

*This contribution is dedicated
to Prof. Vladimir I. Chikatunov
on the occasion of his 80th anniversary
and in memory of a long-time friendship,
joint adventures in Tajikistan and Israel,
and numerous meetings in Dushanbe,
St.-Petersburg and Tel-Aviv.*

***Acmaeodera (Acmaeodera) chikatunovi* – a new species
of jewel beetles from Oman (Coleoptera: Buprestidae:
Polycestinae: Acmaeoderini)**

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ABSTRACT

A new species of jewel beetles, *Acmaeodera (Acmaeodera) chikatunovi* n. sp. from Oman, is described, illustrated and compared with closely related species, which are also known from Oman.

KEYWORDS: Biodiversity, Coleoptera, Buprestidae, *Acmaeodera*, jewel beetles, new species, Arabian Peninsula, Oman.

خلاصة

نوع جديد من خنافس الجواهر، *Acmaeodera (Acmaeodera) chikatunovi*، من عمان، تم توضيحه ومقارنته مع الأنواع ذات الصلة الوثيقة، والمعروفة أيضًا من عمان. الكلمات الدالة: خنافس الجواهر، نوع جديد، عمان، شبه الجزيرة العربية، تنوع حيوي.

INTRODUCTION

Acmaeodera Eschscholtz, 1829—with over 500 species world-wide except Australia and Oceania—is the most speciose genus in the tribe Acmaeoderini (Bellamy 2008; Volkovitsh 2008). To date, 39 species of jewel beetles in 15 genera, among them 12 species of *Acmaeodera* associated mainly with *Acacia* trees, are known from Oman (Kubáň *et al.* 2016; partly updated). The study of materials on the jewel beetles of the tribe Acmaeoderini (Coleoptera: Buprestidae) recently collected by Italian collectors in Oman, has revealed a number of new species, one of which is described below. Numerous records of new species (Levey & Volkovitsh 1996; Bílý *et al.* 2011; Volkovitsh & Prepsl 2017; Volkovitsh 2019*a, b*) indicate a grossly insufficient knowledge of jewel beetles of the Arabian Peninsula.

MATERIALS AND METHODS

Label data are cited verbatim; a single slash (/) is used to separate lines on the same label and a double slash (//) separates data from different labels, the square brackets are used for remarks and addenda. The following comments and abbreviations are used in the label description: p – printed data, h – handwritten data, PC – personal computer, ‘red’ – refers to label color.

Photographs of the habitus and morphological structures were taken using Canon D-40 and D-5 digital cameras, equipped with a Canon MP-E65 mm f/2.8 1–5× macro lens (habitus, Fig. 1), Mitutoyo 10/0.28 microscope lens, mounted on a Macro bellow Pentacon M42 (head, Fig. 17) (D. Baiocchi), and Leica MZ-9.5 stereomicroscope with mounted Leica DFC-290 camera (M. Volkovitsh); photographs of the ovipositors were taken using Bresser-Biolux light microscope with integrated imaging system. Zerene Stacker version 1.04 (D. Baiocchi) and Helicon Focus (M. Volkovitsh) software were used for stacking the photos. Measurements were taken using an eyepiece micrometer under a MBS-9 stereomicroscope. All pictures were taken by author with an exception of Figs 1 and 17 (D. Baiocchi).

The following institutional codens are used throughout the text:

GMCC – G. Magnani collection, Cesena, Italy;

ZIN – Zoological Institute of the Russian Academy of Sciences,
St. Petersburg, Russia.

TAXONOMY

Genus *Acmaeodera* Eschscholtz, 1829

Acmaeodera (Acmaeodera) chikatunovi n. sp.

(Figs 1–4, 11, 13, 14, 17, 20, 23)

LSID: urn:lsid:zoobank.org:act:511969FF-1FA3-4D0E-A8C2-58FE9309280C.

Etymology: The species name is dedicated to Prof. Vladimir I. Chikatunov, Steinhart Museum of Natural History, Tel-Aviv University, Israel.

Diagnosis: Body (Figs 1–3) of medium size, elongate, slender, 3.45× as long as pronotum width at base, slightly convex, without dorsal curvature; black, without metallic sheen; elytra blackish brown, monochromatic; body dorsally covered with recumbent and semi-erect brown and white setae; ventrally with recumbent, fine, yellowish setae; body length 6.9 mm, width at pronotal base 2.0 mm.

