

DESCRIPTION OF *PARABOLBAPIUM AEQUATORIENSIS*, NEW GENUS AND NEW SPECIES FROM ECUADOR (COLEOPTERA, GEOTRUPIDAE)Sergio Ide^{1,2}
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ABSTRACT. *Parabolbapium aequatoriensis*, new genus and new species (type locality: Ecuador, Pichincha, Quito), are described and illustrated. *Parabolbapium* is the sixth Bolboceratini genus described from South America.

KEYWORDS. BOLBOCERATINAE; NEW GENUS; NEW SPECIES; *PARABOLBAPIUM AEQUATORIENSIS*; SCARABAEOIDEA.

INTRODUCTION

For some time the South American Bolboceratini had been included in the genus *Bolboceras* Kirby, 1818 (e.g. KLUG, 1843; LACORDAIRE, 1856; GEMMINGER & HAROLD, 1869; BOUCOMONT, 1902). The first attempt in the reclassification of the genus was made by BOUCOMONT (1910). He divided the genus into 6 subgenera and included some South American species in the subgenera *Bolborhinum* (3 species, Chile) and *Bolbapium* (3 species, South America; 2 species, Australia), also transferred *Bolboceras bonariensis* Klug, 1843 to *Eucanthus* Westwood, 1848. BOUCOMONT (1912) in the *Coleopterorum Catalogus* maintained his previous classification. LUEDERWALDT (1931) revised the South American species of *Bolboceras*, except the Chilean ones and did not mention the classification proposed by BOUCOMONT (1910). BLACKWELDER (1944) included *Bolapium* (sic) Bruch, 1915 as a subgenus of *Bolboceras* and did not consider the BOUCOMONT's (*op. cit.*) subgenera. HOWDEN (1954) based on notes in CARTWRIGHT (1953) raised the Australian subgenera proposed by BOUCOMONT (*op. cit.*) to generic rank. HOWDEN (1973) erected *Bolbothyreus* for *Athyreus ruficollis* Bruch, 1925 from Argentina. MARTÍNEZ (1976) created *Halfpterobolbus* for *Bolboceras laevistriatum* Boucomont, 1932 and *B. riojanum* Martínez, 1951; also catalogued 5 genera, 3 subgenera and 30 species for South American Bolboceratini. HOWDEN & COOPER (1977) created *Bolbobaineus* for *Bolbapium planiceps* (MacLeay, 1873) and *B. simpliceps* (Blackburn, 1888), both from Australia.

In this paper *Parabolbapium aequatoriensis*, gen. n., sp. n., are described based on a single specimen collected in Ecuador. Illustrations and an addendum to key for genera and subgenera for South American Bolboceratini by MARTÍNEZ (1976) are also included.

***Parabolbapium*, gen. n.**

Etymology. Greek. *Para* = beside, near, in allusion to the similarity with *Bolbapium* Boucomont, 1910.

Type species. *Parabolbapium aequatoriensis*, sp. n.; present designation and monotypy.

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Brown. Dorsum convex, almost totally glabrous; large punctures irregularly distributed.

Frons (Figs. 1, 2) strongly produced anteriorly; pentagonal. Frontoclypeal suture (Fig. 2) forwardly prominent on median region. Antennal club (Figs. 5, 10-12, 14) with oval outline on lateral and frontal views; densely setose. Clypeus (Figs. 2, 5) divided into 3 triangular regions; a pair of curved carinae joined to frontoclypeal suture. Mandibles (Figs. 23-26): external margin partially straight and partially curvate. Gula (Fig. 3) setose on anterior and lateroanterior margins.

Pronotum (Figs. 1, 4) margined on anterior and posterior borders; large punctures mainly on lateral regions. Scutellum (Figs. 27, 28) slightly longer than large. Metasternal plate (Fig. 8) pear-shaped; large. Elytra (Fig. 31) not margined on base; 5 striae between suture and humerus. Hind wing (Fig. 32) with microtrichiae on basal margin; veins nomenclature according to FORBES (1922). Mesocoxae broadly separated by metasternal process (Fig. 8).

