metapleuron and mesopleuron with scarce and short hairs; propodeum, petiolar node, postpetiole, and gaster with some long and erect hairs, somewhat backwards oriented.

Head as shown in Fig. 4a (f.f.v.). Mandibles elongated with a broad and relatively shallow diastema between the basal and subbasal tooth. Anterior teeth of clypeus with small, blunt and lobe-like lateral denticles. Frontal carinae relatively short, subparallel, reaching the level of the inferior orbit of the compound eyes, the maximum width between their outer edges less than a fifth of the head width. Compound eyes small, with about 3-5 facets r.g.d.; total number of ommatidia about 8. Antennal scape failing to reach the occipital corner by a distance larger than the maximum thickness of the scape. Funicular segment I as long as II-IV combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma as shown in Fig. 4b. Promesonotum immarginate in front and laterally; shoulders marked, but without a defined angle. Metanotal groove perceptible by a break in the profile. Dorsal face of the propodeum posteriorly with two acute teeth. Declivous face laterally marginate and weakly carinate.



**FIGURE 4.** Scanning electron micrograph of the workers of *O. longicephalus*, a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

Petiole in dorsal view as shown in Figs. 4b-c, node high and rounded at superior face, antero-posteriorly compressed but not scale-like, about 2/3 as broad as postpetiole; subpetiolar process as a sagittal and undulated keel anteriorly ending in a prominent tooth-shaped plate. The postpetiole broad, in a scale like fashion, the level of the superior face lower than the petiole node; subpostpetiolar process small, almost imperceptible, extremely shallow.

Gyne unknown.

Male unknown.

### **Diagnosis, distribution and comments**

The exclusive character of the workers of *O. longicephalus* is mainly the proportion between the head length and head width (very elongate, low c.i.); also the irregularly reticulate sculpture over the body (visible only at magnifications over 80 X). *O. longicephalus* was recorded in only one locality at south Brazil, and one at southern Brasil (fig. 8), geographically separated.

*Examined material:* Brasil: Rio Grande do Sul: [Itati], CPCN Pró-Mata, 28.v.1997, J.Ketterl [col.] 29°30'S 50°10'W, Mata Atlântica, 670-690 m, (Winkler) WnB 27 (1 ♀ holotype); Rio Grande do Sul, CPCN Pró-Mata, 15.iv.1997, J.Ketterl [col.] 29°30'S 50°10'W, Araucaria Forest, ~ 900 m, (Winkler) WnA 17 (1 ♂ paratype, without antennae); São Paulo: Cunha, P.E. Serra do Mar, 21-22.iv.2001, A.A.Tavares & R.R.Silva cols 23°15'S 45°00'W Winkler 48 (1 ♀ paratype, the gaster is partially destroyed).

### ***Oxyepoecus punctifrons* (Borgmeier)**

(Figs. 5a-c)

*Monomorium (Martia) punctifrons* Borgmeier, 1928a:39 (S Brasil). Borgmeier, 1928b:63-65 (S Brasil).

*Martia punctifrons*: Kusnezov, 1952:722.

*Oxyepoecus punctifrons*: Ettershank, 1966:146. Kempf, 1972:173. Kempf, 1974:489 (synonymy, lectotype designation).

*Worker* (Lectotype): t.l.= 3.20 (2.70-3.40); h.l.= 0.73 (0.64-0.79); h.w.= 0.59 (0.49-0.67); s.l.= 0.53 (0.48-0.57); m.l.e.= 0.14 (0.11-0.15); m.w.pr.= 0.40 (0.36-0.47); a.l.= 0.89 (0.77-0.98); h.f.l.= 0.63 (0.55-0.68); m.w.p.= 0.20 (0.16-0.21); m.w.pp.= 0.27 (0.23-0.32); c.i. 80 (77-85). Color reddish to yellow. Integument smooth and shining, with the following exceptions: some fine costulae between frontal cari-

nae; portions of mesopleuron and inferior half of metapleuron superficially and finely costulate, prolonging over the bulla of the gland of the metapleural region; piligerous punctuations on head dorsum very conspicuous; dorsal face of the propodeum with transverse and very superficial almost invisible costulae; postpetiole almost without costulae rows or striae, except for one or two just above the articulation with the gaster. Hairs relatively scarce, subdecumbent on the head dorsum, inclined mesad on the disc, forward on the sides of the head; suberect on mesosoma and on gaster; postpetiole with some subdecumbent well spaced hairs.

Head (f.f.v.) as shown in Fig. 5a, with elongated mandibles, and with a deep cleft between the basal and the strong subbasal tooth. Anterior teeth of clypeus with lateral, blunt and lobe-like denticles. Frontal carinae short, moderately expanded laterad, ending after the level of the inferior orbit of the compound eyes, the maximum width between their outer edges about one fourth of the head width. Compound eyes very large, relatively convex with some 11 facets r.g.d., total number of ommatidia *circa* 50. Antennal scape relatively long, reaching the occipital corner when laid back over the head. Funicular segment I longer than VIII and IX taken individually, as long as II-IV combined; segments VIII and IX a slightly longer than broad.

Mesosoma (p.v.) with the shoulders rounded, not marked or forming an angle, dorsum of the pronotum not marginate laterally (Fig. 5b). Metanotal groove gently impressed in profile, metanotal suture indistinct. Dorsal face of the propodeum immarginate on sides, posteriorly with two very small and pointed, but not prominent teeth. Declivous face laterally submarginate not carinate.