Description: Female. Head (Figs 17, 20) broad, vertex slightly convex, weakly depressed medially when seen from above; eyes slightly convex, not protruding beyond head contour. Vertex without medial carina, 2.10× as wide as transverse diameter of eye and 1.17× as wide as frons above antennal sockets. Frons weakly convex, with well-marked foveolate depression in upper part; with slightly curved, weakly diverging sides; covered with ocellate to reticulate sculpture of dense, medium-sized umbilicate punctures without distinct central grains and micropunctures, intervals shiny, less than ½ diameter of puncture; vertex and upper part of frons covered with



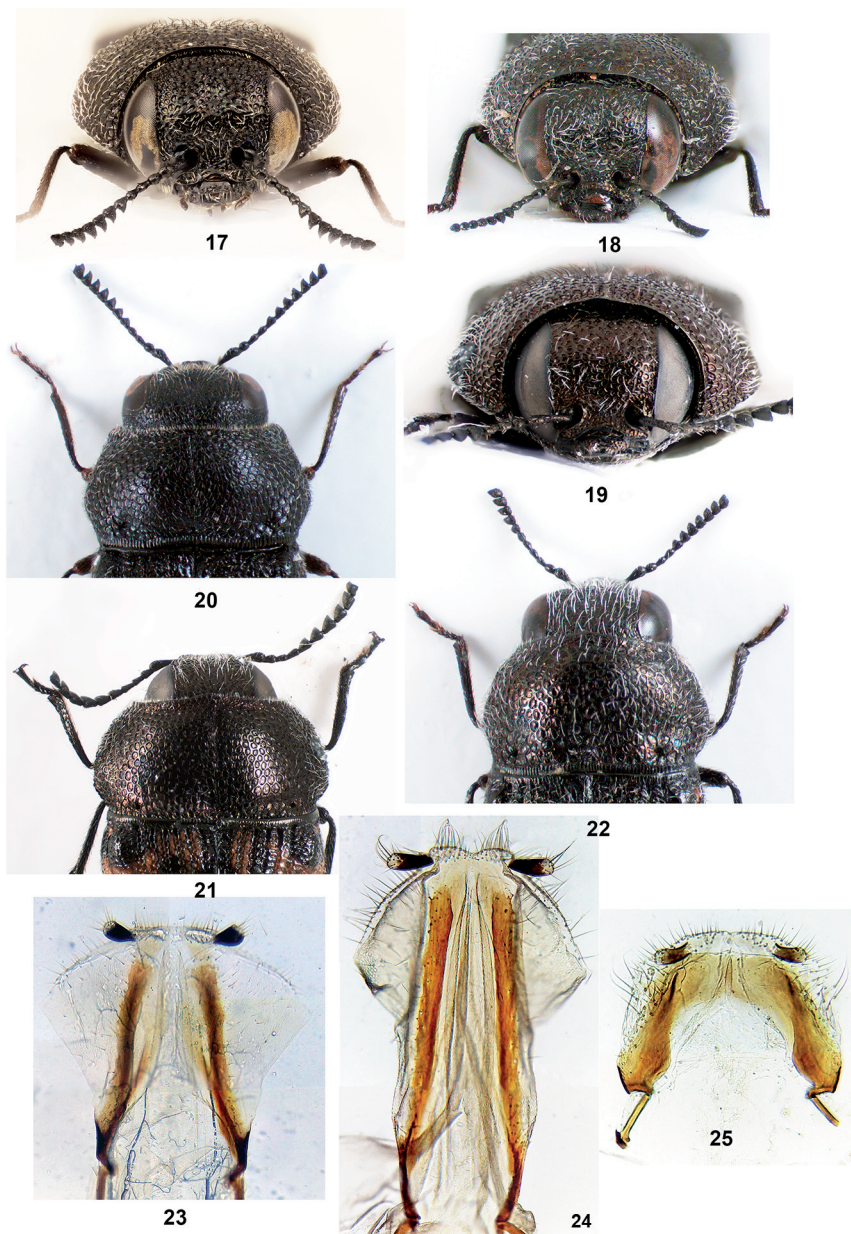
Figs 1–16: *Acmaeodera* (*Acmaeodera*) spp., habitus in dorsal (1, 5, 8), lateral (2, 4, 6, 7, 9, 10) and ventral (3) views; female antennae (11, 12), protibiae and tarsi (13–16): (1–4, 11, 13, 14) *A. chikatunovi* n. sp., holotype, female; (5–7, 12, 15, 16) *A. guichardi* Levey & Volkovitsh, female, Oman; (8–10) *A. strumiae* Volkovitsh, paratype, male, Saudi Arabia. Not to scale.