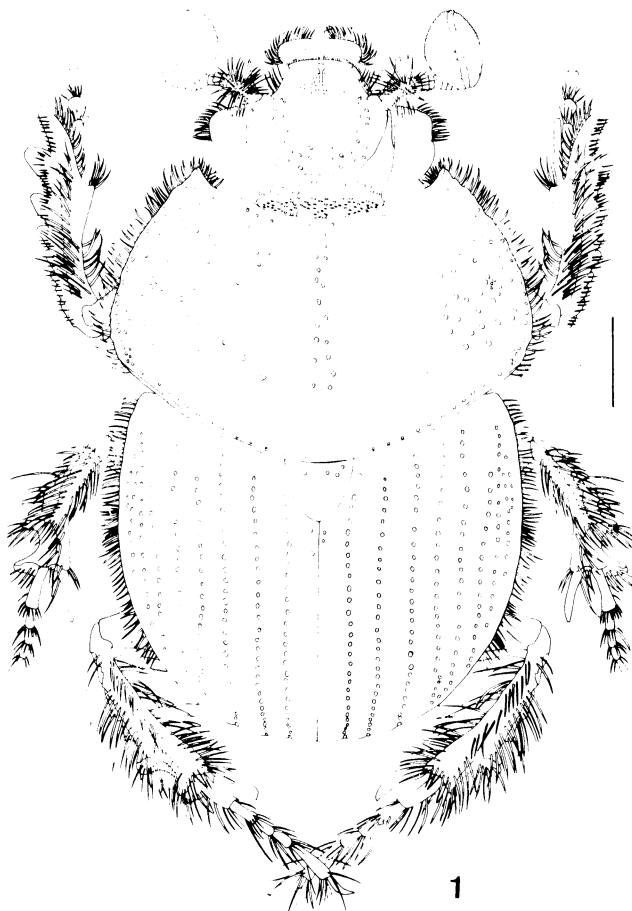


Fig. 1. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Scale = 2 mm.

Abdominal sternite 8 (Fig. 35) with posterior margin straight and many long setae. Genital capsule (Figs. 37, 38): sternite with broad process on anterior margin; pleurite 9 glabrous on apex.

***Parolbapuum aequatoriensis*, sp. n.**

(Figs. 1-40)

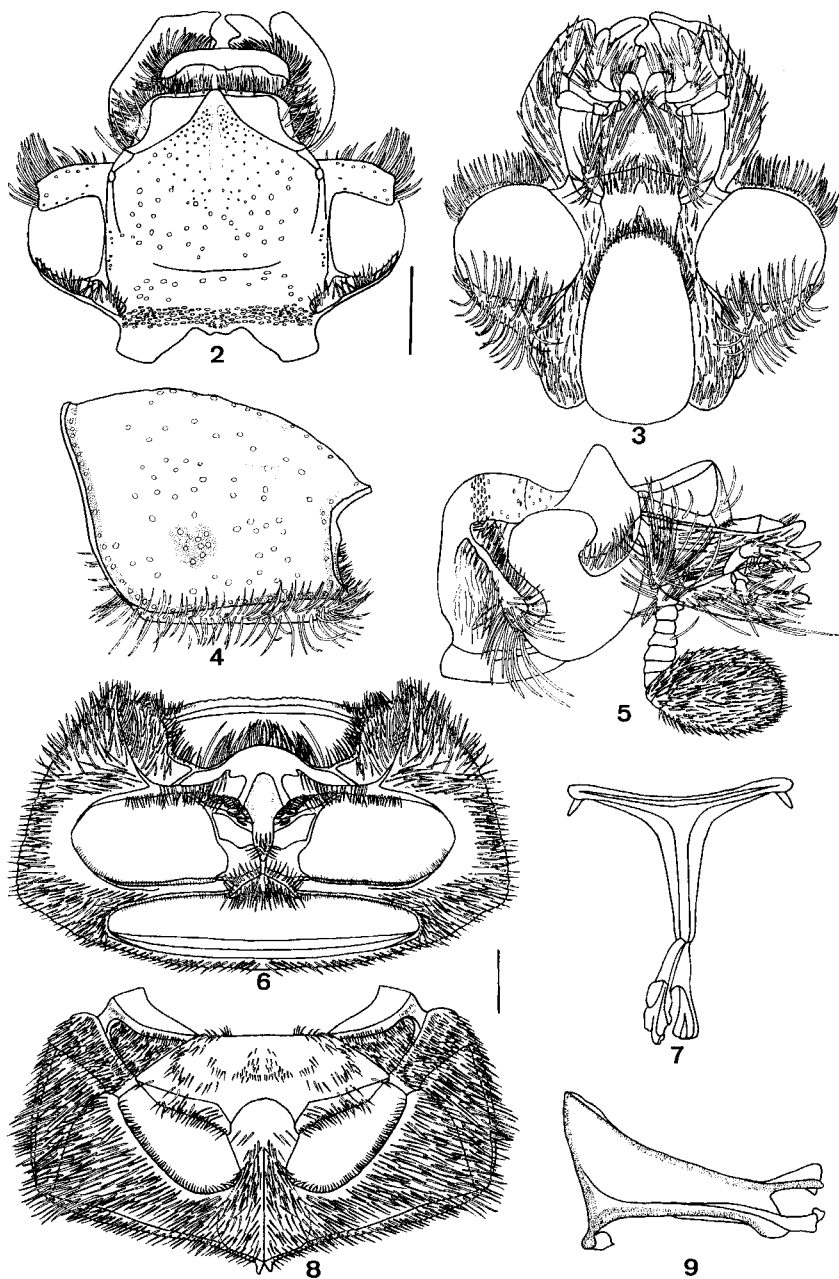
Etymology. Latin. *aequatoriensis* = from Ecuador, in allusion to the country where the specimen was collected.