Petiole club shaped (d.v.) as shown in fig. 5c. Node not antero-posteriorly compressed nor laterally expanded in a scalelike fashion; subpetiolar process with an anterior small, blunt tooth. The postpetiole scarcely antero-posteriorly compressed, the lateral projections blunt and short.

*Gyne* (ergatomorphic): t.l.= 3.32; h.l.= 0.67; h.w.= 0.55; s.l.= 0.55; m.l.e.= 0.15; m.w.pr.= 0.50; a.l.= 0.95; h.f.l.= 0.46; m.w.p.= 0.18; m.w.pp.= 0.35; c.i. 82. Resembling worker, with the head similar except for the presence of minute ocelli, their diameter less than the minimum thickness of the antennal scape. Compound eyes almost equal to the worker, somewhat convex, with some 13 facets r.g.d., total number of

ommatidia *circa* 60. Antennal segments (scape and funiculus) equal to the workers. Mesosoma with blunt marked shoulders; pronotum smooth and shining. Mesonotum (scutum and scutellum) relatively large, 2/3 of the mesosoma; scutum smooth and shining with some piligerous punctulae; scutellum entirely smooth. Mesopleuron with the anepisternum and katepisternum separated by a shallow groove, both with some very fine, almost imperceptible and oblique costulae. Dorsal face of the propodeum trans-

versely costate, with 13-15 fine costulae, which continue downwards and obliquely forwards on the sides. Propodeal teeth short and blunt. Petiole not much compressed, almost club shaped, the subpetiolar process straight, ending anteriorly as a blunt and small denticle. Postpetiole twice broader than the petiole node, subpostpetiolar process somewhat developed as two small and transverse crests.

Male unknown.

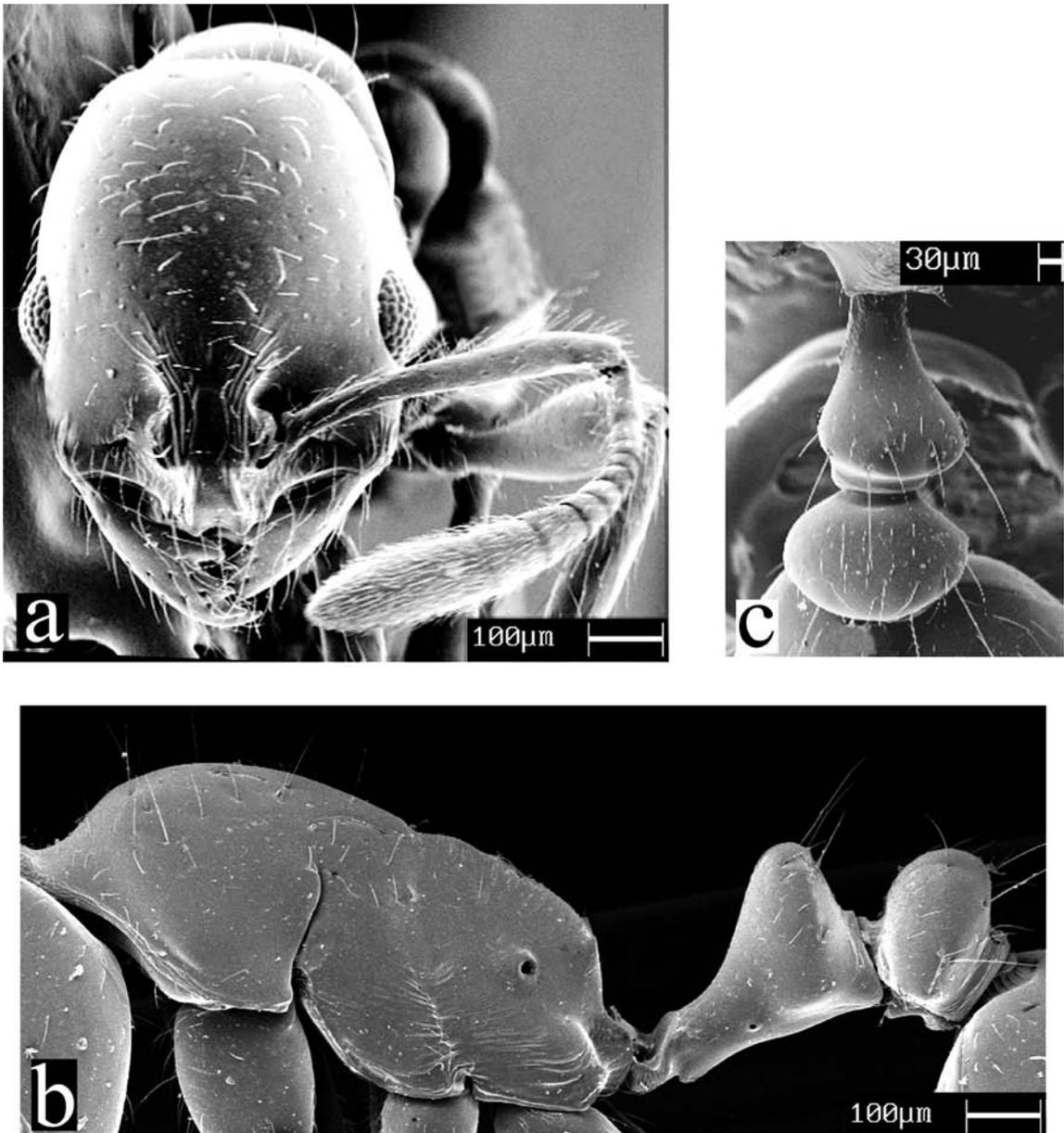


FIGURE 5. Scanning electron micrograph of the workers of *O. punctifrons*; a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

**Diagnosis, distribution and comments**

Workers of *O. punctifrons* can be diagnosed by the combination of the almost smooth integument, the posterior corner of the propodeum with minute denticles and the large overall size. The distribution of *O. punctifrons* is represented by several localities within southeast and south Brazil, all in the "Mata Atlântica" Domain, as shown in fig. 9. The *O. punctifrons* specimens were collected mainly in the leaf litter, however two workers and one gyne were founded interestingly in the canopy of an "Angico" tree *Anandenanthera* (Leguminosae).