rather long, semi-erect, dark brown setae, in lower part mixed with white setae. Clypeus relatively broad, depressed, with deep arcuate anterior emargination. Antennae of female long (Fig. 11), $1.75\times$ as long as vertical diameter of eye; antennal segments abruptly expanded from antennomere 5; scape long, nearly straight, expanded toward apex; pedicel slightly elongate, feebly swollen, barrel-like; antennomere 3 elongate, about $1.5\times$ as long as pedicel and slightly longer than 4; antennomere 4 weakly expanded toward apex; antennomere 5 sharply triangular, slightly longer than wide, with weakly emarginated anterior margin; antennomeres 6–10 sharply triangular with emarginate to straight anterior margin, antennomere 6 as long as wide, 7–10 slightly wider than long; antennomere 11 transverse with deeply emarginated apex bearing two denticles, as wide as long.

Pronotum (Figs 4, 20) weakly convex, moderately transverse, $1.64\times$ as wide at base as long, widest just behind middle; sides angularly projecting, nearly straightly diverging from base toward widest point, then longer, straightly converging toward anterior angles. Anterior margin nearly straight, basal margin slightly emarginate. Lateral carina lacking. Pronotum dorsally weakly convex, with shallow medial impression and extensive, well-marked basal depression; basal margin not elevated between prescutellar and lateral fossae; prescutellar fossa large and deep, lateral fossae well defined, surrounded by deep depressions. Sides covered with nearly alveolate to reticulate, disc with reticulate sculpture without concentric rugosity, consisting of round, superficial umbilicate punctures without marked central grains and micropunctures. Pronotal sides covered with recumbent white and dark brown setae, disc with semi-erect, curved, dark brown setae. Anterior prosternal margin (Fig. 3) nearly straight, bordered with very fine transverse groove; prosternum and prosternal process weakly convex, covered with ocellate to reticulate sculpture of very small umbilicate punctures with flat bottom; pronotal hypomerone bearing reticulate sculpture of much larger superficial punctures; meso- and metaventrites and metacoxal plates with ocellate to reticulate sculpture of the same punctures.

Elytra (Figs 1, 2) elongate, slender, $2.54\times$ as long as wide at base, weakly convex; right elytron strongly deformed; sides subparallel toward posterior third, then evenly, arcuately converging to rounded apices. Subhumeral excision absent, subhumeral portion of epipleura nearly straight; epipleural serrations distinct, visible up to nearly the level of hind coxa, apical denticles small, saw-like. Strial punctures shallow, round or elongate, separate at anterior half, partly merging at posterior half of elytra; striae visible up to base. Intervals flat, subequal, $1.2\text{--}2.5\times$ as wide as striae; 9th interval flat, not serrated; intervals bearing very fine, inconspicuous micropunctures on slightly rugulose background; covered with rather long (nearly as long as interval width), semi-erect, mainly brown setae mixed with white setae on sides. Elytral surface dull. Elytra black-brown, monochromatic.

Legs (Figs 1, 3, 4, 13, 14) blackish brown; metacoxal plates with posterior margin nearly straight, slightly emarginate laterally, lateral teeth completely lacking. Tibiae slender, not expanded toward apices, covered with white and brown setae; metatibiae bearing comb of rather long dark brown setae externally. Tarsomeres 1–4 subequal,



Figs 17–25: *Acmaeodera* (*Acmaeodera*) spp., heads (17–19), pronota (20–22), and ovipositors (23–25): (17, 20, 23) *A. chikatinovi* n. sp.; (18, 22, 25) *A. guichardi* Levey & Volkovitsh; (19, 21, 24) *A. strumiae* Volkovitsh, paratype, Mauritania. Not to scale.

short, not expanded toward apices; tarsomere 5 slender, long, poorly expanded toward apex; tarsal adhesive pads nearly lacking on all tarsomeres, hardly visible on tarsomere 4 (it is possible that the pads of this specimen are underdeveloped). Tarsal claws of female long, with poorly marked denticle above mid-length.

Abdomen (Fig. 3) blackish brown, nearly black; laterally covered with reticulate sculpture of very dense, round, umbilicate punctures without marked grains, on disc changing to ocellate sculpture of smaller umbilicate punctures; surface covered with relatively long, recumbent, white and light brown setae. Anal ventrite of female regularly rounded apically, entirely bordered with fine sulcus.

