Acta Biol. Univ. Daugavp. 9 (1) 2009
ISSN 1407 - 8953

NEW LEAF-BEETLE SPECIES OF *ACOLASTUS* GERSTAECKER, 1855 (COLEOPTERA: CHRYSOMELIDAE: CRYPTOCEPHALINAE) FROM IRAN AND NOTES ON CLOSE SPECIES

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Romantsov P., Bukejs A. 2009. New leaf-beetle species of *Acolastus* Gerstaecker, 1855 (Coleoptera: Chrysomelidae: Cryptocephalinae) from Iran and notes on close species. *Acta Biol. Univ. Daugavp., 9(1): 89 - 96.*

A new species of *Acolastus* Gerstaecker, 1855 is described, *A. klimenkoi* sp. nov. from Iran. The new species belongs to the subgenus *Anopsilus* Jacobson, 1917. The habitus and male genitalia are illustrated. Lectotype is designated for *Thelyterotarsus zarudnyi* Jacobson, 1917. A key to Iranian species of subgenus *Anopsilus* Jacobson, 1917 is given.

Key words: Coleoptera, Chrysomelidae, Cryptocephalinae, *Acolastus*, new species, *A. zarudnyi*, Iran, key.

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INTRODUCTION

The genus *Acolastus* Gerstaecker, 1855 (= *Thelyterotarus* Weise, 1882; *Falsopachybrachys* Pic, 1947; *Pachylanka* Medvedev, 1989; *Serrinotus* Tan, 1992) comprises more than 120 species (Schöller 2000, 2007; Romantsov 2003; Lopatin, Nesterova 2007; Schöller, Warchałowski 2009).

This genus is distributed in Palaearctic, Oriental and Afrotropical regions. The geographical distribution comprises the old world subtropics and tropics, including the Afrotropical Region from the cape, all over southern Africa except the Kalahari desert, in Eastern and Central Africa, except for the humid tropics around the equator, to the horn of Africa in the east and Mauretania in the west. Within the Sahara desert, there is a record from the Tibesti-mountains. In the Palaearctic Subregion, the distribution ranges from the Mediterranean-Saharian transition zone via the Near East, the Arabian peninsula, the upper course of the Euphrat river, the Caspian Sea and Kazakhstan to Mongolia in the north. In the south, disjunctive groups of species inhabit Southern India and Sri Lanka, Yunnan and Sichuan (Schöller 2000).

From Iran, 14 species of *Acolastus* were reported until now (Schöller 2000; Schöller, Warchałowski 2009). Some *Acolastus* species are endemics of Iran and known only from type material. *Acolastus klimenkoi* sp. nov. from Iran is being

described in the current publication. The new species belongs to the subgenus *Anopsilus* Jacobson, 1917.

MATERIALS AND METHODS

Examined specimens located in the following collections: ZIN – Zoological Institute, St. Petersburg, Russia; PRPC – Pavel Romantsov personal Collection, St. Pertsburg, Russia; DUBC – Institute of Systematic Biology, Daugavpils University, Daugavpils, Latvia.

Measurements were made using an ocular micrometer.

RESULTS

***Acolastus klimenkoi* sp. nov.**
(Figs. 1, 3)

Type material
Holotype (Male, PRPC): "E Iran, Khorasan prov., 65 km SW Khusf, Obi-Garm, 32°33´ N, 58° 28´ E, h~1100m, 29.04.2004 A Klimenko leg.", "Holotypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009".
9 Paratypes:
(3 males, PRPC) "E Iran, Khorasan prov., 65 km SW Khusf, Obi-Garm, 32Ś33´ N, 58Ś 28´ E, h~1100m, 29.04.2004 A Klimenko leg.", "Paratypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009";
(1 male, PRPC) "S Iran, Fars prov., Shiraz area, Karameh env. 2.06.2008 A Klimenko leg.", "Paratypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009";
(1 male, DUBC) "IRAN Fars prov. 10 km SW Kharameh 31.5.2008 Anichtchenko A. leg.", "Paratypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009";
(1 male and 1 female, ZIN) [dark gold paper circle], "Керман: стр. Бампур. 27. IV 01. Н. Зарудный." [label translation in English – Kerman: Bampur 27.IV.01. N.Zarudnyj], " Th. zarudnyi sp. n., typ, Jacobs. G. Jacobson det.", "Paratypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009";
(3 females) [dark gold paper circle], "Керман: стр. Бампур. 25. IV 01. Н. Зарудный." [label translation in English – Kerman: Bampur 25.IV.01. N.Zarudnyj], "Th. zarudnyi sp. n., typ , Jacobs. G. Jacobson det.", "Paratypus *Acolastus klimenkoi* sp. nov. Romantsov et Bukejs det. 2009".

