



A new species of *Merobruchus* Bridwell near *Merobruchus boucheri* Kingsolver (Coleoptera:Chrysomelidae:Bruchinae)¹

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Abstract

A new species, *Merobruchus santiagoi* Ribeiro-Costa **sp. nov.**, is described from Brazil and Bolivia in seeds of *Pithecellobium scalare* Griseb (= *P. tortum* Mart.). Comparisons are made with its closely related species, *M. boucheri* Kingsolver 1980, presenting illustrations for both including male genitalia.

Key words: Bruchinae, *Merobruchus*, new species, taxonomy, *Pithecellobium scalare*, Neotropical Region, Brazil

Introduction

The American genus *Merobruchus* Bridwell has been included in a group of genera *Merobruchus* in the tribe Bruchini Pic, the largest tribe of Bruchinae Latreille. This group is composed of *Caryedes* Hummel, *Ctenocolum* Kingsolver & Whitehead, *Gibbobruchus* Pic, *Meibomeus* Bridwell, *Merobruchus*, *Penthobruchus* Kingsolver and *Pygiopachymerus* Pic (Whitehead and Kingsolver 1975; Silva 2005).

Merobruchus was proposed in a dichotomous key, by Bridwell (1946). He designated *Bruchus julianus* Horn, 1894 as the type species and did not assign additional species to the genus. In the same year, 1946, Bradley transferred *Bruchus major* Fall, 1912 to *Merobruchus*.

Kingsolver's contributions (1980, 1988) were the most relevant to study of genus *Merobruchus*. He treated the fauna of United States, Central America and West Indies. In the first paper Kingsolver (1980) described six species, and in the second seven more, besides redescribing 13 species including the six ones described earlier. Moreover, Kingsolver transferred the Brazilian species *Pseudopachymerus pickeli* Pic, 1927 to *Merobruchus* (1988).

There are currently 24 species in *Merobruchus*. Three of them, *M. boucheri* Kingsolver, 1980, *M. bicoloripes* (Pic, 1927), *M. paquetae* Kingsolver, 1980, have been recorded from Brazil and other New World countries; a fourth, *M. pickeli* (Pic, 1927) is known only from Brazil. Specimens from Brazil previously identified as *M. boucheri* were compared to paratypes of *M. boucheri* (Mexico, Costa Rica) and found to be a distinct undescribed species.

Therefore, the goal of this paper is to describe this new species and perform a detailed comparison to its closest relative, *M. boucheri*, to avoid future misidentifications and so provide a valid name for future papers on comparative morphology and cladistic analyses of the *Merobruchus* group of genera.

Even then, with one more species described for *Merobruchus*, the number of species recorded from Brazil continues to be four, since *M. boucheri* should be considered as restricted to North and Central America.

Material and methods

Specimens are deposited in the Coleção de Entomologia Pe. Jesus Santiago Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brasil (DZUP); Museu de Zoologia, Universidade de São Paulo, São Paulo, Brasil (MZSP); Museu Nacional do Rio de Janeiro, Rio de Janeiro, Brasil (MNRJ) and Florida State Collection of Arthropods, Gainesville, Florida, United States of America (FSCA).

The micrographs were taken with the Jeol JSM-6360LV scanning electron microscope, at the Centro de Microscopia Eletrônica of the Universidade Federal do Paraná. For metallizing the material, a Balzers, model SCD 030 sputter deposition system was used. Photos were obtained using a Sony Cyber-Shot DSC-S75 digital camera connected to a Zeiss Stemi 2000-c stereomicroscope at the Laboratório de Sistemática e Bioecologia de Coleoptera (Insecta), in the Departamento de Zoologia of the Universidade Federal do Paraná.

The terminology adopted is modified from Ribeiro-Costa & Silva (2003), which is commonly used in descriptions of Bruchinae.

