

Diabrotica lopatini, a new species (Coleoptera: Chrysomelidae: Galerucinae) from Central America

Diabrotica lopatini (Coleoptera: Chrysomelidae: Galerucinae) – новый вид из Центральной Америки

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Ключевые слова: Coleoptera, Chrysomelidae, Galerucinae, *Diabrotica*, новый вид, Центральная Америка.

Abstract. *Diabrotica lopatini* sp. n., a new species (Coleoptera: Chrysomelidae: Galerucinae) from Central America is described and illustrated.

Резюме. Приведены описание и иллюстрации нового вида *Diabrotica lopatini* sp. n. (Coleoptera: Chrysomelidae: Galerucinae) из Центральной Америки.

Introduction

Diabrotica Chevrolat, 1836 (type species *Diabrotica fucata* (Fabricius, 1787) designated by Barber [1947]) with over 400 described species is one of the most species rich leaf beetle genera in the New World. Synoptic studies of North and Central American *Diabrotica* revealed a new species that we describe below.

We dedicate this species to Igor Konstantinovich Lopatin (1923–2012), an extraordinary systematic entomologist and teacher. During his long life, Igor Konstantinovich studied mostly Palearctic leaf beetles (Chrysomelidae) making his most favorite fauna of Middle Asia, one of the best known leaf beetle fauna in the World. Being a University professor for more than 60 years, Igor Konstantinovich left life lasting impression on hundreds of students. Thinking back on years that we spend as his students, we come to realization that his most important lesson was demonstrating that collecting and studying beetles, small and big, bright and dull, is a noble thing to do.

Material and methods

Specimen observations and preparation follow Konstantinov (1998). Specimens were examined from the following collections:

AVD – private collection of Alexander Derunkov, Minsk, Belarus;

BMNH – Natural History Museum, London, United Kingdom (M.V.L. Barclay);

MCZ – Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA (P.D. Perkins);

USNM – National Museum of Natural History, Smithsonian Institution, Washington DC, USA (A. Konstantinov).

Diabrotica lopatini sp. n.
(Color plate 15–16: fig. 1–11)

Material examined. Type material: *Diabrotica lopatini*: Holotype ♂: "At light?, BarroColoI, CZ Apr. '40, JasZetek, No 4647" (USNM). Paratypes: 1♂ and 1♀ on one pin: "Barro Colorado Isl. CZ Pan. Apr. 40 Zetek 4647" (USNM). 1♂: "PANAMA Canal Zone Cristobal, 29-X:1965 light trap Army ?ln" (USNM). 1♂: "BarroColoI CZ VI '40 JZetek 4669" (USNM). 1♂: "At light?, BarroColoI CZ V.29:40, JasZetek No 4658" (USNM). 2♂ with the same labels: "At light?, BarroColoI CZ Apr. '40, JasZetek No 4647" (USNM). 1♂: "BarroColoI CZ Apr. '41, Collected at light, LotNo 41-8655, LotNo 41-8655" (AVD). 1♂: "BarroColoI CZ Apr. '41, Collected at light, JasZetek No4781, LotNo 41-8655" (USNM). 1♂: "BarroColoI CZ V.23-4 '40, JasZetek No4656" (USNM). 1♀: "ParaisoCZ Pan I.29.11 AugustBusck" (USNM). 1♂: "CorazalCZ Pan III.20.11 AugBusck" (USNM). 1♂: "TrinidadRio Pan 17.3.12, ABusck coll, near palpalis? HSB.33" (USNM). 1♂: "TrinidadRio Pan 25.3.12, ABusck coll." (USNM). 1♂: "TrinidadRio Pan 22.3.12, ABusck coll" (USNM). 2♂ and 2♀ with the same labels: "PANAMA: Barro Colorado Isl. 10-20 IV 1965. SS&WD Duckworth" (1♂ and 1♀ – USNM; 1♂ and 1♀ – AVD). 5♂ with the same labels: "PANAMA: Barro Colorado Is. 10-17.V.64. WD & SS Duckworth." (2♂ – USNM; 2♂ – MCZ; 1♂ – AVD). 1♂: "PANAMA: Barro Colorado Isl. 25-28.III.65. SS&WD Duckworth." (AVD). 1♂: "PANAMA: Barro Colorado Isl. 20-23.V.64. WD & SS Duckworth." (BMNH). 1♂: "PANAMA: Barro Colorado Isl. 25-28.III.65. SS&WD Duckworth." (AVD). 1♂: "PANAMA: Barro Colorado Isl. 1-9.V.64. WD & SS Duckworth." (BMNH). 1♂: "CANAL ZONE: 100 m 5.0 mi. NW Gamboa 09° 10' 00" N 079° 45' 00" W 23-24Oct1975, Canopy fogging experiment in Luehea seemannii Pyrethrin fog, sample 6Y 24 X 1975" (USNM). 1♀: "PANAMA. C.Z. Barro Colo. Isl. 09° 10' N-79° 50' W 01 July 1974; T.L. Erwin, D.R. Whitehead Colls." (USNM). 1♂: "PANAMA: Pan. Prov. Las Cumbres light trap 8 January 1973 H. Wolda" (USNM). 1♂: "Trinidad Riv PanMay 7.11 AugustBusck" (USNM). 1♂: "Empire CZ" (USNM). 1♂: "COSTA RICA Jul 22-31, 1969 DHJ 80 m elev, Finca La Selva nr Puerto Viejo Sarapiquí Dist. Heredia Prov., Collected by D.H. Janzen" (USNM). 1♂: "LaLola, C.R. V-10.1957. M.Stelzec MS 57-147, On cacao" (USNM). 1♂: "HONDURAS: La Ceiba May 23-30, 1978 Gary V. Manley" (USNM). 1♂: "Livingston 10.5 Guat., Barber& Schwarz Coll, *Diabrotica palpalis* Jacoby" (USNM). The specimens are provided with one additional printed red label: Holotype (or Paratype, respectively) *Diabrotica lopatini* sp. nov. des. A. Derunkov & A. Konstantinov 2013.