Description (based on holotype):
Habitus. Body cylindrical, moderately shining (Fig. 1A). Body length 3.8 mm, length of pronotum 1.0 mm, width of pronotum 1.6 mm, length of elytra 2.6 mm, width of elytra at humeri 1.8 mm.

Coloration. Upper side yellow with blurred brown pattern on pronotum and elytra. Head yellow with vertex, genae and apices of mandibles dark-brown; triangular spot on frons, blurred spots near bases of antennae and base of clypeus brown. Antennae yellow, 8-11th weakly darkened. Pronotum yellow with 5 blurred brown spots partly fused and forming M-shaped pattern. Elytra yellow, each elytron with 6 blurred brown and dark brown spots: 2 near base (one of them more distinct on humeral callus), 2 spots partly fused into transverse band on disc, and 2 small spots at apex (one of them greater near suture). Basal margin of elytra pale, teeth of basal margin with slightly darkned tip. Suture and scutellar area extensively darkned, brown. Scutellum dark brown with apex pale. Legs light brown with apices of femora light yellow, last 2 tarsal segments slightly darkned, and claws apices black. Ventral surface and pygidium brown, anterior side of anal sternit and apex of pygidium ligth yellow. Punctures dark.

Head shining, covered with recumbent white setae; frons strongly and densely punctuated, clypeus with separate punctures, punctures on vertex more smaller and dense. Eyes large, very convex, inner margin feebly emarginated; interocular space narrower than width of upper half of eye. Labrum with feebly and broadly emarginated anterior margin. Antennae filiform, long, their length is almost 2/3 lengths of body; 1st antennal segment 1.75 times longer than 2nd,

thick; 2nd antennal segment short, almost globe-shaped; 3rd cylindrical, 1.5 times longer than 2nd; 4th long, feebly dilated at apex, approximately 2.25 times longer than 2nd and 1.7 times longer than 3rd; 5-10th dilated at apex, 2.25 times longer than 2nd; 11th of irregular shape, approximately as long as 4th.

Pronotum shining; covered with sparse barely perceptible white erect setae (clearly visible in lateral view). Punctures of pronotum irregular, coarse and dense; some interstices elevated and shining. Lateral margins smooth (without indentations), simultaneously visible from above; basal margin pubescent with white erect setae. In dorsal view, pronotum slightly narrowing towards anterior margin. Maximal width of pronotum in middle.

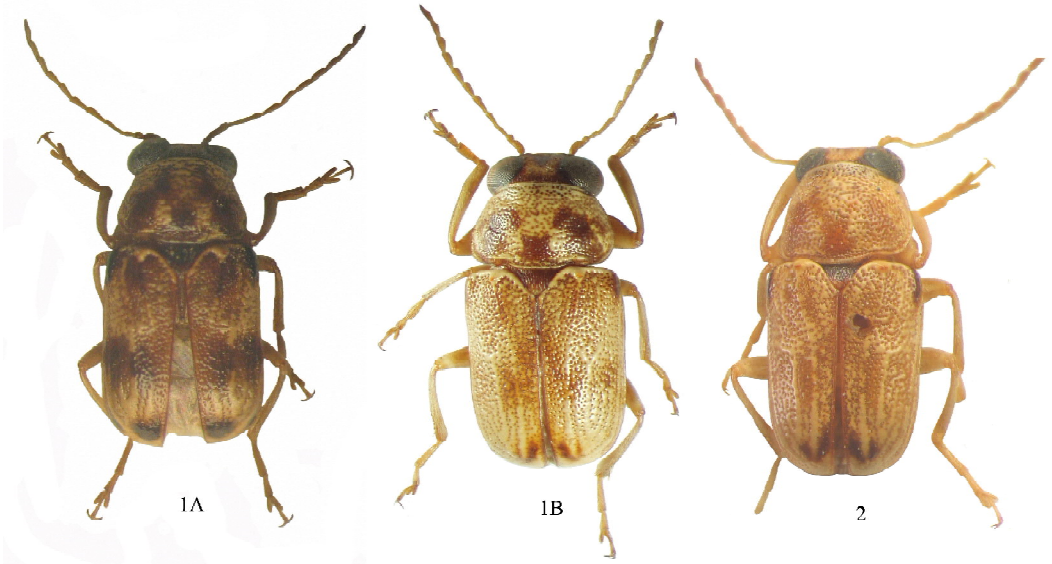
Scutellum triangular, with broadly rounded apex; punctures moderately coarse and dense at base and very sparse at apex; covered with dense recumbent white setae.