Type material. Holotype. ♂. "ECUADOR, Pichincha, Quito, alrededores, 1200 m altura, IX.1972, A. Martínez col.", deposited in the *Museu de Zoologia, Universidade de São Paulo*, São Paulo (MZSP).

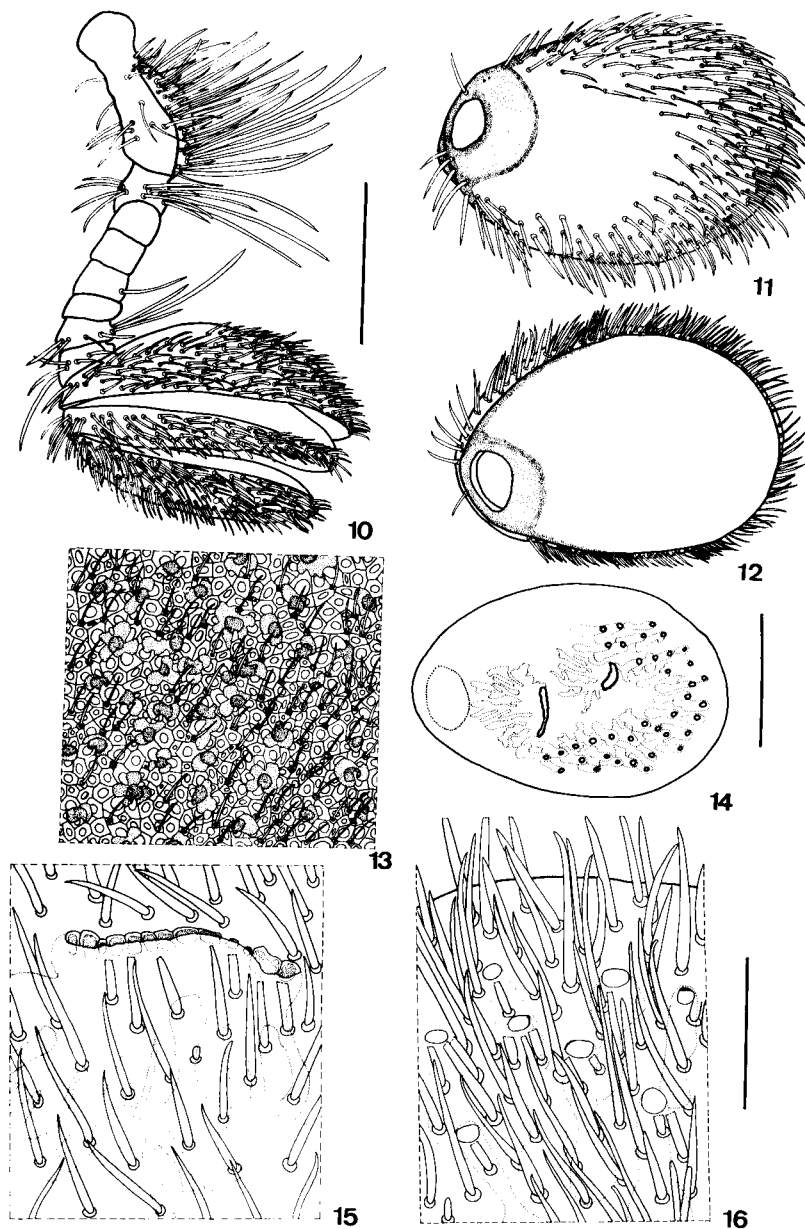
Length: 13.3 mm; width: 7.7 mm. Integument opaque; reddish-brown.

