

A new genus and three new species of Alleculinae (Coleoptera: Tenebrionidae) from Socotra Island, Yemen

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Abstract: No Alleculinae have previously been recorded from Socotra Island (Yemen). A new genus, *Socotralia* n. gen. (type species *S. major* n. sp.), and three new species are described and illustrated: *Socotralia brunnea* n. sp., *Socotralia major* n. sp. and *Socotralia minor* n. sp. An identification key is provided. *Socotralia* n. gen. (subfamily Alleculinae) is a typical member of the tribe Alleculini with membranous lobes under the penultimate tarsomere of each tarsus. The systematic position of the new genus seems to be intermediate between *Allecula* and *Hymenalia*. Species of the genera *Allecula* and *Mycetocharina* differ from *Socotralia* mainly by having a narrower pronotum. The penultimate tarsomeres of *Mycetocharina* are narrow. Species of *Allecula* differ from *Socotralia* also by having visible rows of punctures in the elytral striae. The elytral interspaces between the striae are rounded. Finally, species of the genera *Alogista*, *Hymenalia* and *Prionychus* differ from *Socotralia* mainly by a more oval body, a more transverse to near-semicircular pronotum, shorter antennae and shorter legs. *Socotralia brunnea* n. sp. differs from *Socotralia major* n. sp. and *Socotralia minor* n. sp. mainly by the antennae being entirely brown and the posterior angles of the pronotum being slightly obtuse-angled (*S. major* and *S. minor* with posterior angles perpendicular and antennomeres becoming distinctly lighter from first to third). *Socotralia minor* differs from *S. major* mainly by a darker apical half of the third antennomere.

الجنس الجديد *Socotralia* و ثلاثة أنواع جديدة من تحت العائلة Alleculinae (غمديات الأجنحة: خنافس الدقيق) من جزيرة سقطرى، اليمن

فلاديمير نوفاك

خلاصة: لم يسجل سابقاً أي نوع من تحت العائلة Alleculinae من جزيرة سقطرى من اليمن. تم وصف والتوضيح بالرسم الجنس الجديد *Socotralia* ممثلاً بالنوع الجديد *S. major* و ٣ أنواع جديدة وهي *Socotralia brunnea* و *Socotralia major* و *Socotralia minor*. كذلك تضمن البحث مفتاح تصنيفي. يعتبر الجنس الجديد *Socotralia* من تحت العائلة Alleculinae عضواً نموذجياً من عشيرة Alleculini حيث يتميز بفصوص غشائية متوضعة تحت القطع الرسغية لكل رسغ. وعلى ما يبدو، فإن المكانة التصنيفية لهذا الجنس الجديد وسطي بين الجنسين *Allecula* و *Hymenalia*. تختلف أنواع الجنس *Allecula* و الجنس *Mycetocharina* عن تلك للجنس *Socotralia* بإمتلاكها صفيحة ظهرية ضيقة لمقدم الصدر. تتميز القطع الرسغية القريبة من نهاية الرسغ للجنس *Mycetocharina* بأنها ضيقة. تختلف أنواع الجنس *Allecula* عن الجنس *Socotralia* بوجود صفوف واضحة من الثقوب حول شراع الغمد، كما أن الفراغ الغمدي بين الأشرعة مستدير الشكل. وأخيراً، تختلف أنواع الأجناس *Alogista* و *Hymenalia* و *Prionychus* عن أنواع الجنس *Socotralia* بشكل رئيسي بأجسامها البيضاوية الشكل وبصفيحة ظهرية مستعرضة إلى نصف دائرية لمقدم الصدر وبقرون استشعار قصيرة وأرجل قصيرة. يختلف النوع *Socotralia brunnea* عن النوع *Socotralia major* وعن النوع *Socotralia minor* بشكل رئيسي بلون قرون الإستشعار الغالبة إلى اللون البني

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وبالزاوية الخلفية للصفحة الظهرية لمقدم الصدر، حيث تبدو منفرجة أكثر بقليل (تكون الزوايا الخلفية متعامدة وقطع قرون الإستشعار فاتحة بشكل واضح من القطعة الأولى وحتى القطعة الثالثة للنوعين). يختلف النوع *Socotralia minor* عن النوع *S. major* بشكل رئيسي باللون المعتم للنصف القمي للقطعة الثالثة من قرون الإستشعار.

INTRODUCTION

At present, only sporadic information about the distribution and taxonomy of the Alleculinae of Socotra Island (Yemen) and indeed of the whole Arabian Peninsula is available. CAMPBELL (1980) has described the new genus *Cornucistela* and the species *Cornucistela serrata* from Saudi Arabia. MUCHE (1982) has described four new species of the genus *Mycetocharina* Seidlitz, 1891 and the new species *Prionychus denticulatus* from Saudi Arabia. SEIDLITZ (1896), BORCHMANN (1910) and MADER (1924) knew of only a few species of the tribe Alleculini from adjacent regions (only genera with membranous lobes under the penultimate tarsomere of each tarsus: *Allecula* Fabricius, 1801, *Mycetocharina* Seidlitz, 1891, *Prionychus* Solier, 1835 and *Hymenalia* Mulsant, 1856). Some species of the genera *Alogista* Fåhrens, 1870, *Allecula* and *Mycetocharina* are known from north-eastern Africa (BORCHMANN 1937, 1953; PIC 1910, 1923, 1924, 1925, 1935, 1939, 1953). The new genus *Socotralia* n. gen. and three new species *S. brunnea* n. sp., *S. major* n. sp. and *S. minor* n. sp., recently collected on Socotra Island (Yemen), are described, illustrated and keyed below.

MATERIALS AND METHODS

Collections from Socotra Island were obtained during the operation of the Socotra Project between 1999 and 2003, within the framework of the international development - help given by the Czech Republic to the Republic of Yemen.

The Czech Agricultural University was able to carry out two expeditions to Socotra Island. The first expedition, with specimens collected by Vladimír Bejček and Karel Šťastný, took place in November and December 2000, and in March 2001, respectively. The second expedition, with specimens collected by Jan Farkač, Petr Kabátek and David Král, took place in November and December 2003. I was also able to study specimens collected by Hans Pohl and Antonius van Harten.

Two important ratios are used in descriptions of species of the subfamily Alleculinae. The ocular index dorsally (CAMPBELL & MARSHALL 1964) is calculated by measuring the minimum distance between the eyes, and dividing this value by the maximum dorsal width across the eyes. The ratio resulting from this division is then converted into an index by multiplying by 100. The pronotal index (CAMPBELL 1965) expresses the ratio of the length of the pronotum along the midline to its width at the basal angles. This ratio is multiplied by 100 for convenience in handling.

Specimens of the species described here have been provided with printed red labels: "*Socotralia brunnea* sp. n. or *Socotralia major* sp. n. or *Socotralia minor* sp. n. HOLOTYPUS [or PARATYPUS, respectively] V. Novák det. 2004."

Holotypes are deposited in the collection of the National Museum of Prague, Czech Republic. Paratypes are deposited in the author's collection, the collection of the Faculty of Forestry and Agriculture, Czech Agricultural University, Prague, Czech Republic, in the collection of the National Museum of Prague, Czech Republic, and in the collection of the Hessisches Landesmuseum Darmstadt, Germany.