Elytra truncate, shining, covered with sparse barely perceptible white erect setae (clearly visible in lateral view). Punctures confused, coarse and dense at base and on disc; in the apical half and laterally punctures moderately sparse and form irregular abbreviated striae; extreme apex of elytra without punctures. Interstices as wide as diameter of punctures, more or less elevated and form three abbreviated longitudinal carinae on each elytron (1st begun from basal denticle, 2nd begun from inner part of humeral callus and 3rd begun from outer part of humeral callus, their apical parts reached down to immpuctuated area on the apex of elytra). Humeral calli distinct. Basal margin of elytra swollen, with 2 large elevated denticles; lateral margins not simultaneously visible from above. Epipleura narrow, with sparse white setae under shoulders.

Pro-, meso- and metasternum, abdomen and pygidium distinctly and densely punctuate; densely covered with recumbent white setae. Pygidium broadly and regularly rounded.

Legs covered with white semierect setae; claws simple. Fore tarsi simple, not wider than mid- and hind tarsi; first protarsomer not wide.

Aedeagus (Figs. 3, 15). Lamella, i. e. ventral prolongation of aedeagus elongate, narrow (narrower than base), feebly constricted in the middle; apex angularly-rounded with wide



Figs. 1–2. Habitus, dorsal: 1 – *Acolastus klimenkoi* Romantsov et Bukejs sp. nov.: 1A – holotype, 1B – paratype (prov. Fars), 2 – *A. zarudnyi* (Jacobson, 1917), lectotype.

obtusangular central denticle and with feebly isolated lateral denticles. Ventral side of aedeagus in apical half with convex wide carina. Apex of aedeagus strongly curved in lateral view.

Variability
Body length: male 3.6–4.0 mm, female 4.9–5.7 mm. Differences in proportions of body and shape of aedeagus from holotype is not revealed. Specimens from province Khorasan on coloration are similar to holotype. In specimens from province Fars dark pattern on elytra is more feebly developed: one specimen have brown spot on humerus, brown scutellar area and suture, and brown marking on apex near suture; another specimen have brown spot on humerus, brown scutellar area and suture, 2 blurred brown spots on disc, and small longitudinal brown spot on apex near suture (Fig. 1B). Females are larger, with more developed dark pattern of upper side.

Diagnosis
In subgenus *Anopsilus*, the new described species belong to species-group with large, close together above eyes and narrow frons; also this group includes *A. glabratus* (Lopatin, 1985), *A. arabicus* (Lopatin, 1982), *A. ophthalmicus* (Lopatin, 1997), *A. lugubris* (Berti & Rapilly, 1973), *A. zarudnii* (Jacobson, 1917). From another species of the same species-group, *Acolastus arabicus* (Lopatin, 1982) known from Oman, Saudi Arabia and the UAE but not specifically mentioned from Iran, new species differs in strongly curved aedeagus and almost bare elytra; in *A. arabicus* elytra covered with distinct, moderately long setae and aedeagus almost stright in lateral view (Fig. 13). New species is slightly similar in shape of aedeagus to *Acolastus* (*Anopsilus*) *latifrons* Lopatin & Nesterova, 2007, described from UAE, but it has a wide frons (Figs. 4, 14) and belong to other species-group. From Iranian representatives of subgenus *Anopsilus* new species can be distinguished by the following key.

Etymology
The species is dedicated to A. A. Klimenko.

Distribution
Iran, provinces Fars, Khorasan and Kerman.