As far as we understand, Kempf (1974) designated *O. punctifrons* syntype specimens numbered 424 in Borgmeier's collection as lectotype and paralectotypes.

**Examined material:** Brasil: Paraná: Bocaiúva do Sul, v. 1963, F. Plaumann [col.] # 4978, [25°12'S 49°07'W] (6 ♀); same locality, xii.1963, same collector, # 8107, same (2 ♀); Porto Vitória, x.1959, F. Plaumann [col.] # 3197, [26°09'S 51°14'W] (1 ♀); Rio Azul, x.959, F. Plaumann [col.] # 3182, [25°44'S 50°47'W] (2 ♀); Rio Negro, iv.1925, father Miguel White [col.], [26°05'S 49°47'W] (Type series from the same colony, Kempf [1974] 16 ♀, lectotype and paratypes); Rio Grande do Sul: Bom Jesus, xii.1962, F. Plaumann [col.] # 3485 [28°41'S 50°23'W] (2 ♀); Nova Petrópolis, ix.1959, F. Plaumann [col.] # 3228 [29°21'S 51°07'W] (5 ♀); Tainhas, iv.1959, F. Plaumann [col.] # 3248 [29°16'S 50°18'W] (3 ♀); Santa Catarina: Chapecó, xii.1957 and vi.1960, F. Plaumann [col.] [27°05'S 52°37'W] (1 ♀ and 3 ♀ respectively); same locality, vii. 1960, same collector # 8334 same coordinates (2 ♀); same locality, viii.1960, same collector # 9880 same coordinates (1 ♀, broken, only the head and mesosoma left); same locality, xi. 1962, same collector # 4672 same coordinates (1 S); Ibicaré, vii.1959, F. Plaumann [col.] # 3127 [27°06'S 51°23'W] (6 ♀); Nova Teutônia, several collections between viii.1952 and vi.1963, in the months of May to November, F. Plaumann [col.] # 8089, 8164, 8211, 8226, 8325, and non-numbered specimens [27°02'S 52°24'W]; Seara, v-xii.1998, Rogério R. Silva col. 24°07'S 52°18'W (3 ♀); Same locality, 10.v.1999, same collector 24°07'S 52°18'W (2 ♀ and 1 ♀ on the canopy of the "Angico" tree *Anandenanthera* Leguminosae); Serra Geral, xii.1958, F. Plaumann [col.] # 3024 [27°07'S 50°03'W] (1 ♀, broken, the petiole, postpetiole and gaster left); São Paulo: Campos do Jordão, 5.iii.1957, W.W. Kempf [col.] # 1812 [22°44'S 45°35'W] (4 ♀); Salesópolis, 2-6.v.1957 and 5-7.vii.1997, C.I. Yamamoto [col.] [23°39'S 45°53'W] (3 ♀ and 2 ♀ respectively).

***Oxyepoecus quadratus* sp. nov.**

(Figs. 6a-c)

*Oxyepoecus quadratus* Albuquerque and Brandão. Holotype worker, Ecuador: Cuyabeno [0°16'S, 75°53'W], 27.i.1994, J.P. Caldwell [col.], deposited in MZSP.

*Paratype:* worker. Peru: Panguana: Huanaca [9°37'S, 74°56'W], 26.xi.1983, M. Verhaagh [col.], deposited in MZSP.

*Etymology:* From the shape of the superior face of the petiolar node clearly subquadrate.

*Worker:* Holotype and paratype within brackets t.l.= 2.32 (2.37); h.l.= 0.45 (0.46); h.w.= 0.46 (0.47); s.l.= 0.32 (0.36); m.l.e.= 0.09 (0.12); m.w.pr.= 0.32 (0.36); a.l.= 0.63 (0.68); h.f.l.= 0.38 (0.40); m.w.p.= 0.20 (0.24); m.w.pp.= 0.23 (0.26); c.i. 97 (96). Color chestnut brown; mandibles, antennae, legs yellowish; and gaster fuscus, almost black. Integument smooth and shining, with the following exceptions: frontal carinae longitudinally costulate, prolonged posteriorly, reaching the level of the superior orbit of the compound eyes; genae with well marked longitudinal rugae that reach superiorly the inferior orbit of compound eyes and inferiorly the mandibular insertion; postero-lateral limit of disc of the pronotum, sides and anterior third of mesonotum, and metapleuron with longitudinal well marked costulae, of which one is prolonged posteriorly and curved over the bulla of the metapleural gland region, but specially on disc of pronotum and anterior third of mesonotum the costulae can be less marked; dorsal face of the propodeum with some well marked and curved costulae, 7-10 well formed, with ends over the sides of the propodeum; declivous face with two well formed costulae, the superior reaching the costulae of metapleuron and communicating with them; sides of the petiole with costulae in different orientations, but generally the penducle has many longitudinal costulae and the node has many transverse; posterior and dorsal surfaces of postpetiole with several small but well formed costulae. Hairs abundant, decumbent on cephalic disc, the majority turned to head median stripe; on cephalic border long, suberect without a regular orientation; long, suberect and relatively curved on pronotum, mesonotum with some long and erect; and metapleuron dorsum scarcely hairy, petiole node with some suberect and subdecumbent hairs; there are some decumbent on the postpetiole.