The following acronyms are used in this paper:

- CAUP Faculty of Forestry and Agriculture, Czech Agricultural University, Prague, Czech Republic
 EFKK Expedition J. Farkač, P. Kabátek & D. Král to Socotra Island
 HLMD Hessisches Landesmuseum Darmstadt, Darmstadt, Germany
 NMPC National Museum of Prague, Czech Republic
 VNPC private collection of Vladimír Novák, Prague, Czech Republic

RESULTS**Key to the genera of the Alleculini of the Arabian Peninsula and adjacent regions**

- | | | | |
|---|---|--|---|
| 1 | Penultimate tarsomere of each tarsus without a membranous lobe | other genera of Alleculini | |
| – | Penultimate tarsomere of each tarsus with a membranous lobe..... | | 2 |
| 2 | Base of pronotum distinctly narrower than base of elytra | <i>Allecula</i> Fabricius, 1801;
<i>Mycetocharina</i> Seidlitz, 1891 | |
| – | Base of pronotum and base of elytra of approximately the same width | | 3 |
| 3 | Body more oval, antennae distinctly shorter than half of body length, pronotum more transverse, semicircular | <i>Alogista</i> Fåhrens, 1870; <i>Prionychus</i> Solier, 1835;
<i>Hymenalia</i> Mulsant, 1856 (species of adjacent regions) | |
| – | Body narrower, elytra of males more parallel, antennae reaching at least half of body length, pronotum longer, bell-shaped, legs longer | <i>Socotralia</i> n. gen. | |

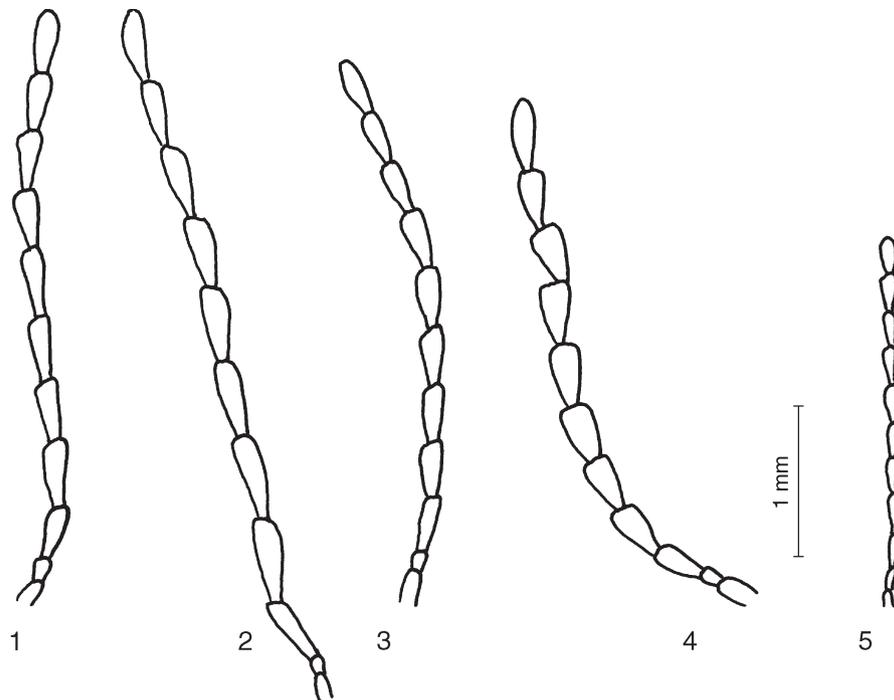
***Socotralia* n. gen.**

Type species: *Socotralia major* n. sp.

D i a g n o s i s: The species of this remarkable new genus of the subfamily Alleculinae are separated from other genera of the Alleculinae mainly by the eyes being moderately deeply emarginated anteriorly, with the insertions of the antennae located adjacent to the eye in the emargination, by the broadly triangular ultimate palpomere, and by having membranous lobes under the penultimate tarsomere of each tarsus. In all respects, *Socotralia* n. gen. is a typical member of the Alleculini.

Species of the genera *Allecula* Fabricius, 1801 and *Mycetocharina* Seidlitz, 1891 differ from the species of *Socotralia* mainly by having a narrower pronotum (base of pronotum of *Socotralia* of approximately the same width as base of elytra). The penultimate tarsomere of *Mycetocharina* is narrow (the penultimate tarsomere of *Socotralia* is the broadest of all the tarsomeres). Species of *Allecula* differ from *Socotralia* also by having visible rows of punctures in the elytral striae and the elytral interspaces between the striae rounded (*Socotralia* species without distinctly visible rows of punctures in the elytral striae and without rounded elytral interspaces). Finally, species of the genera *Alogista* Fåhrens, 1870, *Hymenalia* Mulsant, 1856 and *Prionychus* Solier, 1835 differ from the species of the genus *Socotralia* mainly by the more oval body, the more transverse and almost semicircular pronotum, shorter antennae and shorter legs (*Socotralia* species with a relatively narrow and slightly oval body, with a longer bell-shaped pronotum, with longer and relatively narrow legs, and antennae reaching up at least to half of body length).

D e s c r i p t i o n (Plates 1-8): body length between 4.50 and 7.88 mm; body colour dark, from brown to black; males elongate-oval to prolongedly elongate-oval, females more oval; body with long, light, dense setation; only elytra with a slight shine, more matt.



Figs 1-5: Antennae. 1: *Socotralia brunnea* n. sp., male holotype. 2: *S. major* n. sp., male holotype. 3: *S. major* n. sp., female. 4: *S. minor* n. sp., male holotype. 5: *S. minor* n. sp., female.

Head (Plates 2, 5, 8): reddish-brown to brown, slightly transverse, eyes large, transverse; vertex between eyes very narrow (ocular index of both males and females ranging from 10 to 29); head with eyes narrower than pronotum at base (less than two-thirds of pronotal base); clypeus slightly rounded at apex; head with sparse long setation, relatively matt, slightly rugose, and with dense, coarse and relatively shallow punctuation; interspaces very narrow.

Antennae (Figs 1-5): slightly serrate, antennomeres from third or fourth to tenth widest at apex; second antennomere shortest; antennae of males longer, reaching two-thirds of body length, female antennae shorter, reaching only half of body length; antennae with short setation.

Maxillary palpus (Figs 6, 10, 15): colour light brown to brown; ultimate and penultimate palpomeres widest at apex; ultimate palpomere broadly triangular.

Pronotum (Figs 7, 11, 12, 16, 17; Plates 2, 5, 8): colour reddish-brown to brown; slightly transverse, bell-shaped, matt; margins complete, posterior angles perpendicular or slightly obtuse-angled; anterior angles not conspicuous; sides parallel in basal half, becoming rounded apically; base almost straight, only very slightly emarginated; pronotal index ranging from 64 to 82; setation long, dense and light; punctuation very dense, coarse and shallow; punctures large, interspaces very narrow; surface of the punctures slightly rugose, with soft microsculpture.