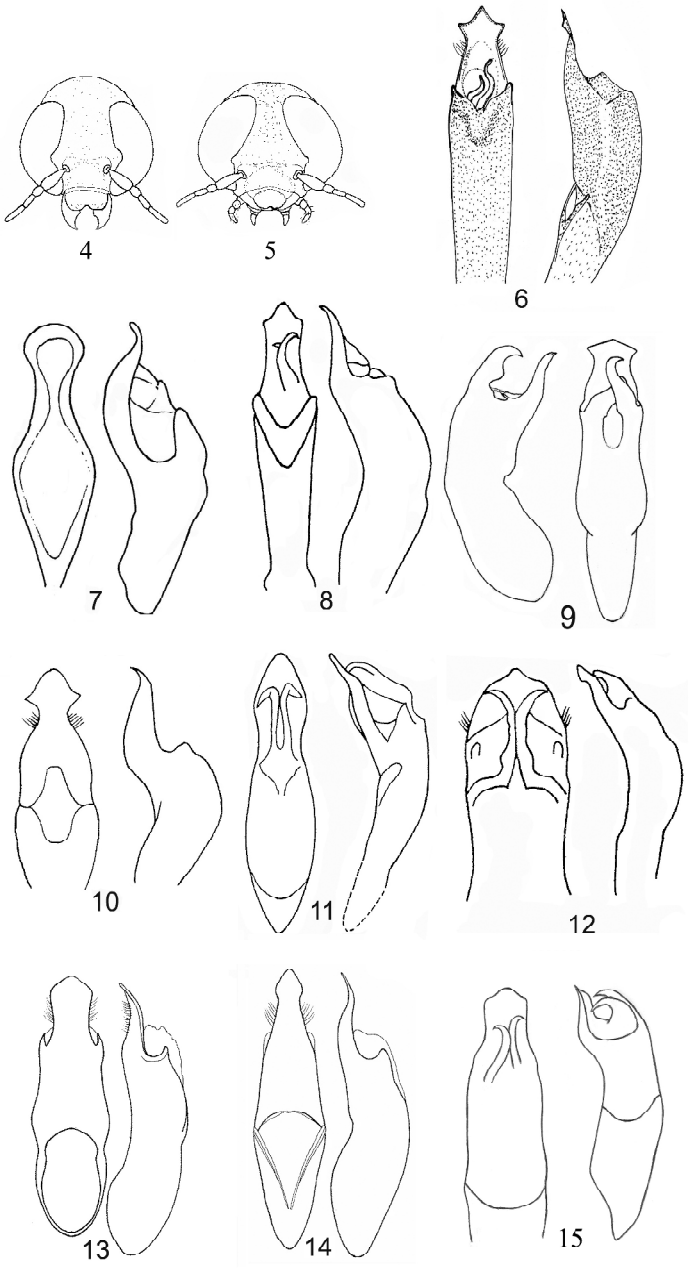
Fig. 3. *Acolastus klimenkoi* Romantsov et Bukejs sp. nov.: aedeagus, dorsal and lateral.

Lectotype designations

***Acolastus zarudnyi* (Jacobson, 1917)**
Thelyterotarsus zarudnyi Jacobson, 1917: 268 (Fig. 2)

In the original description of this species by Jacobson (1917) had been listed following specimens which should be considered as a type series (syntypes): "Persia: Kerman: Sargar 19.VIII.1898, 28.IV.1901, 1.V.1901, Bagu 27.II.1901, Ge 28–30.III.1901, Bampur 25–27.IV.1901, N. Zarudnyj leg., 8 males, 6 females".

In ZIN collection, eight specimens (4 males and 4 females) of this this type series with labels specified in original description are found: 1female from Sargar, 4 females and 1 male from Bampur, 1 male from Ge, 1 male from Bagu. The type series was studed by authors. In one male from Bampur shape of aedeagus is identical with *Acolastus*



