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**MARGARITABRUCHUS CHERYLAE, NEW GENUS AND NEW SPECIES OF  
NEW WORLD BRUCHIDAE (COLEOPTERA)**

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**Abstract**

The new genus and species *Margaritabruchus cherylae* Romero and Johnson is described. It is distinct from other genera of bruchids because the ventral surface of the narrow hind femur is not in a gentle, convex curve. It is usually concave before and after an expansion near the middle that ends in a large, blunt, lateral spine about 0.66 from the base of the femur of both sexes. The hind femur of males has a hook-like spine on the lateral margin slightly beyond the blunt spine that is curved toward the base of the femur. The affinities of the genus are with other Acanthoscelidini and it is probably most closely related to *Meibomeus* and certainly to the very large New World genus, *Acanthoscelides* Schilsky. *Margaritabruchus cherylae* feeds in seeds of *Indigofera densiflora* M. Martens and Galeotti.

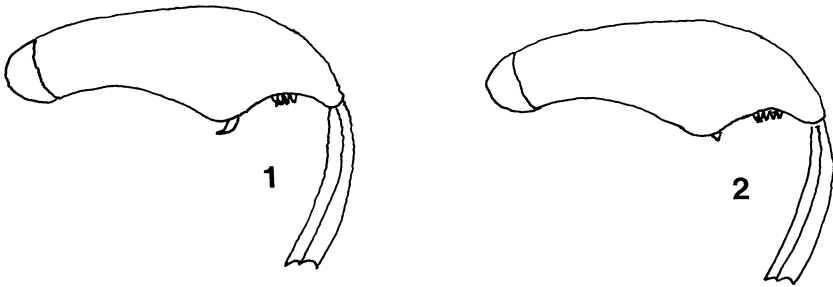
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When this species was collected we noticed the unusual curvature of the hind femoral spine of males. We at first thought it to be a species of *Meibomeus* Bridwell because it had structures described by Bridwell (1946) as characters to distinguish *Meibomeus* from other genera. These structures were elytral stria 4 abbreviated at base starting from a small tubercle and “hind femur with inner edge beneath serrulate with a strong tooth beyond the serrulations and after a space with about four denticles.” When Kingsolver and Whitehead (1976) revised *Meibomeus* they considered the above characters of Bridwell to define *Meibomeus* to be invalid and then used several other characters to define the genus.

Further study convinced us that *Margaritabruchus cherylae* Romero and Johnson is a new genus and a new species that is unlike any that we have seen. It is distinct from other genera of bruchids because of the shape of the hind femur of both sexes and the curvature of the spine on the hind femur of males of the species. The affinities of the genus are with other Acanthoscelidini and it is probably most closely related to *Meibomeus* and certainly to the very large New World genus, *Acanthoscelides* Schilsky.

**Materials and Methods**

We used the methods described by Kingsolver (1970) and Kingsolver and Whitehead (1974). For interpretation of genitalia we followed Romero and Johnson (1999).



Figs. 1–2. *Margaritabruchus cherylae*. 1) Hind leg of male; 2) hind leg of female.

*Margaritabruchus* Romero and Johnson, **new genus**

**Type Species.** *Margaritabruchus cherylae* Romero and Johnson.

**Etymology.** Margarita, named for the wife of the second author, Margaret Elkins Johnson (Gr. = *margarites* and L. = *margarita*, a pearl) and the genus *Bruchus* Linnaeus (Gr. = *brouchos* and L. = *Bruchus*, a genus of beetles). The name acknowledges the enormous unrecognized contributions that Margaret has made to the study of bruchid beetles.

**Diagnosis.** Male: Hind femur narrow, constricted basally and apically, ventral surface not in a gentle curve, expansion near middle ending in a large, blunt, lateral spine about 0.66 from base (Fig. 1); inner ventral surface without longitudinal carina; lateral margin of femur of some specimens with vague serrulations extending from base to a large, flattened area medially from blunt spine; hook-like spine on lateral margin slightly beyond blunt spine, hook-like spine curved toward base of femur, spine about 0.1 as long as femur at its widest (Fig. 1); lateral margin of femur before and after lateral spine concave to straight, not convex; femur armed on inner margin with about 4 small, subapical acuminate spines each about 0.3 as long as width of tibial base (Fig. 1).

Female: As in male but lateral margin of hind femur smooth, without serrulations; large, blunt area about 0.66 from base at widest portion of femur usually followed on lateral margin by a straight spine about 0.05 as long as width of femur at its widest (Fig. 2), when present, spine not curved toward base of femur (Fig. 2); femur armed on inner margin with 4 small, subapical acuminate spines each about 0.3 as long as width of tibial base.