Elytra: colour brown to blackish-brown; long, sides more parallel, widest near two-thirds of its length; setation long, dense, light; rows of punctures in elytral striae not clearly conspicuous; punctuation relatively dense; elytral epipleura rather conspicuous from base to rounded apex, reaching fifth abdominal sternite; elytral epipleura with small, thin punctures, with setae as long as hairs on elytra; one row of large punctures in basal half of epipleura, interspaces almost as large as diameter of punctures; scutellum triangular.

Legs: long, colour yellowish-brown to brown; femora strong; tibiae longer and narrow; penultimate tarsomere of each tarsus with membranous lobes; both anterior tarsal claws with teeth.

Ventral side of body: colour light brown to brown; abdomen with five visible sternites, with long, light, but sparse setation. Underside punctuated.

Male (Figs 1, 2, 4, 6-11, 13-16, 18, 19; Plates 1-3, 5, 6, 8): elongate, slightly oval; antennae longer, reaching approximately two-thirds of body length, more serrate; antennomeres from fourth to eleventh longer than third antennomere; pronotal index higher, ranging from 64.22 to 81.82; apical piece of genitalia with an irregular row of dentiform setae.

Female (Figs 3, 5, 12, 17; Plates 4, 7): elongate-oval; antennae shorter, reaching only to half of body length, slightly serrate; third antennomere longer than fourth to tenth antennomeres; pronotal index lower, ranging from 64.14 to 72.52; setation of pronotum denser.

Etymology: Derived from the name of the island of Socotra.

Key to the species of *Socotralia* n. gen.

- | | | |
|---|--|--------------------------|
| 1 | Antennae entirely brown, posterior angles of pronotum slightly obtuse-angled, pronotum not widest at base | <i>S. brunnea</i> n. sp. |
| – | Antennomeres from first to third distinctly lighter. Posterior angles of pronotum perpendicular, pronotum widest at base | 2 |
| 2 | Longer than 6 mm, antennae slightly serrate, first to third antennomeres light yellowish-brown; all abdominal sternites brown | <i>S. major</i> n. sp. |
| – | Shorter than 6 mm, antennae (especially male antennae) more serrate, antennomeres from first to basal half of third antennomere light yellowish-brown; apical half of third antennomere dark brown; last two abdominal sternites lighter | <i>S. minor</i> n. sp. |

Socotralia brunnea n. sp.

Figs 1, 6-9, Plates 1, 2

Holotype: ♂, Yemen, Socotra Island: Ayhaft, 15.III.2000, V. Bejček & K. Šťastný, NMPC. — **Paratypes**: 2 ♂♂, same data as holotype, VNPC, CAUP; 1 ♂, Calanthia, 29-30.III.2001, V. Bejček & K. Šťastný, VNPC; 1 ♂, Homhil (= Hamaderon), 12.587°N 54.302°E, 330 m, 20-21.XI.2000, V. Bejček & K. Šťastný, CAUP.

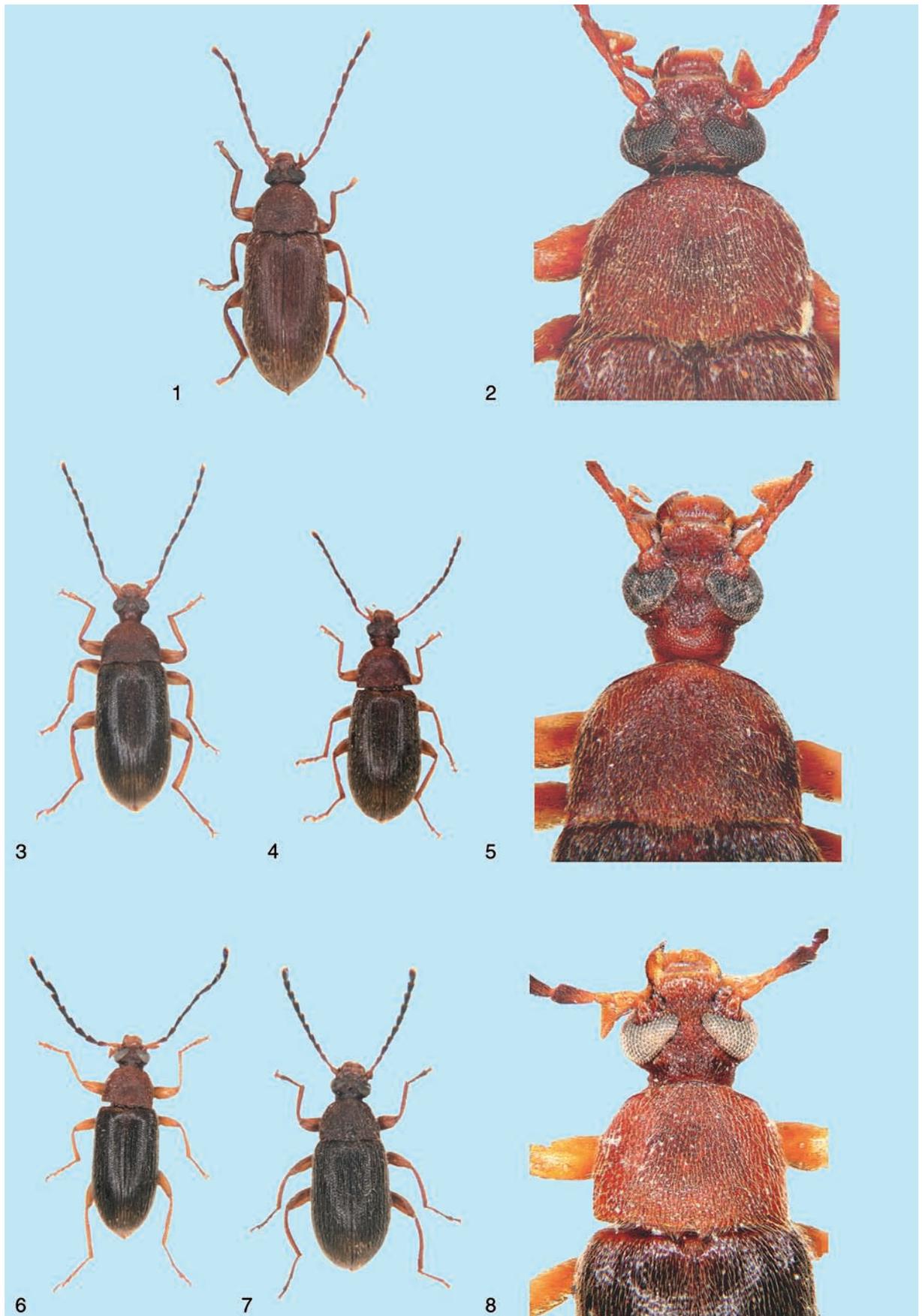
Diagnosis: The new species differs from the similar species *Socotralia major* n. sp. and *Socotralia minor* n. sp. mainly by the entirely brown antennae and the slightly obtuse-angled posterior angles of pronotum.

Description of holotype (Plates 1, 2): Body length 6.52 mm, long elongate-oval, entirely brown, matt; 2.74 times longer than wide.

Head (Plate 2): brown, relatively small, with long light setation, eyes broadly transverse, dark and strongly excised, space between eyes very narrow; widest across eyes, 1.15 mm (0.65 of pronotum base width); head length (visible part) 0.98 mm; ocular index 16.67; clypeus without shine, with only slight rugose punctuations; head conspicuously and densely punctuate, punctures relatively large and shallow; interspaces very narrow and conspicuously granulated, head matt.