Ovipositor (Fig. 23) is of transitional type from uritiform to tubular, nearly as long as wide, with arcuate apex, distance between styli about $3\times$ as long as of each stylus, which is short, swollen and slightly curved. Dorsal hemisternites stronger sclerotized along entire length, relatively narrow, subparallel, slightly curved, far not reaching anterior margin, with poorly marked additional sclerotization toward apex. Ventral hemisternites narrow, poorly sclerotized, hardly visible at anterior half, weakly curved, expanded toward anterior margin. Lateral margins strongly angularly expanded in anterior half, their anterior margin and apex of ovipositor covered with rather short setae.

Male. Unknown.

Variability: Unknown. Although a single female specimen reared from its host plant is partly deformed, particularly right elytron, the set of characters including rather peculiar ovipositor, enable us to describe it as a new species. However, other specimens, if they will be ever found, can differ in some characters, particularly in elytral coloration and tarsal pads development.

Differential diagnosis: Because the male of *A. chikatunovi* n. sp. is unknown, it is difficult to attribute it to a certain species group. The new species most likely belongs to the *A. brunneipennis* (= *A. elater* Théry, 1930) species group (Volkovitsh 1979) and comes close to *A. strumiai* Volkovitsh, 2019 (?*brunneipennis* species group) (Figs 8–10, 19, 21, 24) and *A. guichardi* Levey & Volkovitsh, 1996 (*cylindrica* species group) (Figs 5–7, 12, 15, 16, 18, 22, 25); both species occur in Oman (Bílý *et al.* 2011; Volkovitsh 2019a). Based on the ovipositor structure similar to these of *A. strumiai*, *A. brunneipennis* Kerremans, 1906 (Volkovitsh 1979: 350, fig. 74) and *A. damasensis* Pic, 1936, the new species can be attributed to the *brunneipennis* species group. Main diagnostic characters of *A. chikatunovi* n. sp. compared with these of *A. strumiai* and *A. guichardi* are presented in Table 1.

A. chikatunovi n. sp. differs from *A. strumiai* and *A. guichardi* in the first place by the peculiar ovipositor, which is intermediate between the uritiform (*A. guichardi*) and tubular (*A. strumiai*) types (Figs 23–25). It differs from the both species by sharply triangular distal antennomeres of female (Figs 11, 12), by the absence of the lateral tooth on the metacoxal plates (Figs 4, 7, 10), by almost lacking adhesive pads and a very small internal denticle on the tarsal claws (Figs 13–16). It also differs from the both species by lacking of elytral markings, but unicolor specimens rarely occur among normally colored *A. guichardi*. Additionally, it differs from *A. strumiai*

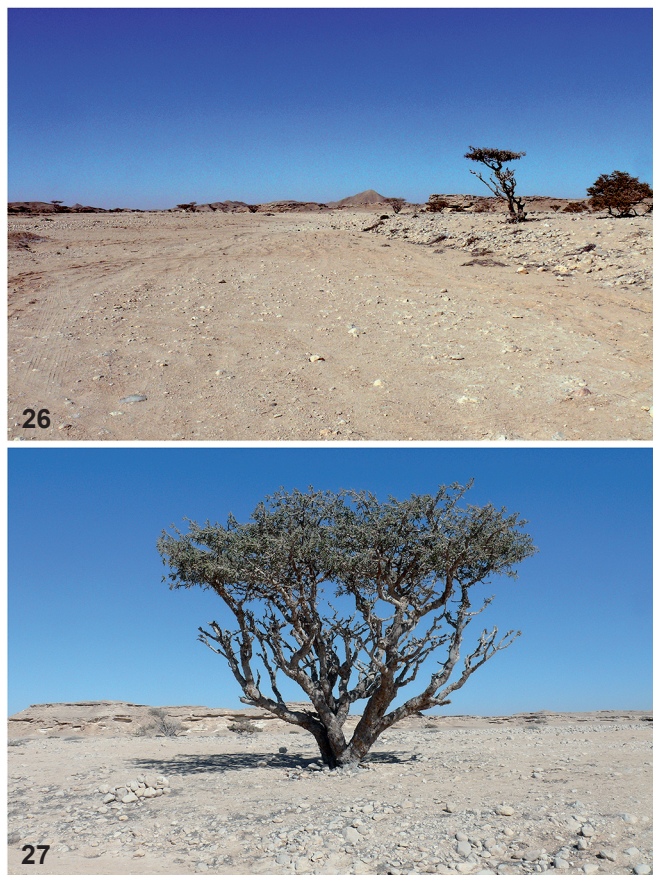
Table 1. Diagnostic characters separating *Acmaeodera (Acmaeodera) chikatunovi* n. sp., *A. (A.) strumiai* Volkovitsh, 2019 and *A. (A.) guichardi* Levey & Volkovitsh, 1996.