Head. Dorsal side (Figs. 1, 2): anterior region plane, minute punctures on median area; median and posterior regions inclinate, bearing large circular punctures; transverse carinae between them; punctate band next to insertion with prothorax. Lateral side (Fig. 5): postocular lobe of parietal dorsally excavate. Canthus (Fig. 2) punctate on margins; anterior margin straight; ventral side fringed. Paraocular lobes (Fig. 5) triangular; large; well salient. Antenna (Figs. 10-16) pilose on scapus, pedicellus, segments 7-8 and club; segment 9 (Fig. 11): setae delimiting a glabrous and irregular area; segment 10 (Figs. 12, 13) spoon-like, distal side concave, pore plate (Fig. 13) pilose and with polygonal sensillae; segment 11 (Figs. 14-16) with 38 circular pores (Fig. 16) on external region, 2 transverse openings (Fig. 15) next to proximal area. Frontoclypeal suture (Fig. 2) with median tubercle weakly carinate posteriorly. Clypeus (Figs. 2, 5) punctate; marginally setose. Labrum (Fig. 19): anterior margin sinuous, slightly convex; carina unbroken, sinuous; basal region narrower; lateral margins lobulate; anterior angles lobulate. Epipharynx (Fig. 17): pedium with sensorial pits on triangular area; chaetoparie symmetrical, densely setose; acanthoparie with flattened setae, short setae among long and curvate setae; tormae symmetrical, with a pair of cavities; basal region membranous, with many folds, densely setose, a round sensorial sclerite present. Mandibles (Figs. 23-26): ventral external face (Figs. 24, 25) with setae uniformly distributed; left mandible (Figs. 23, 24) weakly bilobate, apical region of external margin slightly lobulate; right mandible (Figs. 25, 26) strongly bidentate, apical lobe of external margin well developed. Maxilla (Figs. 20, 21): lacinia ventrally (Fig. 21) with 2 setose lines, dorsal side (Fig. 20) densely setose on internal margin; palpifer plurisetose dorsal- and ventrally; palpus with segment 4 multisetose on internal side. Labium (Figs. 3, 18): mentum (Fig. 18) with inclinate band of long setae on lateral regions, median region almost entirely glabrous; submentum (Fig. 3) setose on anterior region. Hypopharynx (Fig. 22): short setae on anterior region; paraglossa with anterior margin not curvate and irregular; central area of median region slightly V-shaped.

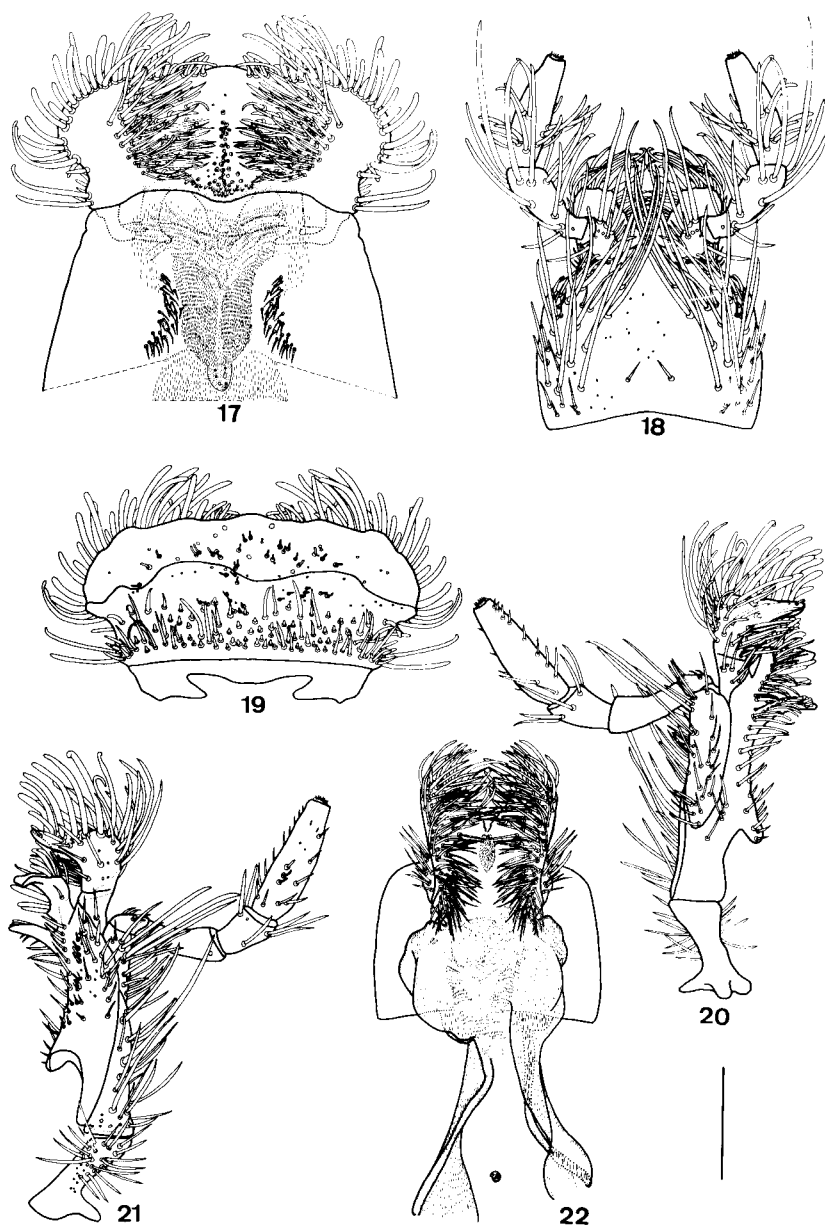
Thorax. Prothorax (Figs. 1, 4, 6). Pronotum (Figs. 1, 4): lateral region of anterior margin bearing a punctate line; posterior border completely marginated; anterior region with 2 pairs of slight tubercles, area between tubercles punctate and shallowly sulcate; median region slightly longitudinally sulcate, with a partially double punctate line; lateral margins undulated. Sternum (Fig. 6): anterior region glabrous, strongly punctate; middle of basal margin bearing a pair of longitudinal bars, bars reaching the coxal cavities. Basisternum (Fig. 6) tripartite. Episternum (Fig. 6) glabrous on area adjacent to coxal cavity.