Antennae (Fig. 1): long, length 4.24 mm (reaching up to 0.65 of body length), matt, all antennomeres entirely brown; antennomeres relatively narrow, second antennomere shortest, from third antennomere widest at apex, slightly serrate; antennomeres matt, slightly rugulose, from fourth antennomere with conspicuous punctures; antennomeres with long setation, from first to fourth with light hairs, from fifth antennomere with dark hairs; ratio of relative lengths of antennomeres from base to apex as follows: 0.64: 0.46: 1.00: 1.07: 1.04: 1.03: 1.01: 1.03: 0.99: 0.94: 1.01; ratio L/W (length/greatest width) for antennomeres from base to apex as follows: 1.96: 1.83: 3.37: 2.63: 2.85: 3.31: 3.06: 2.44: 2.31: 2.43: 2.52.

Maxillary palpus (Fig. 6): light brown, somewhat lighter than head; third palpomere widest at apex; third palpomere 1.39 times longer than its width at apex; ultimate palpomere broadly triangular, linear outside, slightly excised inside, then slightly rounded to apex; width at



apex of ultimate palpomere 5.13 times its width at base and 1.5 times its length; second palpomere 1.8 times as long as its width at widest point; ratio of relative lengths of palpomeres from second to fourth from base to apex as follows: 1.47: 1.00: 1.96; ratio L/W (length/greatest width) of palpomeres from second to fourth from base to apex as follows: 2.45: 1.10: 0.74.

Pronotum (Fig. 7, Plate 2): brown, matt, slightly transverse with dense light setation; at base 1.58 times wider than head with eyes together; longest at the middle, 1.26 mm; widest at its third, measured from base to apex 1.77 mm; pronotal index 71.32; margins conspicuous throughout their entire length, base from both sides and against scutellum conspicuously excised; posterior angles slightly obtuse-angled; margins slightly rounded up to half of length (from base to apex), then regularly rounded and narrowed to apex; anterior angles not conspicuous; surface with dense and shallow punctuations, punctures large, interspaces very narrow; punctures inside with slight granulation; pronotum relatively matt.

Underside of thorax brown, with shallow, dense and coarse punctuations, on sides with light setation; punctures large, very close to each other, interspaces very narrow; inside of punctures with granulation, matt.

Elytron: brown, with long, light and relatively dense setation; length 4.20 mm; broadest near elytral half, 2.38 mm; ratio L/W (length/greatest width) 1.77; elytra with punctuation, rows of punctures not clearly conspicuous; diameter of punctures less than that of punctures present on pronotum and head; punctures not as dense and coarse as those of pronotum; interspaces wider than diameter of punctures, slightly granulated; scutellum brown, evenly triangular, shallow punctures and light hairs present; elytral epipleura brown (like the elytra themselves), well developed; evenly narrowed from basal half, thence in apical half parallel and narrowed to rounded apex; epipleura with small sparse punctures, with light setae as long as hairs on elytra; row of large punctures in basal half of epipleura, diameter of punctures twice as large as diameter of interspaces; larger punctures absent in apical half.

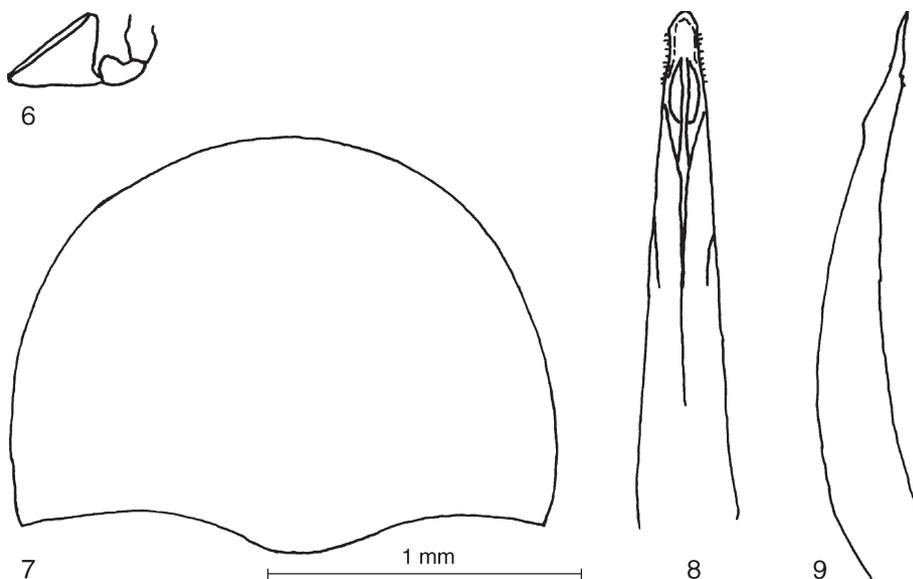
Legs: long, relatively strong, brown, only slightly lighter than pronotum and elytra; with short light setation; femora strong, tibiae very narrow, narrowest on base, widest at apex; penultimate tarsomeres of each tarsus with membranous lobes, as wide as tibia at apex and wider than rest of tarsomeres; ratio of relative lengths of tarsomeres from base to apex as follows: protarsus 1.00: 0.87: 0.60: 0.91: 1.71; mesotarsus 1.00: 0.36: 0.45: 0.46: 0.86; metatarsus 1.00: 0.31: 0.26: 0.46; anterior tarsal claws with eleven teeth.

Ventral side of body: brown, relatively matt, with light sparse setation; abdomen with five visible sternites; punctuation of episternum and metasternum not as dense and coarse as that of thorax; interspaces larger than diameter of punctures; mesosternum deeply transversely impressed, V-shaped; abdominal sternites with shallow, smaller and sparse punctures, present in middle only; sternites with elongate rugulosity on sides.

Aedeagus (Figs 8, 9): apical piece of aedeagus elongate-triangular, sides almost straight, slightly excised before apex, thence strongly narrowed with a truncate apex; apical piece with an irregular row of lateral dentiform setae; ratio of length of apical piece to basal piece 1: 3.44.

Male (Figs 1, 6-9, Plates 1, 2): five males: length 6.67 mm approximately (ranging from 6.44 to 6.91 mm); head length (visible part) 1.05 mm approximately (ranging from 0.98 mm

Plate 1-8: Species of *Socotralia* n. gen. 1-2: *Socotralia brunnea* n. sp. 1: dorsal view of male holotype. 2: head and pronotum of male holotype. 3-5: *Socotralia major* n. sp. 3: dorsal view of male holotype. 4: dorsal view of female. 5: head and pronotum of male holotype. 6-8: *Socotralia minor* n. sp. 6: dorsal view of male holotype. 7: dorsal view of female. 8: head and pronotum of male holotype (not to scale).