Description. Body length 5.4–6.1 mm. Body width 2.7–2.9 mm. Head basic color black, vertex black, frons and antennal calli chestnut, clypeus black or chestnut. Vertex, pronotum and elytra matt, shagreened with long narrow meshes (length of meshes at least 3 times more than width) in males and in females. Maxillary palpi yellow, penultimate palpomere of maxillary palpi slightly incrassate, labrum black or chestnut. Mandibles mars yellow. Male antennae serrate, uniformly yellow. Antennomere 3 1.5 times or more as long as antennomere 2. Antennae length not longer than half of elytron length. Female antennae filiform, uniformly yellow or bicolored. When bicolored antennomere 1 uniformly yellow, antennomeres 2–3 uniformly yellow or yellow with darkened upper

side, antennomeres 4–8 uniformly yellow or gradually infuscated, antennomeres 9–11 light cadmium. Antennomere 3 less than 1.5 times as long as antennomere 2. Female antennae as long as male antennae.

Pronotum yellow or ochraceous-orange, subquadrate (ratio of pronotum width to length 1.22–1.36), slightly convex, widest before middle, weakly bifoveate with wide shallow foveae, shagreened with narrow long meshes. Three short thin setae placed near large setae on anterior angles and 2 short thin setae near posterior angles of pronotum. Prosternum and procoxa yellow. Scutellum yellow or amber brown. Mesothorax and mesocoxa yellow. Metasternum and metepisternum black or chestnut, metepimeron yellow or picric yellow. Basic color of elytra yellow or rufous. Elytra maculate with short line or small spot on posterior third of each elytron, usually associated with humeral and sutural black vittae. Humeral vitta almost reaches end of elytron, sutural vitta is not longer than one-third of elytron. Humeral calli black. Elytral epipleura completely yellow. Elytra matt, shagreened with long narrow meshes (length of meshes at least 3 times more than width), punctuation dense, fine. Humeral plicae absent. Sutural angle of elytra round. Abdomen yellow. Legs yellow. All male tibiae of same shape, male metatibia spur short. Trochanters yellow. Aedeagus symmetric. Number of internal sac sclerites 5. Sclerite 5A looks as narrow flat plate toothed apically, sclerite 5B elongate handle-like hook, bearing 5–6 big teeth apically, sclerite 5C short thick hook with “collar”, sclerite 5D short pointed hook, sclerite 5E flat arcuate plate toothed apically and laterally.