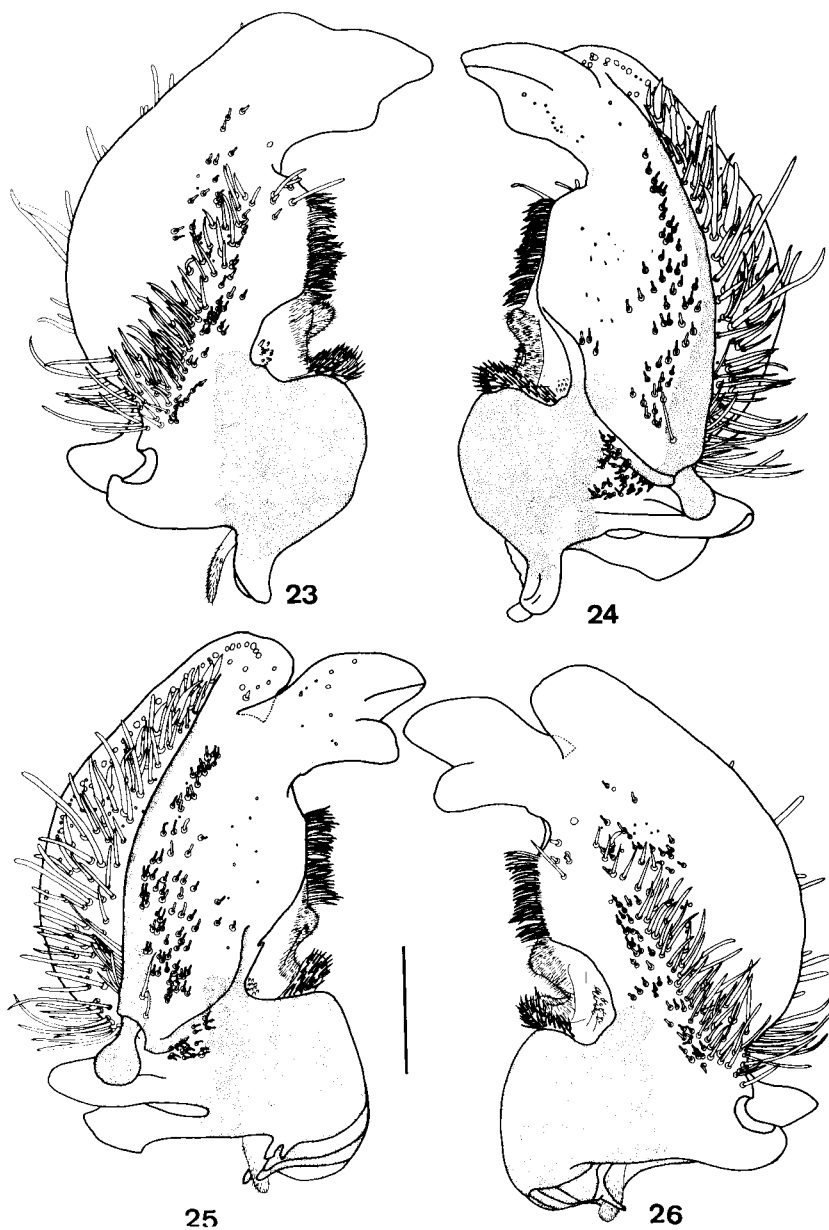
Figs. 2-9. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Head: 2, dorsal; 3, ventral; 5, lateral. Prothorax: 4, pronotum, lateral; 6, ventral. Meso- and metathorax: 8, ventral. Metendosternite: 7, dorsal; 9, lateral. Scale (mm): Figs. 2, 3, 5; 4, 6-9 = 1.