Figs 6-9: *Socotralia brunnea* n. sp. 6: maxillary palpus of holotype. 7: male pronotum of holotype. 8: aedeagus in ventral view. 9: aedeagus in lateral view.

to 1.19 mm); head width 1.12 mm approximately (ranging from 1.02 mm to 1.20 mm); ocular index 15.40 approximately (ranging from 11.85 to 20.10); pronotal length (in middle) 1.27 mm approximately (ranging from 1.21 mm to 1.30 mm); pronotal width 1.79 mm approximately (ranging from 1.66 mm to 1.85 mm); pronotal index 71.31 approximately (ranging from 65.73 to 76.73); elytral length 4.26 mm approximately (ranging from 4.08 mm to 4.45 mm); elytral width 2.39 mm approximately (ranging from 2.22 mm to 2.61 mm); ratio L/W (length/greatest width) of elytra 1.79 approximately; body approximately 2.79 times longer than its width.

Female unknown.

E t y m o l o g y: The specific name is derived from the Latin word “brunneus” (brown), reflecting its body colour.

Socotralia major n. sp.

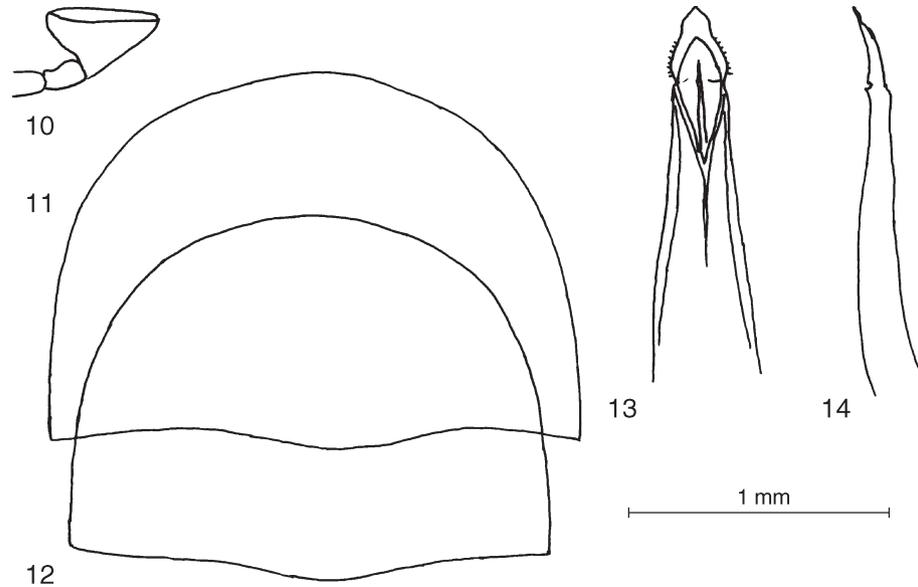
Figs 2, 3, 10-14, Plates 3-5

H o l o t y p e: ♂, Yemen, Socotra Island: Homhil (= Hamaderon), 12.587°N 54.302°E, 330 m, 20-21.XI.2000, V. Bejček & K. Šťastný, NMPC. — **P a r a t y p e s:** 10 ♂♂, 1 ♀, same data as holotype, 4 ♂♂, 1 ♀ VNPC, 6 ♂♂ CAUP; 7 ♂♂, 2 ♀♀, Firmihin, 12.474°N 54.015°E, 530 m, October 2000, V. Bejček & K. Šťastný, 3 ♂♂, 2 ♀♀ VNPC, 4 ♂♂ CAUP; 1 ♂, 1 ♀, Ayhaft, 15.III.2000, V. Bejček & K. Šťastný, 1 ♂ CAUP, 1 ♀ VNPC; 1 ♂, 1 ♀, Hagher Mountains, W slopes, Skant area, 12°35'52"N 54°00'01"E, 1240 m, 2.XII.2003, D. Král (EFKK), VNPC; 3 ♂♂, Qaariah village environment, 12°38'05"N 54°12'39"E, 11 m, 28.XI.2003, P. Kabátek (EFKK), CAUP; 4 ♂♂, Diksam plateau 12°31.401'N 53°57.204' E, 26-27.X.2000, A. van Harten, HLMD-Col-1299-PT1-4.

D i a g n o s i s: The new species *Socotralia major* n. sp. differs from the similar species *Socotralia brunnea* n. sp. mainly by the distinctly lighter first three antennomeres (light yellowish-brown). The similar species *Socotralia minor* n. sp. differs from *Socotralia major* n. sp. mainly by the dark brown apical half of third antennomere, by the antennomeres of males from third to tenth being more serrate, and by the lighter last two abdominal sternites.

Description of holotype (Plates 3, 5): body length 7.45 mm; body elongate-oval, widest near two-thirds of elytra; 2.91 times as long as its width.

Head (Plate 5): relatively small, reddish-brown, with relatively sparse, but longer light setae, with relatively dense, but shallow and coarse punctuation; eyes large, transverse, dark, strongly excised; width (across eyes) approximately two-thirds of width of pronotum base; head length (visible part) 1.25 mm; head widest across the eyes, 1.23 mm; ocular index 17.90; clypeus without shine, with conspicuous soft microsculpture; interspaces very narrow, not clearly conspicuous.



Figs 10-14: *Socotrallia major* n. sp. 10: maxillary palpus of holotype. 11: male pronotum of holotype. 12: female pronotum. 13: aedeagus in ventral view. 14: aedeagus in lateral view.

Antennae (Fig. 2): length 4.86 mm, matt, reaching up to two-thirds of body length; antennomeres slightly rugulose, relatively narrow, widest at apex, slightly serrate; first three antennomeres from base lighter (light yellowish-brown with light setation), antennomeres from fourth to eleventh dark brownish-black with short light and dark setation; antennomeres from fourth with conspicuous sparse and shallow punctures; ratio of relative lengths of antennomeres from base to apex as follows: 0.63: 0.39: 1.00: 1.15: 1.02: 0.99: 1.08: 1.07: 0.99: 0.90: 1.13; ratio L/W (length/greatest width) of antennomeres from base to apex as follows: 1.57: 0.97: 3.00: 3.18: 2.53: 2.54: 2.69: 2.87: 2.54: 2.09: 2.53.

Maxillary palpus (Fig. 10): light brown, lighter than other parts of head; third palpomere slightly triangular, widest at apex; ultimate palpomere broadly triangular, widest on apical side; on inner side slightly rounded; ratio of relative lengths of palpomeres from second to fourth from base to apex as follows: 0.92: 1.00: 1.22; ratio L/W (length/greatest width) of palpomeres from second to fourth from base to apex as follows: 1.62: 1.60: 0.59.

Pronotum (Fig. 11, Plate 5): reddish-brown, slightly transverse, bell-shaped, matt, with long light setation, longest through the middle, 1.42 mm; widest at base, 2.01 mm; pronotal index 70.48; margins complete and conspicuous; pronotum base straight, slightly excised in outer third and against scutellum; posterior angles perpendicular; anterior angles not conspicuous; sides of pronotum from base to basal third parallel, thence to apex evenly rounded; long, light setation in basal part directed backwards, in apical part outwards; surface with dense, coarse and shallow punctuations, pore punctures large and close together, interspaces very narrow; pronotum matt, spaces inside punctures rugulose; scutellum triangular, slightly lighter than elytra, conspicuously punctuate, light setation present.

Underside of thorax brown, with sparse light setation; with shallow and dense punctuations, punctures with granulation, matt.