Character	<i>A. chikatunovi</i> n. sp.	<i>A. strumiai</i>	<i>A. guichardi</i>
Body shape; ratio of length / width at pronotal base	Elongate, slender (Fig. 1); 3.45	Robust, flattened (Fig. 8); 2.94 (2.82–3.05)	Elongate, slender (Fig. 5), ♀♀ sometimes robust; 3.19 (3.00–3.41)
Pilosity dorsally, color	Mainly brown mixed with white setae laterally (Fig. 4)	Mainly brown mixed with white setae laterally (Fig. 10)	Purely white setae (Fig. 7)
Antennae of female, antennomeres 5–10	Sharply triangular with emarginated to straight anterior margin (Fig. 11)	Roundly triangular with straight anterior margin	Roundly triangular with straight anterior margin to trapezoid (Fig. 12)
Pronotum, base	Not elevated (Fig. 20)	Slightly elevated between prescutellar and lateral fossae (Fig. 21)	Not elevated (Fig. 22)
Elytra, markings*	Absent (Fig. 1)	Extensive, of “rubro-maculata” type (Fig. 8)	Separate, irregular, transverse maculae and bands; sometimes absent (Fig. 5)
Elytra, ratio interval width / stria width	1.5–2.5 (Fig. 1)	2.5–4.0 (Fig. 8)	3.0–5.0 (Fig. 5)
Metacoxal plates, lateral tooth	Absent (Figs 3, 4)	Small, rectangular (Fig. 10) but seen from above (Fig. 8)	Large, sharp (Fig. 7)
Tarsomeres 1–4, adhesive pads*	Absent on 1–3, rudimentary on 4 (Fig. 14)	Absent on 1, rudimentary on 2–3, well-marked on 4	Absent on 1, rudimentary on 2–3, well-marked on 4 (Fig. 16)
Tarsal claws, denticle (female)	Very small, nearly lacking (Figs 13, 14)	Distinct, relatively broad	Distinct, relatively broad (Figs 15, 16)
Abdomen, sculpture	Entirely covered with round, umbilicate punctures, which are slightly sparser on disc (Fig. 3)	Entirely covered with round, umbilicate punctures, which are slightly sparser on disc	Entirely covered with horse-shoe punctures
Ovipositor, shape	Intermediate between uritiform and tubular, nearly as long as wide (Fig. 23)	Tubular, about 2× as long as length of expanded apical part (Fig. 24)	Uritiform, wider than long (Fig. 25)

* Character can be variable.

by its elongate, slender body (Figs 1, 8) and not elevated pronotal base (Figs 20, 21); from *A. guichardi*, by mainly brown dorsal pubescence (white in *A. guichardi*) and abdominal sculpture consisting completely of round punctures (in *A. guichardi* at least the abdominal disc is covered with horse-shoe punctures).

Holotype: ♀ **Oman:** (Dhofar gov.) / Rawiyya 640 m / 17.354°N 54.061°E / 16.1.2018 D. Baiocchi [& Gianluca Magnani] leg. (p, PC) [label data indicate the locality where wood samples were taken] // ex larva / *Boswellia sacra* / 2018 (p, PC) // Daniele Baiocchi / collection Roma (p, PC) (GMCC). Additional label: Holotype / *Acmaeodera (Acmaeodera) chikatunovi* sp. n. / Volkovitsh des. 2020 (red, p, PC).



Figs 26–27: Type locality of *Acmaeodera chikatunovi* n. sp.: (26) desert with *Boswellia sacra* Flueck. (Burseraceae) trees near Rawiyya (Dhofar gov.); (27) same, an individual tree of *B. sacra*, a host plant of *A. chikatunovi* n. sp. (Photos courtesy P. Hubený)

Distribution: Arabian Peninsula: Oman (Dhofar Governorate).

Ecological information: A single specimen was reared from the wood of *Boswellia sacra* Flueck. (Burseraceae).

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