Merobruchus santiagoi Ribeiro-Costa, new species

(Figs 1, 2, 4, 5, 6, 8, 10, 12, 13)

Body length 3.56 mm (3.40–4.04 mm, $n = 10$), width 2.00 mm (1.84–2.20 mm, $n = 10$); pronotum length 1.19 mm (1.08–1.28 mm, $n = 10$), width 1.43 mm (1.32–1.56 mm, $n = 10$); elytron length 2.13 mm (1.96–2.40 mm, $n = 10$), width 1.10 mm (1.00–1.16 mm, $n = 10$).

Integument frequently dark red (Figs 1, 2) with a median stripe on pronotum and elytra piceous; some specimens with many other areas piceous or entirely piceous. Anterior and middle legs light red, hind legs dark red. Antennae entirely light red.

Vestiture light yellow, gray and dark brown. Pronotum with a median stripe of dark brown pilosity with some intercalated yellow hairs, predominant in the lateral areas. Elytra with light yellow hairs with patches of dark brown hairs in the interstriae 3, 5, 7 and 9; the remainder of the interstriae with only light yellow pilosity, except the first and the scutellum with grayish pilosity (Fig. 1). Pygidium with a basal median and triangular dense light yellow patch; two others patches elongated in the sublateral areas (Fig. 4). Ventral region of body with grayish pilosity; lateral areas with light yellow hairs. Some specimens showed variation in tonality of pilosity in the pronotum and elytra, from light yellow to gray (Fig. 2).

Head elongated, 1.3 times longer than wide, uniformly punctate; labrum with some punctures; frons convex with a conspicuous median carina with granulations; transverse sulcus obsolete; eyes moderately prominent, ocular index 3.4; ocular sinus nearly half the diameter of eye in lateral view; postocular lobe narrow. Antenna gradually capitate; eighth, ninth and tenth antennal segments subrectangular, about 1.3 times as wide as long; eleventh segment subglobose and acute apically. Pronotum entirely with foveolae. Prosternum as vertical blade gently separating procoxal apices. Elytron in the base of striae 3, 4 and 5 with denticles (Figs 5, 6). Postmesocoxal sulcus projected (Fig. 8). Hind femur about 2 times its largest width (Fig. 10); pecten with four teeth equidistant, the first approximately 2.5 times the length of the the remaining ones (Fig. 10). Hind tibia gently arched in the basal third (Fig. 10); external face with long lateroventral carina, but not reaching the base of mucro and lateral carina long terminating in a coronal denticle; internal face with a dorsomesal carina reaching tibial apex; mucro about half the width of tibia in the apex (Fig. 10). Fifth male urosternite emarginate and in female bearing an anal notch deeply emarginated and with lateral flanges; margin of fifth urosternite in both sexes with a carina bordering the emargination. Pygidium of male more strongly curved apically in lateral view than female.

Male genitalia. Median lobe (Fig. 12) with length 3.2 times its largest width in apical region; ventral valve rounded. Median area of internal sac with a short Y-shaped sclerite and two longer claw-shaped sclerites with