Elytra: blackish-brown, with long light setation, linear; apical third and sides covered with denser setation, hairs directed backwards; elytral length 4.57 mm; elytra widest near two-thirds of its length, width 2.56 mm; ratio L/W (length/greatest width) 1.78; elytra parallel from base up to two-thirds of their length; surface punctuate, pore-punctures relatively large; interspaces larger than diameter of punctures, slightly rugulose; elytral epipleura somewhat lighter than elytra, well developed; evenly narrowed in basal half, running parallel in apical half, reaching fifth abdominal



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sternite, then narrowed to rounded apex; small sparse punctures present, with long setae as long as elytral hairs; basal half of elytral epipleura with one row of large punctures present; diameter of punctures twice as large as diameter of its interspaces.

Legs: long, strong, entirely yellowish-brown, with short light setation; femora strong, tibiae very narrow; penultimate tarsomeres of each tarsus with membranous lobes, wider than rest of tarsomeres; all tarsi somewhat darker than tibiae and femora; ratio of relative lengths of tarsomeres from base to apex as follows: protarsus 1.00: 1.02: 0.71: 1.18: 2.03; mesotarsus 1.00: 0.47: 0.33: 0.51: 0.84; metatarsus: 1.00: 0.39: 0.29: 0.54; anterior tarsal claws each with 14 teeth.

Ventral side of body: entirely brown, with short sparse light setation; prothorax relatively matt, abdomen and other parts slightly shining; abdomen five-segmented, first to third sternites with a fine elongate impression in the middle; punctures of episternum and metasternum large and deep, punctures of episternum very close, interspaces very narrow; punctures of metasternum not so dense, interspaces broader; abdomen with smaller punctures, slightly shining; mesosternum deeply and transversely impressed, V-shaped.

Aedeagus (Figs 13, 14): apical piece of aedeagus triangular, evenly narrow, strongly narrowed in apical fourth, without a truncate apex; apical piece with an irregular row of lateral dentiform setae; ratio of length of apical piece to basal piece 1: 3.54.

Male (Figs 2, 10, 11, 13, 14, Plates 3, 5): colour brown to dark brown, pronotum and head brown to reddish-brown; anterior tarsal claws each with 14 teeth. Measurements for 27 males: length 7.11 mm approximately (ranging from 6.18 to 7.91 mm); head length 1.13 mm approximately (ranging from 0.92 mm to 1.25 mm); head width 1.17 mm approximately (ranging from 0.98 mm to 1.28 mm); ocular index 19.70 approximately (ranging from 13.80 to 28.60); pronotal length (in middle) 1.35 mm approximately (ranging from 1.17 mm to 1.49 mm); pronotal width at base 1.90 mm approximately (ranging from 1.62 mm to 2.15 mm); pronotal index 70.83 approximately (ranging from 64.22 to 74.60); elytral length 4.59 mm approximately (ranging from 4.00 mm to 5.22 mm); elytra widest near two-thirds of their length, measured from base; at this point elytral width 2.48 mm approximately (ranging from 2.07 mm to 2.88 mm); elytra approximately 1.85 times as long as wide.

Female (Figs 3, 12, Plate 4): more oval, matt, with light, long setation; head and pronotum brown, pronotum more transverse; elytra dark brown; eyes relatively transverse; antennae somewhat shorter but reaching up to half of body length; third antennomere longer than fourth to eleventh antennomeres; ratio of relative lengths of antennomeres from base to apex as follows: 0.53: 0.34: 1.00: 0.89: 0.99: 0.92: 0.93: 1.00: 0.86: 0.88: 0.97; ratio L/W (length/greatest width) of antennomeres from base to apex as follows: 1.61: 1.24: 3.45: 2.59: 2.63: 2.92: 3.36: 2.92: 2.33: 2.30: 2.74; anterior tarsal claws each with 8 teeth; ratio of relative lengths of tarsomeres from base to apex as follows: protarsus 1.00: 0.70: 0.68: 0.87: 1.77; mesotarsus 1.00: 0.49: 0.33: 0.44: 0.97; metatarsus 1.00: 0.33: 0.19: 0.46. Measurements from 5 females: length 7.72 mm approximately (ranging from 7.08 to 8.38 mm); head length 1.12 mm approximately (ranging from 1.03 to 1.34 mm); head width 1.19 mm approximately (ranging from 1.13 to 1.28 mm); ocular index 24.57 approximately (ranging from 20.72 to 27.10); pronotal length (in middle) 1.43 mm approximately (ranging from 1.30 to 1.47 mm); pronotal width at base 2.09 mm approximately (ranging from 1.82 to 2.27 mm); pronotal index 68.61 approximately (ranging from 64.76 to 72.21); elytral length

5.13 mm approximately (ranging from 4.30 to 5.71 mm); elytral width 2.86 mm approximately (ranging from 2.47 to 3.15 mm); elytra approximately 1.79 times as long as wide.

Etyymology: The specific name is derived from the Latin word “major” (larger), reflecting its difference from the next similar species.

Socotralia minor n. sp.

Figs 4, 5, 15-19, Plates 6-8

Holotype: ♂, Yemen, Socotra Island: Firmihin, 12.474°N 54.015°E, 530 m, X.2000, V. Bejček & K. Šťastný, NMPC.
Paratypes: 4 ♂♂, 1 ♀, same data as holotype, 3 ♂♂, 1 ♀ VNPC, 1 ♂ CAUP; 7 ♂♂, 21 ♀♀, Zerik, 25-27.III.2001, V. Bejček & K. Šťastný, 6 ♂♂, 13 ♀♀ CAUP; 1 ♂, 8 ♀♀ VNPC; 1 ♀, Hadiboh, 12.652°N 54.024°E, 11-23.XI.2000, V. Bejček & K. Šťastný, CAUP; 1 ♂, Noged plain Qaareh (waterfall), 57 m, 12°20'10"N 53°37'56"E, 5-6.XII.2003, D. Král (EFKK), VNPC; 3 ♂♂, Dixam plateau, Wadi Esgego, 300 m, 12°28'09"N 54°00'36"E, 2-3.XII.2003, D. Král (EFKK), 2 ♂♂ CAUP, 1 ♂ VNPC; 1 ♂, same data, J. Farkač (EFKK), CAUP; 2 ♂♂ same data, P. Kabátek (EFKK), VNPC; 1 ♂, Hadiboh environs, ca 10-100 m, 12°65'02"N 54°02'04" E, 21.XI-12.XII.2003, P. Kabátek (EFKK), VNPC; 6 ♂♂, Diksam plateau 12°31.401'N 53°57.204'E, 26-27.X.2000, H. Pohl, HLMD-Col-1300-PT1-6; 1 ♂, same data, A. van Harten, HLMD-Col-1300-PT7.

Diagnosis: The new species differs from the similar species *Socotralia brunnea* n. sp. mainly by the first, second and basal half of third antennomeres being light yellowish-brown and by the perpendicular posterior angles of pronotum. The similar species *Socotralia major* n. sp. differs from *Socotralia minor* n. sp. mainly by the third antennomere being completely light yellowish-brown, by the only slightly serrate third to tenth antennomeres of males, and by the abdominal sternites being entirely brown.