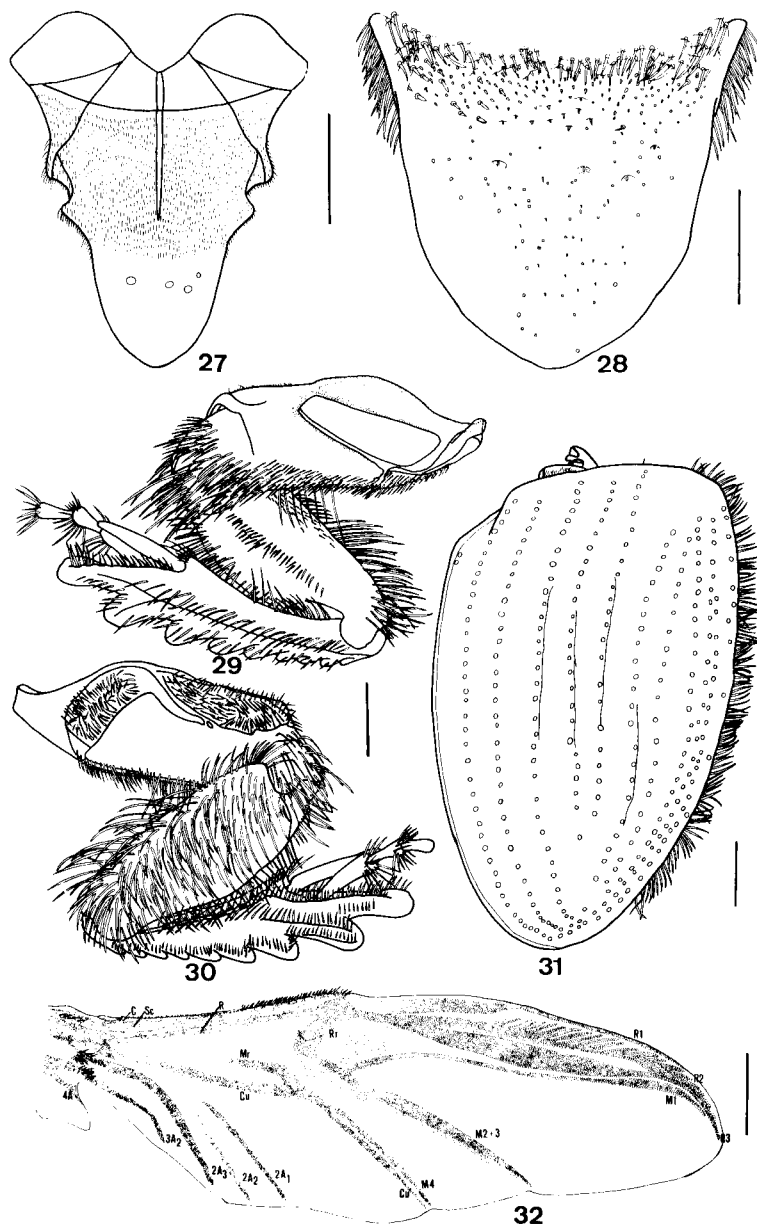
Figs. 10-16. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Antenna: 10, general, lateral; 11, segment 9, proximal; 12, 13, segment 10, distal, pore plate; 14, 15, 16, segment 11, distal, median and marginal regions. Scale (mm): Figs. 10 = 1; 11, 12 and 14 = 0.5; 13, 15 and 16 = 0.1.