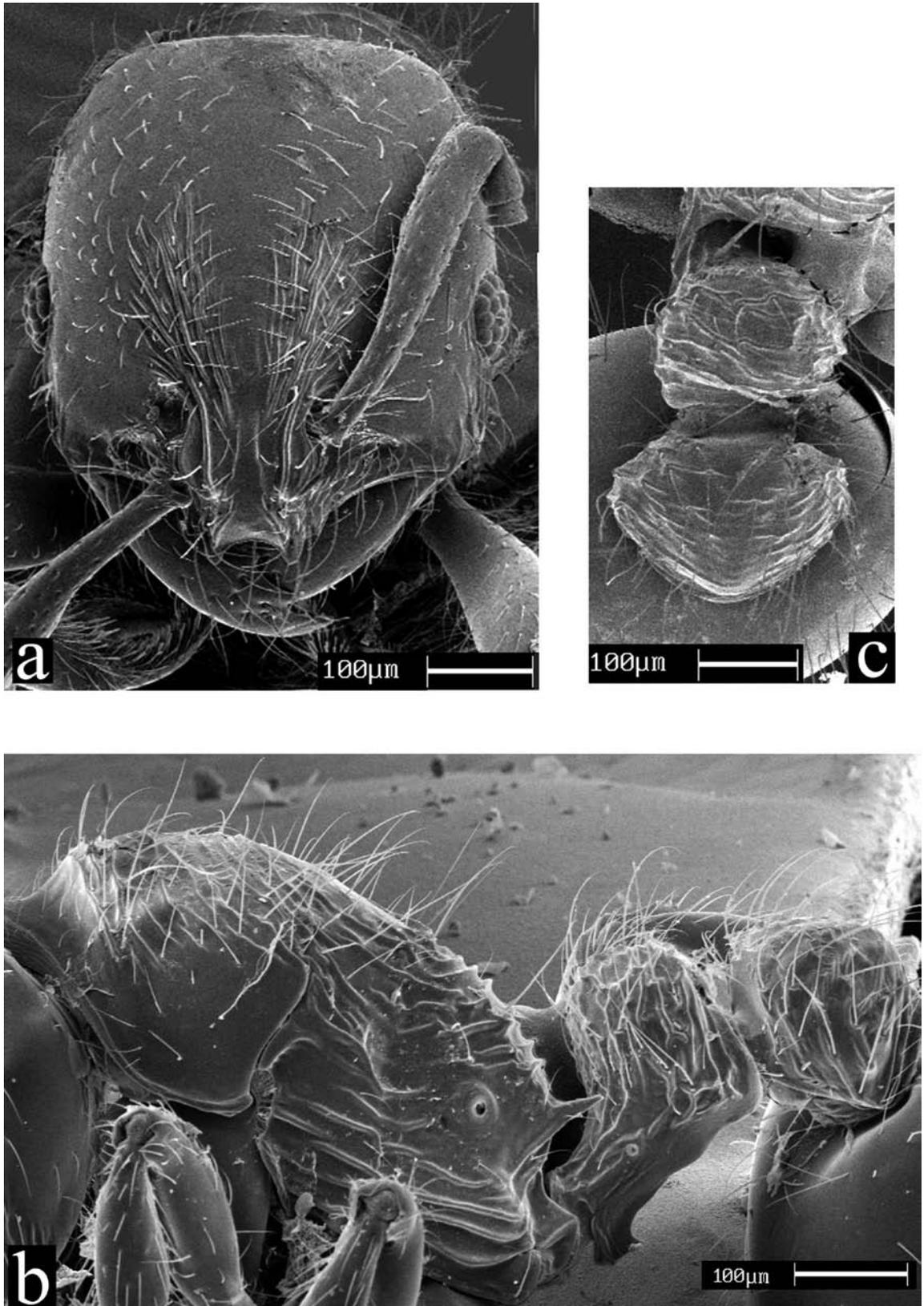


FIGURE 6. Scanning electron micrograph of the workers of *O. quadratus*; a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

Head as shown in Fig. 6a (f.f.v.). Mandibles elongated, with a broad and relatively shallow diastema between the basal and subbasal tooth, also between the subbasal tooth and the other teeth. Anterior teeth of clypeus with small, blunt and lobe-like lateral denticles. Frontal carinae relatively short, subparallel, with a posterior moderate divergence and with a small constriction posteriorly, reaching the level of the straight line that passes through the inferior orbit of the compound eyes, the maximum width between their outer edges less than one third of the head width. Compound eyes small, with about 5-7 facets r.g.d.; total number of ommatidia about 16-18. Antennal scape failing to reach the occipital corner by a distance approximately equal to the maximum thickness of the scape. Funicular segment I as long as II-VI combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma as shown in Fig. 6b. Promesonotum convex, marginate in front and laterally; shoulders marked, but without a defined angle. Metanotal groove not at all impressed (p.v.). Dorsal face of the propodeum posteriorly with two acute and prominent spines. Declivous face laterally marginate and weakly carinate. Propodeal lobes irregularly rounded.