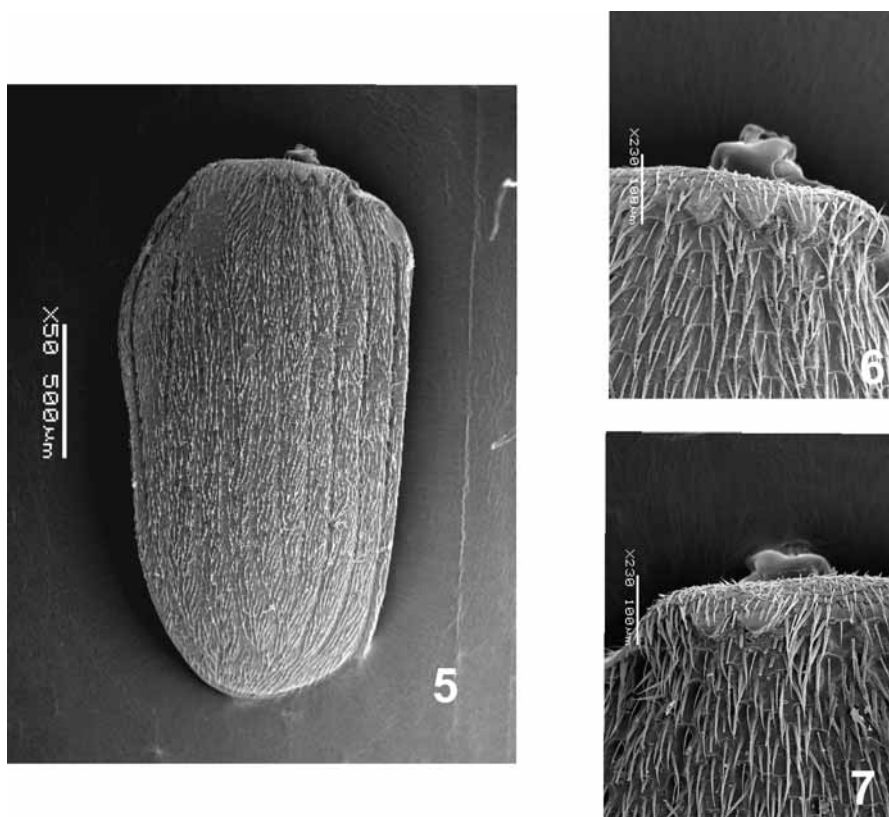
enlarged base; apical region with many denticles (Fig. 12). Tegmen (Fig. 13) with deep emargination between lateral lobes which have long setae mainly on the apex.



FIGURES 1–4. Dorsal view of *Merobruchus* spp. 1–3. Dorsal habitus: 1–2, *Merobruchus santiagoi* **sp. nov.**, 3, *M. boucheri*. 4. Pygidium of *Merobruchus santiagoi* **sp. nov.**

Discussion. *Merobruchus santiagoi* **sp. nov.** is placed in the subgroup *boucheri* (Kingsolver 1988) with its congeneric *M. boucheri*, from it can be distinguished by the following characters with those of *M. boucheri* given in parentheses: 1) Integumental colour: antenna entirely light red (antennal segments 8–10 piceous - Fig. 3); 2) Pilosity colour: elytra with light yellow pilosity or grayish (Figs 1,2) (1–7 interstriae of elytra grayish with brown pilosity and 7–11 interstriae light yellow with brown pilosity - Fig. 3); 3) base of elytral striae 3, 4 and 5 with denticles (Figs 5, 6) (presence of denticles only in striae 3, 4—Fig. 7); 4) postmesocoxal sulcus projected (Fig. 8) (sulcus strongly projected — Fig. 9); 5) pecten with four equidistant teeth (Fig. 10) (the first