Tignum slender, weakly sclerotized. Receptacle of spermatheca sub cylindrical, not separated from pump, pump with small appendage at apex.

Remarks. *Diabrotica lopatini* sp. n. is similar to *D. palpalis* Jacoby, 1887, which lectotype we have examined (lectotype with the following labels ♀: 1) V. de Chiriqui, 4000–6000 ft., Champion; 2) Godman-Salvin Coll., Biol. Centr.-Amer.; 3) Type; 4) *Diabrotica palpalis* Jac.; 5) Lectotype; 6) Lectotype *Diabrotica palpalis* Jac. RZS designated by Smith and Lawrence [1967]). These species can be separated by the following features: penultimate palpomere of maxillary palpi is not incrassate in *D. lopatini* sp. n., strongly incrassate in *D. palpalis*; elytra with long black stripe stretching from humeral callus posteriorly, long black stripe starting from scutellum and a black spot

on declivity; in *D. palpalis* four black spots on each elytron, one on humeral callus, one on the basal part of the elytra and two behind middle; scutellum yellow in *D. lopatini* sp. n., black or amber brown in *D. palpalis*.

Distribution. Costa Rica, Guatemala, Honduras, Panama (fig. 11).

Host plants. Unknown.

Etymology. This name is a patronym dedicated to I.K. Lopatin, systematist, teacher, and friend.

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References

- Barber H.S. 1947. *Diabrotica* and two new genera (Coleoptera, Chrysomelidae) // Proceedings of the Entomological Society of Washington. 49(6): 151–161.
- Fabricius J.C. 1787. Mantissa insectorum, sistens eorum species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus. Tomus 1. Hafniae: C.G. Proft. 348 p.
- Konstantinov A.S. 1998. Revision of the Palearctic species of *Aphthona* Chevrolat and cladistic classification of the Aphthonini (Coleoptera: Chrysomelidae: Alticinae) // Memoirs on Entomology, International. Gainesville: Associated Publishers. 429 p.
- Smith R.F., Lawrence J.F. 1967. Clarification of the status of the type specimens of *Diabroticites* (Coleoptera, Chrysomelidae, Galerucinae) // University of California Publications in Entomology. 45: 1–174.