Petiole in dorsal view as shown in Figs. 6b-c, node high and subquadrate at superior face (p.v.), antero-posteriorly compressed in a scale-like fashion, almost as broad as postpetiole; subpetiolar process as a sagittal and undulate keel anteriorly ending in a prominent plate-shaped tooth. The postpetiole very broad, in a scalelike fashion, the level of the superior face lower than the petiole node is high; subpostpetiolar process small, almost imperceptible, extremely shallow.

Gyne unknown.

Male unknown.

### **Diagnosis, distribution and comments**

The exclusive character of the workers of *O. quadratus* is the subquadrate petiolar node (p.v.), but also the distribution of marked costulae on head and mesosoma are important. The distribution of *O. quadratus* is represented by two localities in western Amazonian region, in Peru and Ecuador (fig. 8).

*Examined material:* Ecuador: Cuyabeno, 27.i.1994, J.P. Caldwell [col.] [0°16'S, 75°53'W] (1 ♀ paratype, coated with gold for SEM); Peru: Panguana: Huanaca, Yuyapidis river, 26.xi.1983, M Verhaagh [col.], inundation forest, collected using pitfall trap [9°37'S, 74°56'W] (♀ holotype).

### ***Oxyepoecus vezenyii* (Forel)**

(Figs. 7a-c)

*Monomorium* (*Martia*) *vezenyii* Forel, 1907:20-21, (♀ Paraguay). Borgmeier, 1928b:65 (key).

*Martia vezenyii*: Kusnezov, 1952:720, 722

*Oxyepoecus vezenyii*: Ettershank, 1966:145, Figs. 114-119 (worker). Kempf, 1969:277-278 (♀ Brasil). Kempf 1972:173. Kempf, 1974:505.

*Worker:* t.l.= 2.40-3.00; h.l.= 0.57-0.67; h.w.= 0.47-0.55; s.l.= 0.36-0.41; m.l.e.= 0.08-0.09; m.w.pr.= 0.36-0.44; a.l.= 0.68-0.79; h.f.l.= 0.39-0.47; m.w.p.= 0.23-0.31; m.w.pp.= 0.27-0.35; c.i. 79-84. Color light ferruginous; gaster somewhat infusate. Integument smooth and shining, with the following exceptions: frontal carinae longitudinally costulate, prolonged caudad and obliquely laterad, surpassing the level of the superior margins of the compound eyes where they become faint to vestigial; genae with longitudinal costulae that reach the inferior margin of the compound eyes and the inferior margin of clypeus, close to the mandibular insertion; postero-lateral corner of the dorsal disc of pronotum, with some piligerous punctuations longitudinally oriented; sides of the pronotum smooth and shining; postero-inferior region of the anepisternum, katepisternum, sides of the propodeum and all metapleuron longitudinally costulate, which vary in their degree of distinctness, weak to conspicuous; dorsal face of the propodeum with 10-13 costulae, 8 strong, the others less distinct; sides of the petiolar node with a few widely spaced horizontal longitudinal costulae; sides and posterior surface of postpetiole with several rows of indistinct to well-expressed costulae. Hairs moderately abundant, short to long, suberect on head, dorsum of mesosoma, petiole, postpetiole, and on gaster; subdecumbent on head; most hairs inclined mesad dorsally on discs, forwards on the sides; decumbent on the mandibles; gaster without ground hairs.