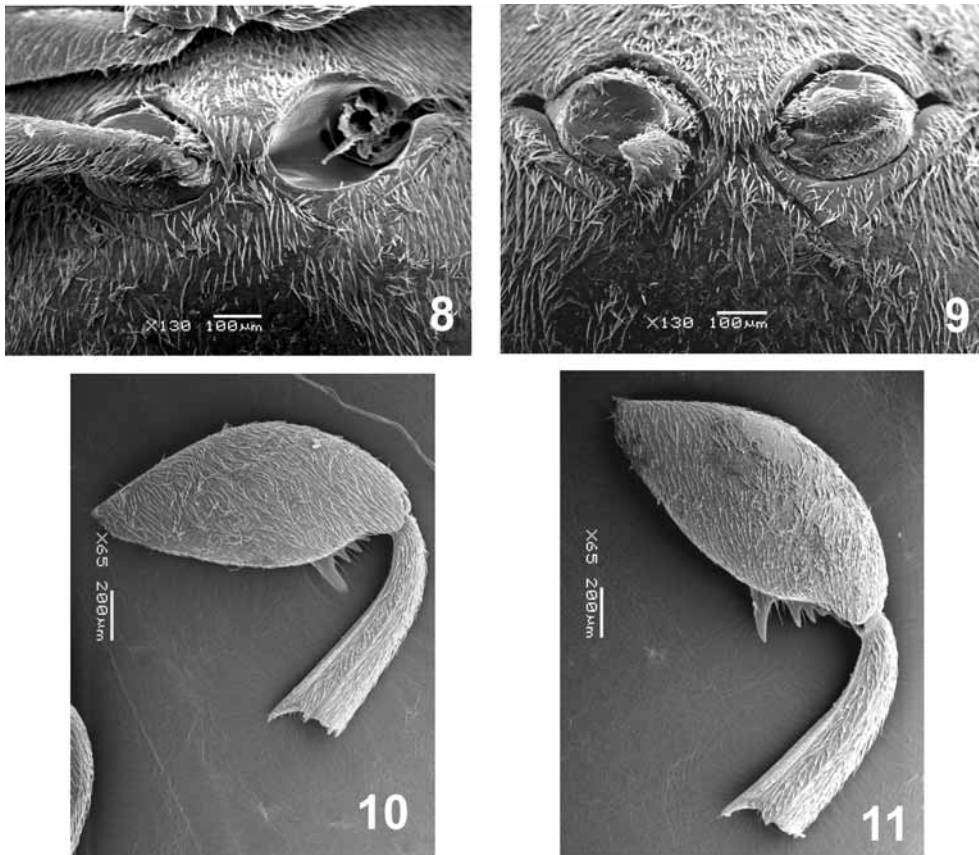
tooth of pecten distant from remaining ones about the length of the second tooth — Fig. 11); 6) internal sac of male genitalia in the median area with an unpaired Y-shaped sclerite and paired sclerites, claw-shaped with enlarged base (Fig.12) (unpaired sclerite as a short tooth and subsquare base less sclerotized; paired sclerites as curved teeth — Fig. 14).



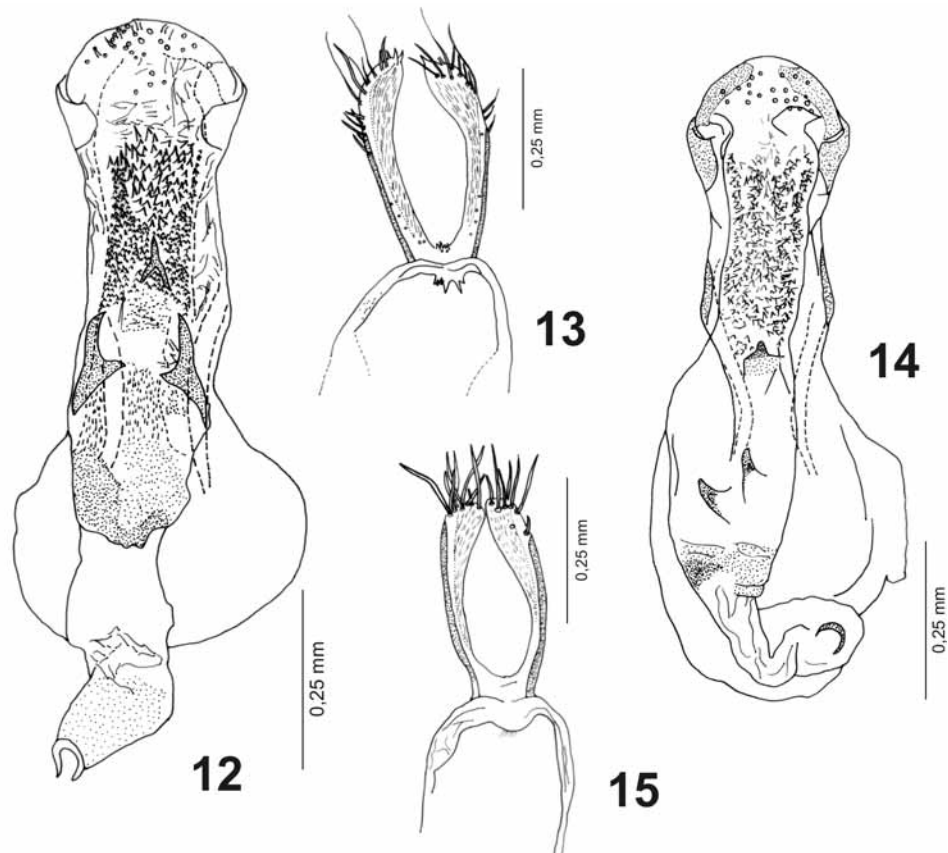
FIGURES 5–7. Elytron of *Merobruchus* spp. 5. Left elytron of *Merobruchus santiagoi* sp. nov. with denticles at the base of elytral striae 3–5. 6–7: Details of elytral denticles. 6. *Merobruchus santiagoi* sp. nov., 7. *M. boucheri*.