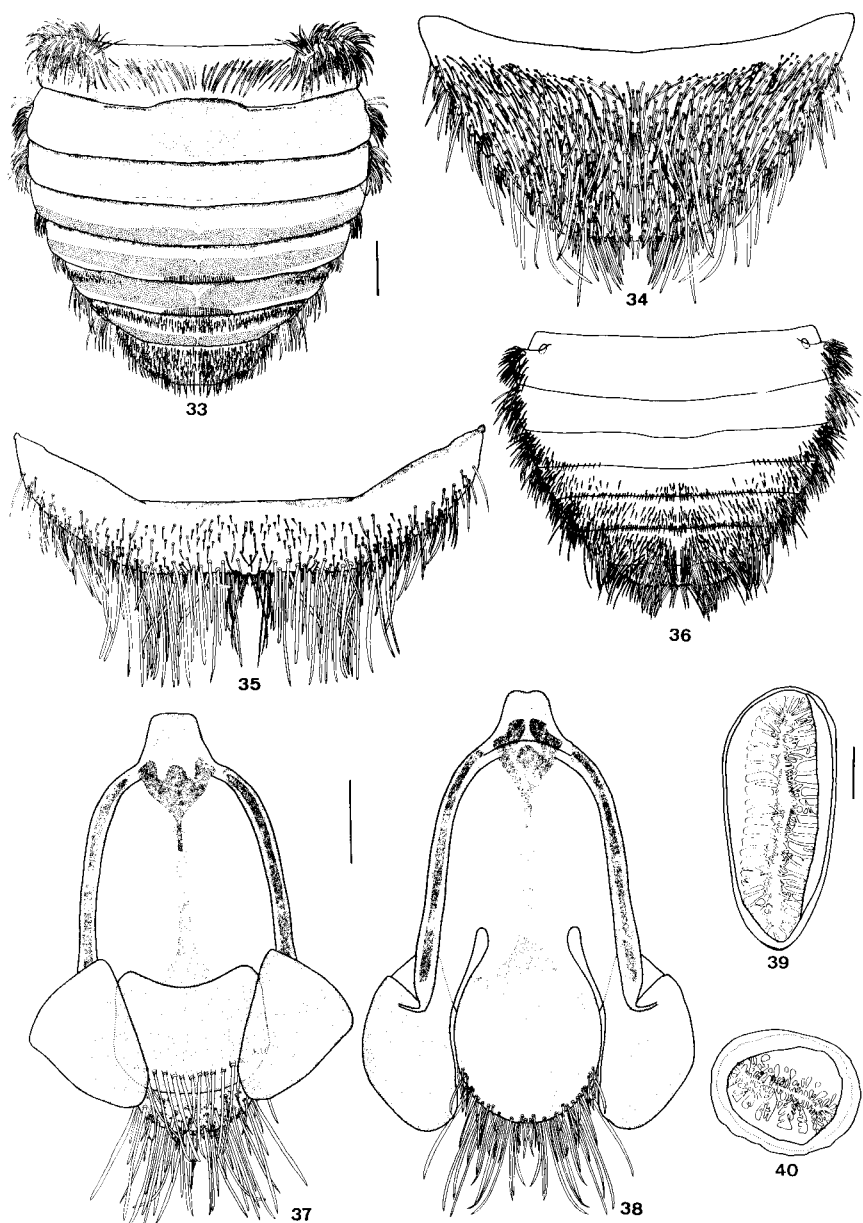
Figs. 17-22. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Mouthparts: 17, epipharynx; 18, labium, anterior region; 19, labrum; 20, 21, maxilla, dorsal, ventral; 22, hypopharynx. Scale = 0.5 mm.



Figs. 23-26. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Mandibles: 23, 24, left, dorsal, ventral; 25, 26 right, ventral, dorsal. Scale = 0.5 mm.



Figs. 27-32. *Paraborbapium aequatoriensis*, gen. n., sp. n.; holotype: ♂. Scutum: 27. Scutellum: 27, 28. Anterior leg: 29, 30, anterior, posterior. Elytra: 31, right. Hind wing: 32, right. Scale (mm): Figs. 27, 29, 30, 31 and 32 = 1; 28 = 0.5.



Figs. 33-40. *Parabolbapium aequatoriensis*, gen. n., sp. n.; holotype; ♂. Abdomen: 33, dorsal; 34, tergite 8; 35, ventral; 36, sternite 8. Genital capsule: 37, dorsal; 38, ventral. Abdominal spiracles: 39, spiracle 1; 40, spiracle 2. Scale (mm); Figs. 33 and 36 = 1; 34, 35, 37 and 38 = 0,5; 39 = 0,2; 40 = 0,1.