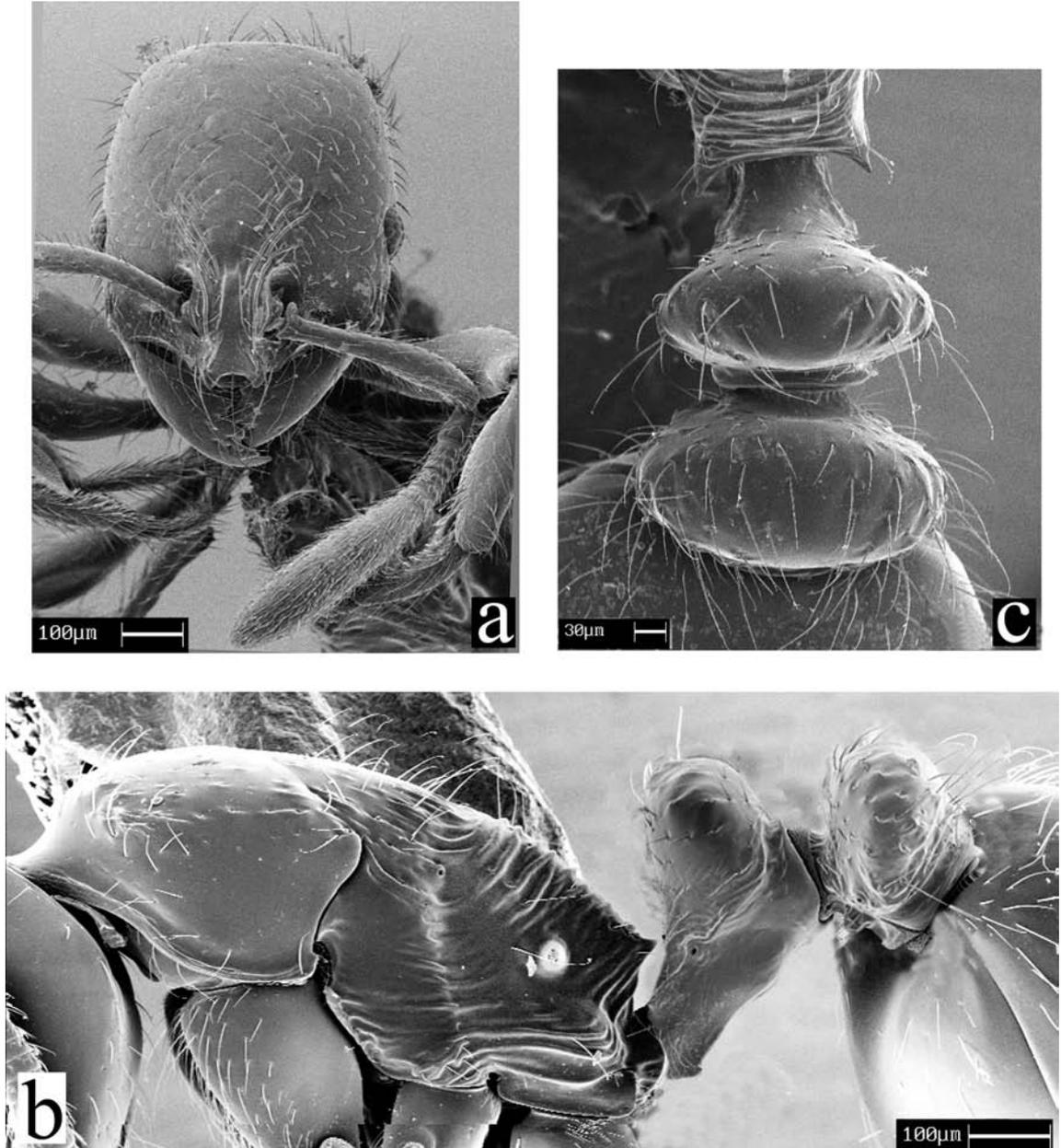
Head (f.f.v.) with the mandibles relatively elongated, and with a broad and relatively shallow diastema between the basal and subbasal tooth (fig. 7a). Anterior teeth of clypeus divergent with lateral, blunt, lobe-like, denticles. Frontal carinae with their superior ends divergent and relatively close, the maximum width between their outer edges always less than one third of the head width. Compound eyes relatively small, with about 6-7 facets r.g.d., which is less than the distance between the inferior orbit and the mandibular insertion: total number of ommatidia *circa* 20. Antennal

scape failing to reach the occipital corner by a distance approximately equal to the maximum thickness of the scape. Funicular segment I as long as II-V combined, segments II-VII distinctly broader than long, VIII and IX as long as broad.

Mesosoma as shown in Figs. 7b (p.v.) with the shoulders shallowly marked, sides of pronotum submarginate. Metanotal groove shallowly to not at all

impressed (p.v.), metanotal suture indistinct. Dorsal face of the propodeum immarginate on sides, posteriorly with two pointed, obliquely oriented teeth. Declivous face laterally marginate and weakly carinate.

Petiole pedunculate, node antero-posteriorly compressed and laterally expanded in a scalelike fashion (Figs. 7b-c), almost as broad as postpetiole (d.v.); subpetiolar process anteriorly blunt and somewhat



**FIGURE 7.** Scanning electron micrograph of the workers of *O. vezenyii* (Forel, 1907); a) head in full-face view; b) mesosoma in profile view; c) petiole in dorsal view.

plate-like (p.v.). The postpetiole unusually broadened due to the drawn out lateral bulky lobes. Subpostpetiolar process with two subparallel crests, of approximately equal size.

*Gyne* (ergatomorphic): t.l.= 3.10; h.l.= 0.64; h.w.= 0.53; s.l.= 0.43; m.l.e.= 0.11; m.w.pr.= 0.43; a.l.= 0.84; h.f.l.= 0.46; m.w.p.= 0.30; m.w.pp.= 0.35; c.i. 82. Resembling worker with the modifications appropriate to the caste. Eyes surprisingly small, as in workers, with less than 30 ommatidia. Ocelli minute, their diameter less than the minimum thickness of the antennal scape. Mesosoma (p.v.) with blunt marked shoulders; pronotum not declivous in the middle. Mesonotum (scutum and scutellum) relatively small, their combined length approximately equal to one half of mesosoma length; scutum smooth and shining with strong piligerous punctulae; scutellum entirely smooth. Dorsal face of the propodeum transversely costate, with 8-10 costae, which continue downwards and obliquely forwards on the sides. Mesopleuron smooth and shining. Propodeal teeth short but pointed. Petiole and postpetiole as in workers.

### **Diagnosis, distribution and comments**

Workers of *O. vezenyii* are diagnosed by a combination of characters: the elongate mandible; the relatively small eyes with *circa* 20 ommatidia, and the pattern of microsculpture between the frontal carinae. The distribution of *O. vezenyii*, as shown in fig. 9, seems discontinuous, with ten localities at south, southeast, mid and western-center, and north Brazil. It includes different Brazilian ecosystems and biomes, but the absence in intermediate localities could be an effect of the application of techniques inappropriate in these gaps.

The gyne runs near those of *O. bruchi* in Kempf's (1974) key, however it is differentiated by the pronotum, which is not declivous in the middle, and by the relatively small mesonotum.