*Margaritabruchus cherylae* Romero and Johnson, **new species**

The description of *Margaritabruchus cherylae* will serve as a description for both the new genus and the new species.

**Description.** Male: Length (pronotum-elytra) 2.0–2.5 mm. Width 1.2–1.5 mm. Maximum thoracic depth 0.9–1.2 mm. Integument black, not metallic; first three antennal segments dark brown; eyes dark red to shiny black. Vestiture moderately dense, grayish, not variegated; dense white hairs on small apical portion of mesepisternum and ocular sinus.

Head. Frons with medial longitudinal carina; eyes not sexually dimorphic, in some specimens facets coarse, about five rows of facets behind ocular sinus; interocular ratio about 0.42–0.54; antenna extended to about 0.80–0.83 length of elytron, pedicel about 0.60–0.75 of scape length and about 0.62–0.86 as long as segment 3, segment 11 slightly more elongate than 10, acuminate at apex.

Prothorax. Disk subcampanulate with many punctations in no apparent pattern, cervical sulcus deep, extending from near coxal cavity to 0.5 distance to pronotal midline; lateral prothoracic carina vague, extending from base to about 0.6 distance to coxal cavity; prosternum separating procoxae for about 0.5 their length; short median basal line on median basal lobe usually obscured by hairs.

Mesothorax and Metathorax. Scutellum small, quadrate, bifurcate at apex; elytron without basal gibbosity; stria 4 slightly abbreviated at base by a small spine; striae 3 and 5 sometimes slightly abbreviated; elytron slightly more than twice as long as broad; striae deep, punctate; striae intervals punctulate; metasternum deep, rounded in profile; metasternum without 2 strong medial spines at base on either side of midline projecting ventrally, but with a narrow, elongate medial sulcus separating metasternum; hind femur narrow, constricted basally and apically, ventral surface not in a gentle curve, expansion near middle ending in a large, blunt, lateral spine about 0.66 from base (Fig. 1); inner ventral surface without longitudinal carina; lateral margin of femur of some specimens with vague serrulations extending from base to a large, flattened area medially from blunt spine; hook-like spine on lateral margin slightly beyond blunt spine, hook-like spine curved toward base of femur, spine about 0.1 as long as femur at its widest (Fig. 1); lateral margin of femur before and after lateral spine concave to straight, not convex; femur armed on inner margin with about 4 small, subapical acuminate spines each about 0.3 as long as width of tibial base (Fig. 1); tibia with ventral, lateral and dorsomesal glabrous carinae, without lateroventral carina; dorsal surface of tibia without fossa but with 2 glabrous longitudinal carinae separated by shallow sulcus; tibial corona with one vague lateral spinule, mucro inconspicuous, about 0.07 as long as first tarsomere; tarsomere 1 with distinct ventral, lateral and mesal longitudinal carinae.

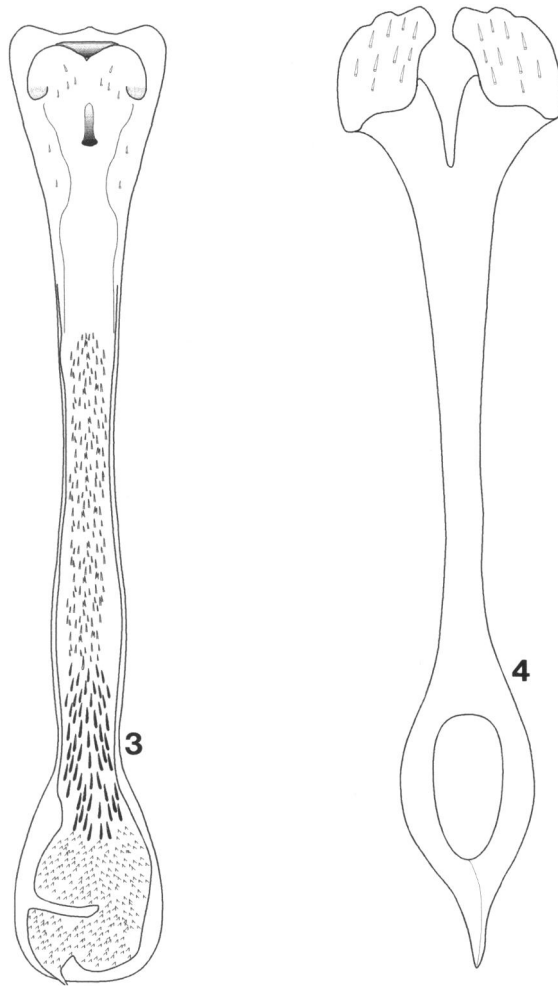
Abdomen. First abdominal sternum with polished lateral apical band; sterna 2–4 unmodified, fifth sternum 1.8–2.0 as long as fourth, blunt at apex, not emarginate, apex produced ventrally. Pygidium with many fine punctations, narrow, elongate, apex gently curved ventrad, convex in lateral view.