Mesothorax (Figs. 8, 27, 28). Scutum (Fig. 27): median carina not reaching the scutellar base; many setae inserted on cariniform structures. Scutellum (Fig. 28) subtriangular; micropunctate; base with setose carinae, spine-like sensilla present; mesobasal region with 4 rounded sensilla. Sternum (Fig. 8) roughly pentagonal; setose. Sternellum (Fig. 8) transverse and setose.

Metathorax (Figs. 7-9). Sternal plate (Fig. 8) strongly inserted in the mesosternum; anterior region glabrous; longitudinal suture incomplete. Endosternite (Figs. 7, 9) without ventroposterior projections; lateral side (Fig. 9) with sclerotized margins.

Elytra (Fig. 31). Sutural line of punctures short (2 punctures); stria 1 outlining the scutellum, finishing next to base; striae 2-5 almost reaching the base; striae 6-7 ending next to humeral base; striae 8-9 ending laterally to humerus; stria 10 joined to stria 9; stria 11 exceeding half of the elytral length, ending next to base; striae 1/10, 2/9, 3/8 and 4/5, joined apically; striae 3-6 margined by carina; apex with external margin glabrous.

Prothoracic leg (Figs. 29, 30). Proximal depression of posterior coxal side U-shaped, dorsal branch short and glabrous, ventral branch narrow and setose; tibia with 9 teeth on basal margin.

Abdomen. Dorsal side (Figs. 33, 34): tergite 1 setose on lateral and median band; a pair of narrow less sclerotized band between tergites 1 and 2; tergite 2 with median area of anterior margin slightly curvate; tergites 2-3 carinate on median region of posterior region; tergites 5 and 6 bearing an elongate granulose area on posterior region; tergite 6 shortly fringed next to anterior margin; tergite 8 (Fig. 34) subtrapezoidal, densely setose.

Ventral side (Figs. 35, 36): sternites 2-3 setose only on margins; sternite 4 setose on lateral margins and laterobasal regions; sternite 5 setose laterally and basally, mesobasal region with group of setae; sternites 6-7 completely setose; sternite 7 with a large median pilose tuft.

Spiracles (Figs. 39, 40). Spiracle 1 (Fig. 39) elliptical; trabeculae elongate. Spiracles 2-8 (Fig. 40) with few trabeculae; rounded; diminishing in size from anterior to posterior.

Genital capsule (Figs. 37, 38). Tergite subrectangular, basal and apical margins curvate posteriad, apical region with 18 pedunculate setae; pleurite subtriangular; sternite more setose on dorsal side, apical margin broad, median sclerotization broad apically.

Note on type. The specimen was previously dissected and the aedeagus was not found; besides some other parts were missing: left antennal club, protarsomeres 4 and 5, metatarsomere 4, a metatarsus claw, a spur of meso- and metatibia.

DISCUSSION

Among the South American Bolboceratini with 5 elytral striae between suture and humerus, *Parabolbapium*, gen. n. is closely related to *Bolbapium*. Besides this character both genera share the following features: median coxae broadly separated; scutellum triangular, slightly longer than large. On the other hand, *Parabolbapium*, gen. n. can be recognized by the following: clypeus divided into 3 triangular regions;

median region of frontoclypeal suture forwardly prominent; frons strongly produced anteriorly; gula with anterior region of lateral margins setose; sternite 8 with posterior margin not curvate, bearing many setae; sternite 9 with anterior broad process; pleurite 9 glabrous on apex. *Parabolbapium*, gen. n. differs from *Bolbothyreus* and *Eucanthus*, which also have 5 striae between suture and humerus by the scutellar shape in the latter and by the separation of median coxae in the former. It can be separated from other South American Bolboceratini, *Halffterobolbus* and *Bolborhinum*, by the number of elytral striae.

ADDEDUM TO KEY FOR GENERA AND SUBGENERA

The key for genera and subgenera for South American Bolboceratini by MARTINEZ (1976) should be modified as follow:

3. Median coxae subcontiguous, space between them narrow, clearly longer than large; elongate species, medium size *Eucanthus* Westwood, 1848
- Median coxae well separated, space between them subequal in length and width; subglobose species, small to medium size 3a
- 3a. Clypeus subtrapezoidal, entire; frontoclypeal suture straight, slightly bilobed or curvate anteriorly *Bolbapium* Boucomont, 1910
- Clypeus divided into 3 triangular regions; frontoclypeal suture with median region forwardly prominent *Parabolbapium*, gen. n.

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