*Examined material*: Brasil: Goiás: 20 Km W of Chapadão do Céu, Parque Nacional das Emas, 27-30.v.1997, Brandon Bestelmeyer [col.] # CE1-6, CBI-9, CB1-9, CL2-5, [18°07'S 52°53'W] (4 ♀); Mato Grosso: Cuiabá, 5 Km of Av[enue] Perimetral, Cerrado with stream, 19.ii.1985, J.C. Trager [col.] # 0642 [15°36'S 56°06'W] (2 ♀); Rio Grande do Sul: Erechim, viii.1956, F. Plaumann [col.] [27°38'S 52°16'W]; [Itati], CPCN Pró-Mata, 18.iii.1997, J. Ketterl [col.] 29°30'S 50°10'W, Araucaria Forest, ~ 900 m, Soil Litter Sifting (Winkler)

Wn 4 (1 ♀); Santa Catarina: Ibicaré, ix.1960, F. Plaumann [col.] (WWK) # 8103 [27°06'S 51°23'W] (10 ♀); Luzerna, i.1963, Fr. Libório Schmitt [col.] (2 ♀); Nova Teutônia, viii.1952, x.1953, vi.1959, vii.1959, vi.1960, F. Plaumann [col.] # 8089 (Borgm. Coll.), (WWK) # 8301, 8177, 8163, 8326 [27°02'S 52°24'W] (22 ♀ e 1 ♀); Seara, v-xii.1998, Rogério R. Silva col. 24°07'S 52°18'W (1 ♀); São Paulo: Salesópolis, v.1971, W.L. Brown Jr. [col.] [23°39'S 45°53'W] (1 ♀); Tocantins: Palmeirante, Mata Ciliar/Cerradão, 10-15.xii.2001, Albuquerque. N.L. & Silva R.R. Cols 07°52'S 47°57'W (7 ♀).

### ***Oxyepocus vivax* Kempf**

*Oxyepocus vivax* Kempf, 1974:509, Figs. 31, 32, 33, 38 and 39 (♀ Brasil).

*Gyne* (Holotype): t.l.= 3.8; h.l.= 0.75; h.w.= 0.67; s.l.= 0.58; m.l.e.= 0.29; m.w.pr.= 0.61; a.l.= 1.09; h.f.l.= 0.73; m.w.p.= 0.27; m.w.pp.= 0.32; c.i. 89. Color reddish brown. Integument smooth and shining, with the following exceptions: genae, and lateral portion of clypeus, finely costulate; inner region of the frontal carinae and frons finely costulate, the posterior portion rather indistinct, not reaching laterally the eyes nor posteriorly the ocelli; occiput with transverse costulae; dorsum of pronotum feebly and obliquely costulate; paraptera and scutellum regularly longitudinally costulate; dorsal face of propodeum with oblique, asymmetrically disposed rugulae or costae; mesopleuron, metapleuron and sides of propodeum with patches of costulae; sides and posterior surface of petiolar and postpetiolar nodes, respectively horizontally and transverse costulate. Hairs abundant, suberect on the head, dorsum of the mesosoma, petiole, postpetiole, and gaster; on the head, decumbent and shorter hairs, inclined mesad dorsally on the disc, forwards oriented on sides; gaster without these interspersed shorter and decumbent hairs.

Head with the mandibles relatively elongate, with the small basal tooth separated from the subbasal by a broad but shallow diastema. Anterior teeth of clypeus blunt and scarcely prominent, with minute and inconspicuous lateral denticles. Frontal carinae, except the anterior curvature, absolutely straight and subparallel, with the posterior end after the level of the superior orbit of the compound eyes, the maximum width between their outer edges always less than one third of the head width. Compound eyes huge and prominent,

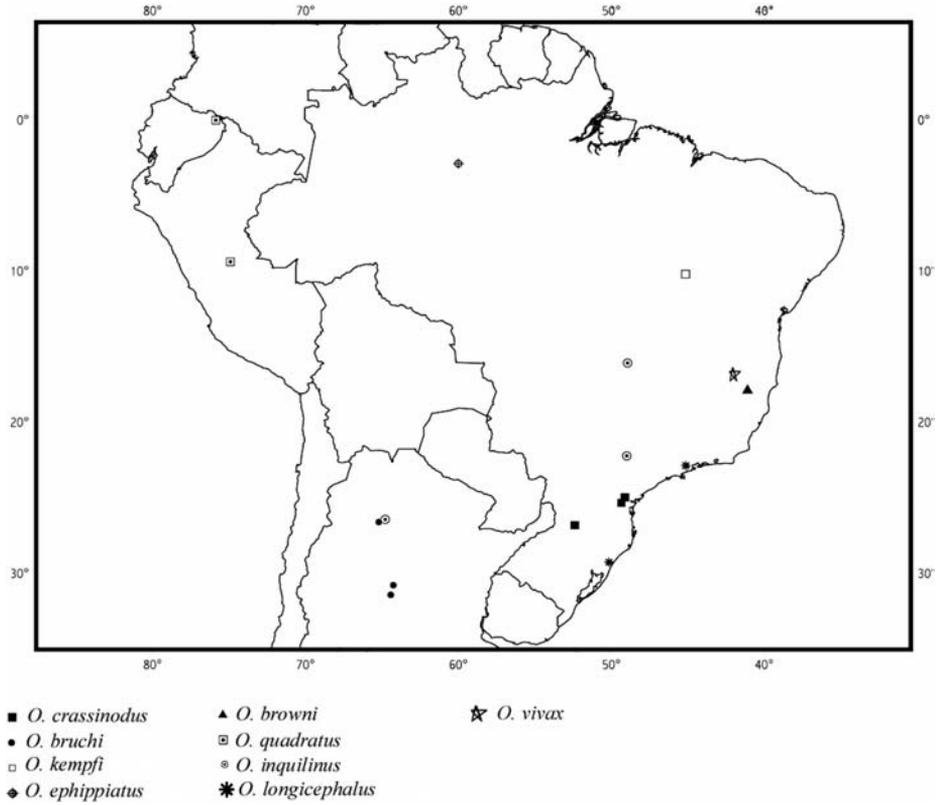


FIGURE 8. Map of distribution of *O. browni*, *O. bruchi*, *O. crassinodus*, *O. ephippiatus*, *O. inquilinus*, *O. kempfi*, *O. longicephalus*, *O. quadratus* and *O. vivax*.