Genitalia. Median lobe elongate, slightly constricted on lateral margins; in ventral view ventral valve small, sclerotized, triangular, with apex bent ventrally; dorsal valve less sclerotized, rounded apically; apical third of armature of internal sac with sclerite blunt on one end and acuminate on the other and with many fine denticles, medial third of internal sac lined with minute spines intermixed with bifurcate spines, basal third with many fine spines then more apically with heavily sclerotized slightly elongate spines (Fig. 3). Lateral lobes elongate, cleft to 0.2 their length, apical portion of each lobe enlarged, covered with many fine setae (Fig. 4).

Female. Length (pronotum-elytra) 2.0–2.6 mm. Width 1.2–1.5 mm. Maximum thoracic depth 1.0–1.4 mm. Similar to male except interocular ratio about 0.52–0.65; lateral margin of hind femur smooth, without serrulations; large, blunt area about 0.66 from base at widest portion of femur usually followed on lateral margin by a straight spine about 0.05 as long as width of femur at its widest (Fig. 2), when present, spine not curved toward base of femur (Fig. 2); femur armed on inner margin with 4 small, subapical acuminate spines each about 0.3 as long as width of tibial base; sternum 5 shorter 1.5–1.7 as long as fourth, apex not produced ventrally.

**Host Plants.** *Indigofera densiflora* M. Martens and Galeotti: Mexico. Oaxaca: 17 km N Oaxaca, XII-20-78, C.D. Johnson collector (CDJ #278-78).

Type Series. Male holotype, allotype female and about 80 paratypes: Mexico. Oaxaca: 17 km N Oaxaca, XII-20-78, reared seeds no. 278-78, C. D. Johnson collector. Holotype, allotype, and several paratypes deposited in the U.S. National Museum of Natural History, Washington, D.C., U.S.A. All specimens used here are the property of the Clarence Dan Johnson collection that is now deposited in the Texas A and M University Insect Collection, Department of Entomology, College Station, Texas 77843, U.S.A. Paratypes were deposited in the following collections: CDJ collection, J. Romero Collection whose address is listed at the beginning of this paper; Florida State Collections



**Figs. 3–4.** *Margaritabruchus cherylae*. **3)** Male genitalia, median lobe; **4)** male genitalia, lateral lobes.

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**Distribution.** Mexico (Oaxaca).

**Discussion.** *Margaritabruchus cherylae* is distinct from all other bruchids because males of the species have a hook-like spine on the hind femur that is curved toward the base of the femur, not toward the apex of the femur (Fig. 1). This spine is on the lateral margin of the femur about 0.66 from the base of the femur. The shape of the hind femur is different from most other bruchids

because it is narrow and the basal and apical portions are concave before and after a large, blunt area about 0.66 from the base at the widest portion of the femur and near the recurved spine. The hind femur of females is similar to males except the recurved spine is replaced with a straight spine (Fig. 2). This straight spine is sometimes absent in females. The male genitalia of *M. cherylae* are distinct from other Bruchidae (Figs. 3–4).

*Margaritabruchus cherylae*, *Acanthoscelides kingsolveri* Johnson and *A. ruficoxis* (Sharp) are bruchid species known to feed in seeds of *Indigofera densiflora*. About 14 bruchid species worldwide are known to feed in seeds of about 25 species of *Indigofera*. Most of what we consider to be verified records are from the New World and almost all of these verified records from the New World are species in the genus *Acanthoscelides*. In the Old World most species that are reported to feed in seeds of *Indigofera* are in the genus *Bruchidius* Schilsky.

**Etymology.** This species is named in honor of Cheryl Lyn Johnson Johnson, daughter of the second author, because she has assisted studies of bruchids many times in the field and lab. Also because she married a Johnson. Thus all of the second author's grandchildren carry the surname Johnson.

#### Acknowledgments

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