Type Material. Holotype male. BRAZIL, *Rio de Janeiro*: Rio de Janeiro, Praia do Flamengo, 6.VIII.1982, C. D. Johnson collector, reared seeds n° 2552-82, reared seeds *Pithecellobium scalare*, *Merobruchus boucheri* Kingsolver, C. D. Johnson det. (DZUP). 11 paratypes with the same data of the holotype (3 MZSP; 2 MNRJ, 6 DZUP). 16 paratypes with the same location, 6.VII.1982, reared seeds *Pithecellobium* n° 2552, C.D. Johnson (FSCA). 1 paratype Rio de Janeiro, 1986, M. Macedo col., em sementes de *Pithecellobium tortum* (Restinga), *Merobruchus* sp. n. Pfaffenberger (DZUP). 14 paratypes Rio de Janeiro, Praia do Flamengo, with the same collector and host plant: 7, VIII.1985 (FSCA); 7, VI.1986 (FSCA). 5 paratypes Rio de Janeiro, Marica, June. 1985 (FSCA). 1 paratype *Rondônia*: 62KM SW Ariquemes, nr. Fzda. Rancho Grande, 25.Sept.1992, U.Schmitt col., blacklight (FSCA). 1 paratype BOLIVIA, *Santa Cruz de La Sierra*: 40 Km NW, Potrerillas del Guenda, 5–20.Nov.2004, Dozier col., black light (FSCA). 6 paratypes *Santa Cruz*: Buena Vista (4–6 Km SSE, Flora & Fauna Hotel), 3–8 and 19–22.Oct. 2004, Wappes & Morris cols. (FSCA). 13 paratypes with same location: 6, 22–31.Oct.2002, Wappes & Morris cols. (FSCA); 2, 1–8.Nov. 2002, Wappes col. (FSCA); 1, 5–8, May.2004, Wappes & Cline cols (FSCA); 1, Hotel Rio Selva (5 Km ESSE), 14.Oct.2000, Wappes & Dozier, cols (FSCA); 1, 14–19.Oct.2000, M.C. Thomas col. (FSCA); 2, 5–15. Dec.2001, Thomas & Dozier cols., Tropical Transition Forest (FSCA).

Host Plants. *Merobruchus santiagoi* sp. nov. was recorded in seeds of a Fabaceae, *Pithecellobium scalare* Griseb. (= *Pithecellobium tortum* Mart.). Host plants for *M. boucheri* include *P. undulatum* (Britt & Rose) Gentry and *P. magense* (Jacq.) MacBride in North America. *P. scalare* is an erroneous record for *M. boucheri* (Kingsolver 1980:30) since it is for *M. santiagoi*.



FIGURES 8–11. Mesosternum and hind leg of *Merobruchus* spp. 8–9: Mesosternum. 8. *Merobruchus santiagoi* sp. nov., 9. *M. boucheri*. 10–11: Hind leg. 10. *Merobruchus santiagoi* sp. nov., 11. *M. boucheri*.



FIGURES 12–15. Male genitalia of *Merobruchus* spp. 12–13. *Merobruchus santiagoi* sp. nov.: 12. Median lobe, 13. Lateral lobes. 14–15. *M. boucheri*: 14. Median lobe, 15. Lateral lobes.

Etymology .The species name is in honour to the Professor Dr. Pe. Jesus Santiago Moure for his contribution to the Departamento de Zoologia of the Universidade Federal do Paraná and his devotion to the study of the Neotropical bees.

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