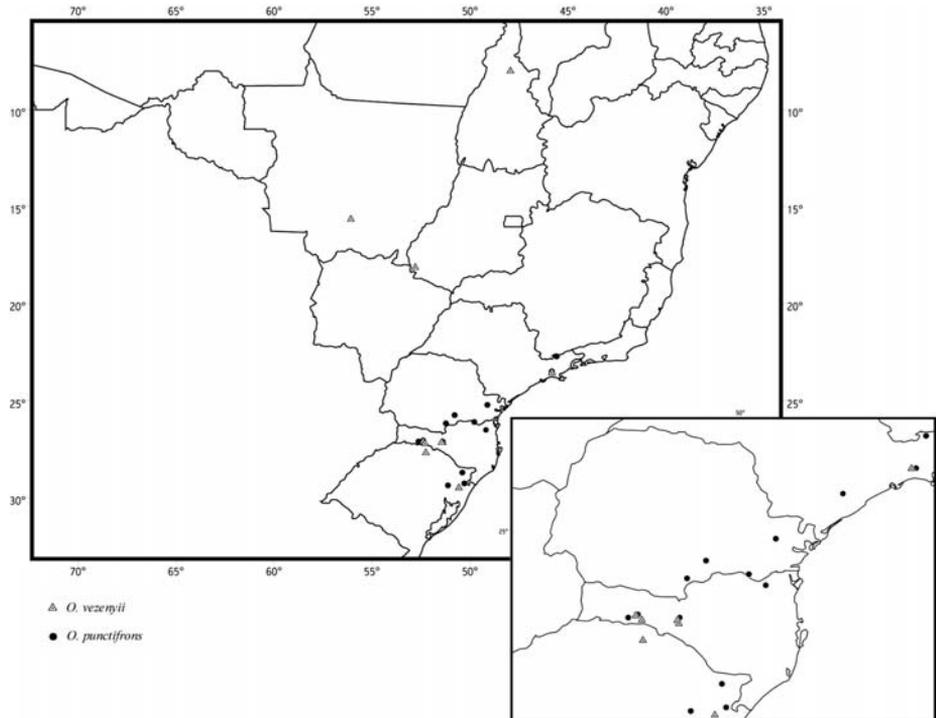


FIGURE 9. Map of distribution of *O. vezenyii* and *O. punctifrons*.

with several hundred ommatidia, oval in outline. Ocelli small. Antennal scape almost fails to reach the occipital corner, when laid back over the head as much as possible. Funicular segments I, VIII, IX and X much longer than broad, II-VI somewhat broader than long, VII almost as long as broad. Occiput (f.f.v.) slightly concavous.

Mesosoma with the pronotum entirely declivous in the middle, the sides submarginate, the shoulders not marked, rounded. Dorsal face of the propodeum immarginate on sides, posteriorly with two pointed, but short teeth. Declivous face slightly excavate and laterally carinate. Wings varies in the same individual; the discoidal cell is reduced to a small solid rectangle, in the left fore wing, while it is normal in the right fore wing. Hind wing with 6 hamuli.

Petiole pedunculate, node scarcely compressed antero-posteriorly; subpetiolar process ends anteriorly in a small tooth; node globose, in dorsal view slightly shorter than broad. Postpetiole likewise little compressed antero-posteriorly and scarcely expanded laterad, not conspicuously broader than petiolar node; not as high as petiole; anterior portion of subpostpetiolar process prominent but not bidentate.

Worker unknown.

Male unknown.

### **Diagnosis, distribution and comments**

The diagnostic characters of *O. vivax* gynes in relation to the other species in the *Vezenyii* group are the elongate mandibles, the blunt clypeal denticles and the relatively scarcely laterad expanded postpetiole. *O. vivax* is known only from the holotype collected in a locality in Minas Gerais State, Brasil (fig. 8).

*Examined material:* Brasil: Minas Gerais: Pedra Azul, xi. 1972, Dr. C.A.C. Seabra & Lt.-Cel Moacyr Alvarenga [col.] # 8108, [15°59'S 41°07'W] (♀ holotype).

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### **RESUMO**

*Revisamos neste trabalho a taxonomia das espécies do grupo Vezenyii do gênero de formigas Solenopsidini exclusivamente neotropical Oxyepoecus. Descrevemos cinco espécies (O. browni, O. ephippiatus, O. longicephalus, O. kempfi e O. quadratus), registramos informações novas quanto à distribuição das espécies do grupo e somamos os poucos dados publicados sobre a biologia das espécies.*

**PALAVRAS-CHAVE:** Formicidae, Myrmicinae, Solenopsidini, *Oxyepoecus*, revisão, grupo *Vezenyii*.

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