Description of holotype (Plates 6, 8): body elongate-oval; length 5.58 mm, 3.05 times as long as wide; widest near two-thirds of elytral length.

Head (Plate 8): relatively small, colour light brown, clypeus lighter; width across eyes approximately two-thirds of length of pronotal base; head length (visible part) 0.94 mm; head slightly transverse, broadest across eyes, width 1.02 mm; ratio (length/greatest width) 0.92; eyes large, dark, transverse, strongly excised; ocular index 14.02; head with relatively sparse but longer light setae, with relatively dense but shallow and coarse punctuation; clypeus devoid of conspicuous punctuation; microsculpture in and outside of punctures very fine and conspicuous; head without shine.

Antennae (Fig. 4): Long, reaching up to two-thirds of body length (length of antennae 3.67 mm); first two antennomeres yellow, basal half of third antennomere light brown, apical part of third antennomere dark brown; antennomeres from fourth to eleventh brownish-black; second antennomere the shortest; third antennomere shorter than following antennomeres (4-11); ratio of relative lengths of antennomeres from base to apex as follows: 0.79: 0.47: 1.00: 1.19: 1.25: 1.20: 1.37: 1.30: 1.30: 1.32: 1.44; ratio L/W (length/greatest width) of antennomeres from base to apex as follows: 1.92: 1.41: 2.05: 2.22: 2.64: 2.66: 2.62: 1.82: 1.98: 2.09: 2.66.

Maxillary palpus (Fig. 15): colour yellow like clypeus; lighter than other parts of head; penultimate and ultimate palpomeres widest at apex; ratio of relative lengths of palpomeres from second to fourth from base to apex as follows: 1.04: 1.00: 1.22; ratio L/W (length/greatest width) of palpomeres from second to fourth from base to apex as follows: 1.96: 1.52: 0.54; ultimate palpomere large, broadly triangular, widest at apex, 2.0 times as wide as long.

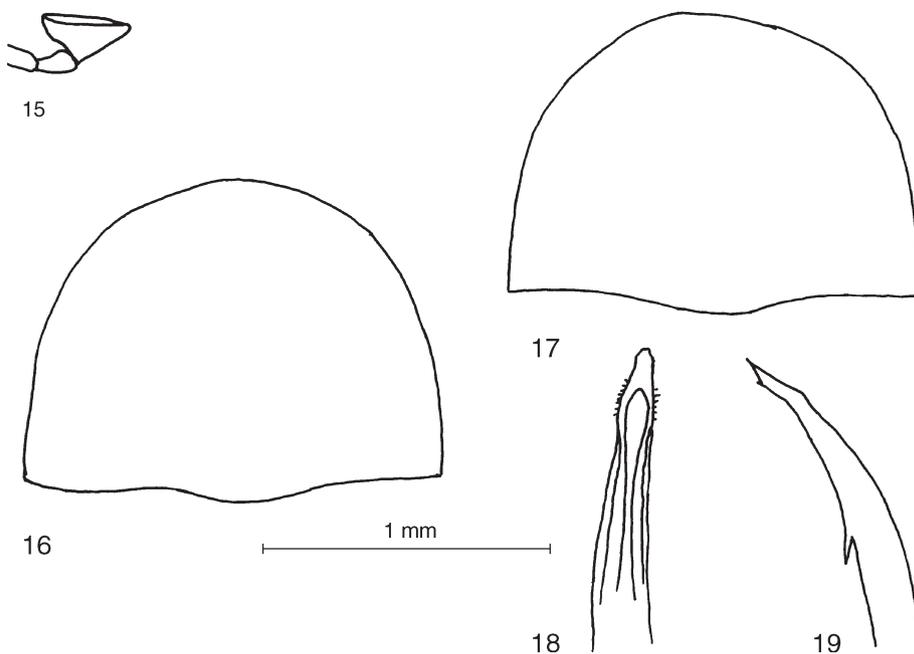
Pronotum (Fig. 16, Plate 8): light reddish-brown, matt, slightly transverse, bell-shaped; length (in middle) 1.07 mm; broadest at base 1.44 mm; pronotal index 74.31; base slightly excised in outer third and against scutellum; with long setation, hairs light, directed backwards, with dense,



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Figs 15-19: *Socotralia minor* sp. n. 15: maxillary palpus of holotype. 16: male pronotum of holotype. 17: female pronotum. 18: aedeagus in ventral view. 19: aedeagus in lateral view.

coarse and shallow punctuation; pore-punctures large, shallow and close together, interspaces very narrow; posterior angles perpendicular, with a rounded tip; margin complete; pronotal sides parallel from base to apex; in apical half evenly rounded to apex; anterior angles not conspicuous.

Underside of thorax brown with light setation, with shallow and dense punctuation, large punctures with granulation, matt. Interspaces very narrow.

Elytra: dark blackish-brown, scutellum and base of elytra slightly lighter with long light setation; setation denser near sides and from two-thirds of its length to apex, hairs lying straight from base to apex; elytral length 3.48 mm; widest near two-thirds of its length, measured from base; at this point elytral width 1.83 mm; elytra 1.90 times as long as wide; straight linear from base to two-thirds its length; surface punctuate, pore-punctures relatively large, but smaller than those on pronotum; interspaces between punctures wider than diameter of punctures, slightly rugulose; elytral epipleura well developed from base to rounded apex, reaching fifth abdominal sternite; epipleura in basal half evenly narrowed; running parallel in apical half from first abdominal sternite and narrowed to rounded apex; with small sparse punctures with long light setae as long as hairs of elytra; at basal half of elytral epipleura with one row of large punctures (interspaces with same diameter as the large punctures) and small, sparse punctures with long, light setae present; scutellum not conspicuously punctuate, large-triangular.

Legs: long, entirely yellow, entire legs covered with shorter light setation; ratio of relative lengths of tarsomeres from base to apex as follows: protarsus 1.00: 0.80: 0.52: 0.92: 1.56; mesotarsus 1.00: 0.59: 0.44: 0.54: 1.09; metatarsus 1.00: 0.39: 0.31: 0.54; penultimate tarsomeres of each tarsus with membranous lobes; anterior tarsal claws each with 14 teeth; tibiae very narrow, narrowest at base, widest at apex; as wide as broadest tarsal width; protarsus and mesotarsus broader than metatarsus; femora stronger, three times as wide as tibiae.

Ventral side of body: colour light brown, abdomen with five visible sternites, last two lighter; prothorax more matt, other parts slightly shining; episternal and metasternal punctures large, deep; episternal punctures very close, interspaces very narrow; punctures of metasternum not so dense, diameter of interspaces broader than diameter of punctures; mesosternum deeply transversely impressed, V-shaped.

Aedeagus (Figs 18, 19): apical piece of aedeagus triangular, sides almost straight, slightly narrowing from base to apex, at apex narrow and directly truncated; apical piece with an irregular row of lateral dentiform setae; ratio of length of apical piece to basal piece 1: 4.15.