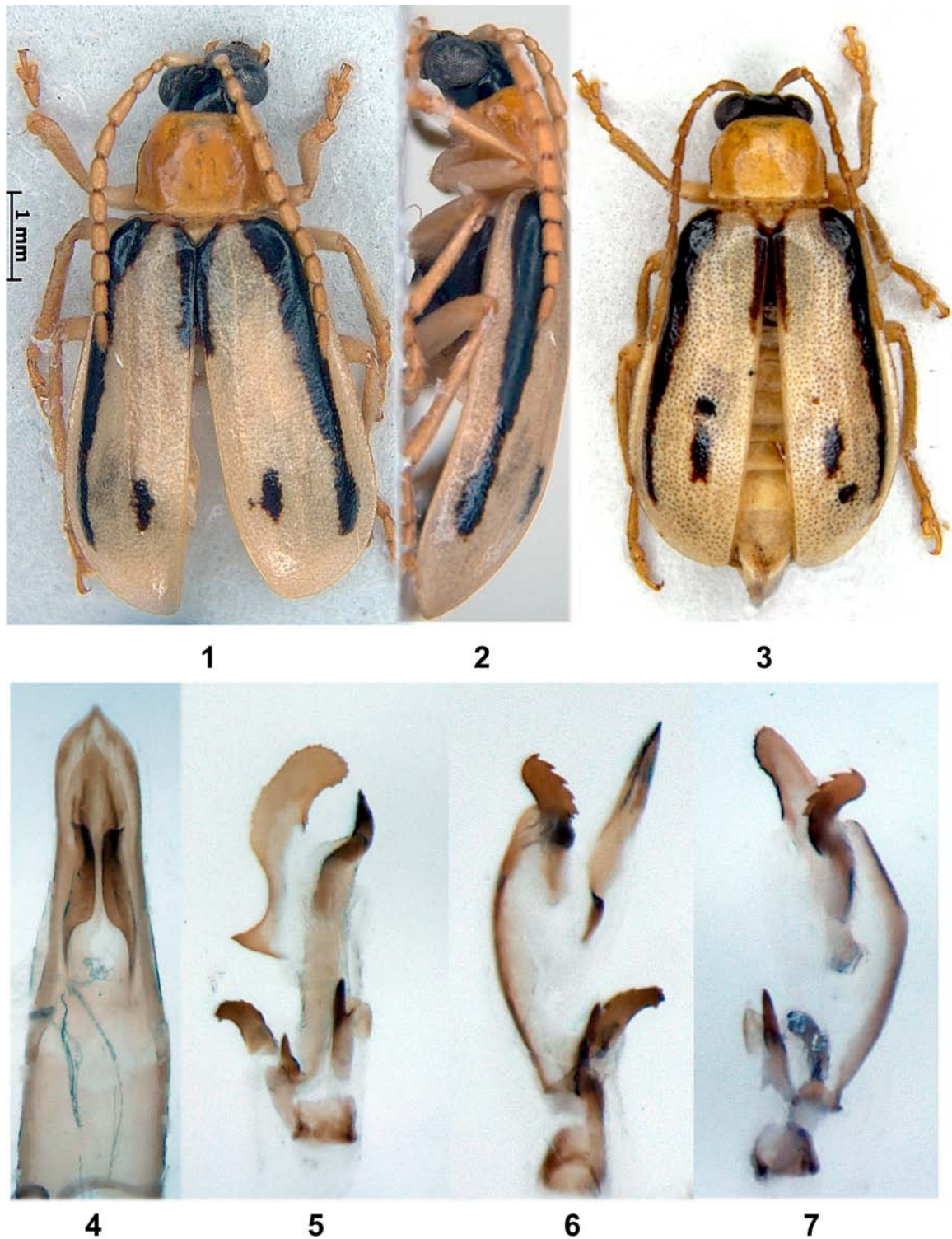


Fig. 1–7. *Diabrotica lopatini* sp. n.

1 – holotype, male, dorsal habitus; 2 – holotype, male, lateral habitus; 3 – paratype, female, dorsal habitus; 4 – aedeagus, ventral view; 5 – internal sac of the aedeagus, ventral view, holotype; 6 – internal sac, lateral view, left, holotype; 7 – internal sac, lateral view, right, holotype.

Рис. 1–7. *Diabrotica lopatini* sp. n.

1 – голотип, самец, вид сверху; 2 – голотип, самец, вид сбоку; 3 – паратип, самка, вид сверху; 4 – эдеагус, вентрально; 5 – внутренний мешок эдеагуса, вентрально, голотип; 6 – внутренний мешок, латерально, вид слева, голотип; 7 – внутренний мешок, латерально, вид справа, голотип.



Fig. 8–11. *Diabrotica lopatini* sp. n.
8 – spermatheca, paratype; 9 – tignum, paratype; 10 – vaginal palpi, paratype; 11 – map of distribution.

Рис. 8–11. *Diabrotica lopatini* sp. n.

8 – сперматека, паратип; 9 – тигнум, паратип; 10 – вагинальные пальпы, паратип; 11 – карта распространения.

References

- Barber H.S. 1947. *Diabrotica* and two new genera (Coleoptera, Chrysomelidae). *Proceedings of the Entomological Society of Washington*. 49(6): 151–161.
- Fabricius J.C. 1787. *Mantissa insectorum, sistens eorum species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus*. Tomus 1. Hafniae: C.G. Prof. 348 p.
- Konstantinov A.S. 1998. Revision of the Palearctic species of *Aphthona* Chevrolat and cladistic classification of the Aphthonini (Coleoptera: Chrysomelidae: Alticinae). *Memoirs on Entomology, International*. Gainesville: Associated Publishers. 429 p.
- Smith R.F., Lawrence J.F. 1967. Clarification of the status of the type specimens of *Diabroticites* (Coleoptera, Chrysomelidae, Galerucinae). *University of California Publications in Entomology*. 45: 1–174.