Male (Figs 4, 15, 16, 18, 19, Plates 6, 8): anterior tarsal claws both with 13-14 teeth; measurements for 27 males: length 5.12 mm approximately (ranging from 4.47 to 5.80 mm); head length 0.86 mm approximately (ranging from 0.68 mm to 0.96 mm); head width 0.92 mm approximately (ranging from 0.84 mm to 1.02 mm); ratio L/W (length/greatest width) 0.94 approximately (ranging from 0.76 to 1.08); ocular index 17.69 approximately (ranging from 11.23 to 26.66); pronotal length (in middle) 1.02 mm approximately (ranging from 0.82 mm to 1.15 mm); pronotal width at base 1.36 mm approximately (ranging from 1.15 mm to 1.53 mm); pronotal index 75.24 approximately (ranging from 65.60 to 81.82); elytral length 3.30 mm approximately (ranging from 2.79 mm to 3.83 mm); elytral width 1.81 mm approximately (ranging from 1.51 mm to 2.16 mm); elytra approximately 1.82 times as long as wide; body approximately 2.72 times as long as wide.

Female (Figs 5, 17, Plate 7); more oval, with denser setation; body colour brown to dark brown, head and pronotum lighter; anterior tarsal claws each with 7-8 teeth; eyes smaller, transverse; pronotum brown, more transverse; antennae shorter, reaching only up to half of body length, fourth to eleventh antennomeres shorter than third antennomere; antennae slightly serrated from antennomere fourth to tenth; antennomere eleventh more oval; ratio of relative lengths of antennomeres from base to apex as follows: 0.69: 0.60: 1.00: 0.93: 0.85: 0.87: 0.95: 0.96: 0.91: 0.87: 1.00; ratio L/W (length/greatest width) of antennomeres from base to apex as follows: 1.70: 2.25: 2.93: 2.36: 1.95: 1.91: 1.85: 1.83: 1.80: 1.60: 1.77; ratio of relative lengths of tarsomeres from base to apex as follows: protarsus 1.00: 0.69: 0.62: 0.87: 1.60; mesotarsus 1.00: 0.51: 0.55: 0.69: 1.20; metatarsus 1.00: 0.34: 0.32: 0.62; measurements for 23 females: length 4.94 mm approximately (ranging from 4.59 to 5.69 mm); head length 0.93 mm approximately (ranging from 0.71 to 1.06); head width 0.93 mm approximately (ranging from 0.86 mm to 0.97 mm); ocular index 17.58 approximately (ranging from 10.70 to 24.37); pronotal length (in middle) 1.02 mm approximately (ranging from 0.91 mm to 1.13 mm); pronotal width at base: 1.47 mm approximately (ranging from 1.29 mm to 1.62 mm); pronotal index 69.65 approximately (ranging from 64.14 to 78.76); elytral length 3.10 mm approximately (ranging from 2.80 mm to 3.50 mm); elytral width 1.92 mm approximately (ranging from 1.70 mm to 2.16 mm); elytra approximately 1.61 times as long as wide; body approximately 2.57 times as long as wide.

Etymology: The specific name is derived from the Latin word “minor” (smaller), reflecting the smaller size as compared to the previous species.

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REFERENCES

- BORCHMANN, F. 1910. Pars 3 - Alleculidae. In: *Coleopterorum Catalogus*. Junk, W. & Schenkling, S. (eds.): 1-80.
- BORCHMANN, F. 1937. Neue Alleculiden aus dem Deutschen Entomologischen Institut, Berlin-Dahlem. *Arbeiten über morphologische und taxonomische Entomologie aus Berlin-Dahlem* 4 (3): 210-231.
- BORCHMANN, F. 1953. Neue Formen von Lagriidae und Alleculidae aus Ostafrika. *Atti del Museo Civico di Storia Naturale di Trieste* 19 (2): 87-90.
- CAMPBELL, J.M. 1965. A revision of the genus *Charisius* (Coleoptera: Alleculidae). *The Coleopterist's Bulletin* 19: 43-56.
- CAMPBELL, J.M. 1980. Insects of Saudi Arabia. Coleoptera: Fam. Alleculidae. *Fauna of Saudi Arabia* 2: 133-136.
- CAMPBELL, J.M. & MARSHALL J.D. 1964. The ocular index and its application to the taxonomy of the Alleculidae (Coleoptera). *The Coleopterist's Bulletin* 18: 42.
- FABRICIUS, J.C. 1801. *Systema Eleutheratorum. Secundum. Ordines, Genera, Species: adiectis Synonymis, Locis, Observationibus, Descriptionibus*. Tomus II. Pp. 3-687.
- FÄHREUS, O.I. 1870. Coleoptera Caffrariae, annis 1838-1845 J.A. Wahlberg collecta. Heteromera descripsit. *Öfversigt af Kungl. Vetenskaps-Akademiens Förhandlingar* 4: 243-358.
- LAPORTE, F.L.N. DE [Comte de Castelnau] 1840. *Histoire naturelle de insectes Coléoptères; avec une introduction renfermant l'anatomie et la physiologie des animaux articulés, par M. Brullé* 2: 63 + [1] pp., pls. 20-37. Paris: P. Duménil.
- MADER, L. 1924. Alleculidae. In: *Catalogus Coleopterorum regionis palaearticae*. A. Winkler (ed.): 901-913.
- MUCHE, W.H. 1982. Insects of Saudi Arabia. Coleoptera: Fam. Alleculidae. *Fauna of Saudi Arabia* 4: 116-123.
- MULSANT, E. 1856. *Histoire naturelle des Coléoptères de France. Pectinipèdes*. 96 pp. Paris: L. Maisson.
- PIC, M. 1910. Sur divers Alleculides d'Afrique. *Annales de la Société Entomologique de Belgique* 54: 196-198.
- PIC, M. 1923. Notes diverses, descriptions et diagnoses. *L'Échange, Revue Linnéenne* 39: 9-11.
- PIC, M. 1924. Notes diverses, descriptions et diagnoses. *L'Échange, Revue Linnéenne* 39: 30-32.
- PIC, M. 1925 a. Nouveautés diverses. *Mélanges exotico-entomologiques* 43: 1-32.
- PIC, M. 1925 b. Coléoptères nouveaux. *Bulletin de la Société royale entomologique d'Égypte* 1925: 227-231.
- PIC, M. 1935. Nouveautés diverses. *Mélanges exotico-entomologiques* 65: 1-36.
- PIC, M. 1939. Mission Scientifique de l'Omo. Tome V. – Fascicule 48. Coleoptera XVIII. Rhyopaussidae, Pedilidae, Hylophilidae, Anthicidae, Scaptiidae, Mordellidae, Oedemeridae, Alleculidae. *Mémoires du Muséum National d'Histoire Naturelle, nouvelle série* 9: 153-170.
- PIC, M. 1953. Nouveaux coléoptères africains. *Atti del Museo Civico di Storia Naturale di Trieste* 19 (2): 93-109.
- SEIDLITZ, G.C.M. VON 1891. *Fauna Transylvanica. Die Käfer (Coleoptera) Siebenbürgens*. lvi + 192 + 914 pp. + 1 pl. Königsberg, Hartung.
- SEIDLITZ, G.C.M. VON 1896. Alleculidae. In: *Naturgeschichte der Insecten Deutschlands* 5(2). Erichson, W.F. et al. (eds.): 1-305.
- SOLIER, M. 1835. Prodrome de la famille des Xystropides. *Annales de la Société entomologique de France* 4: 229-248.

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