Figs. 4–15. 4–5 head: 4 – *Acolastus latifrons* Lopatin & Nesterova, 2007, 5 – *A. arabicus* (Lopatin, 1982) (after Lopatin & Nesterova 2007); 6–15 aedeagus, dorsal and lateral: 6 – *Acolastus zarudnyi* (Jacobson, 1917) (after Lopatin 1982), 7 – *A. ophthalmicus* (Lopatin, 1997) (after Lopatin 1997), 8 – *A. glabratus* (Lopatin, 1980) (after Lopatin 1985), 9 – *A. lugubris* (Berti & Rapilly, 1973) (after Berti, Rapilly 1973), 10 – *A. pici* (Lopatin, 1985) (after Lopatin 1985), 11 – *A. iranicus* (Lopatin, 1980) (after Lopatin 1980), 12 – *A. jelineki* (Lopatin, 1985) (after Lopatin 1985), 13 – *A. arabicus* (Lopatin, 1982) (after Lopatin & Nesterova 2007), 14 – *A. latifrons* Lopatin and Nesterova, 2007 (after Lopatin & Nesterova 2007), 15 – *A. klimenkoi* Romantsov et Bukejs sp. nov.

klimenkoi Romantsov et Bukejs sp. nov. Therefore this specimen and 4 females from Bampur (they have coloration similar to male and identical labels) are included in the type series of *Acolastus klimenkoi* Romantsov et Bukejs sp. nov. as paratypes.

For *Thelyterotarsus zarudnyi* Jacobson, 1917 the lectotype is designated – a male from the collection ZIN with labels [dark gold paper circle], "Керман: стр. Багу. 27. II. 01. Н. Зарудный." [label translation in English – Kerman: Bagu. 27.II.01. N. Zarudnyj], "*Th. zarudnyi* sp. n., typ B&, Jacobs. G. Jacobson det.", "Lectotypus *Thelyterotarsus zarudnyi* Jacobson, 1917, P. Romantsov & A. Bukejs design. 2009". A lectotype was designated here in order to ensure the name's proper and consistent application.

Other two syntypes are designated as paralectotypes:
1 male (ZIN) with labels [dark gold paper circle], "Керман: стр. Ге. 29–30. III. 01.Н. Зарудный." [label translation in English – Kerman: Ge. 29-30.III.01. N. Zarudnyj], "*Th. zarudnyi* sp. n., typ, Jacobs. G. Jacobson det.", "Paralectotypus *Thelyterotarsus zarudnyi* Jacobson, 1917, P. Romantsov & A. Bukejs design. 2009";

1 female (ZIN) with labels [dark gold paper circle], "Керман: стр. Саргар. 28. IV 01. Н. Зарудный." [label translation in English – Kerman: Sargar. 28.IV.01. N. Zarudnyj], "*Th. zarudnyi* sp. n., typ, Jacobs. G. Jacobson det.", "Paralectotypus *Thelyterotarsus zarudnyi* Jacobson, 1917, P. Romantsov & A. Bukejs design. 2009".

Remark: in female from Sargar body coloration is very similar to females from Bampur (they are included in the type series of *Acolastus klimenkoi* Romantsov et Bukejs sp. nov.) but precise determination of species is possible only by male aedeagus, therefore this female specimen is left as *zarudnyi*.

A key to Iranian species of subgenus *Anopsilus* Jacobson, 1917.

1(10) Frons narrow, eyes large and very convex (Fig. 5).

2(7) Aedeagus feebly curved in lateral view (Figs. 6–8).

3(4) Apex of aedeagus crown-shaped with sharp apical and two lateral denticles, lateral denticles well delimited (Fig. 6). Coloration of upper side: in male light brown, with brown or dark brown pattern on pronotum and elytra; in female dark pattern stronger developed, more contrast on pronotum and with three dark brown transverse bands on each elytron. Length: male 3.3–4.0 mm, female 3.8–5.8 mm. SW and S Iran, Afghanistan ..... ***Acolastus zarudnyi* (Jacobson, 1917)**

4(3) Apex of aedeagus not crown-shaped with obtuse tip and with two small, feebly delimited lateral denticles (Fig. 8) or completely broadly rounded (Fig. 7).

5(6) Apex of aedeagus completely rounded, without denticles (Fig. 7); aedeagus with strong and large constriction before apex. Pronotum covered with long recumbent setae. Coloration of upper side rufous with black narrow strip in posterior part of frons and scutellum. Length 3.0 mm. Known from one male only. S Iran (prov. Fars)..... ***Acolastus ophthalmicus* (Lopatin, 1997)**

6(5) Apex of aedeagus angulate-rounded and with small, slightly delimited lateral denticles (Fig. 8); aedeagus without strong constriction before apex. Coloration of upper side light brown with or without dark brown pattern on pronotum and elytra. Length 3.0–5.3 mm. Iran (Zagros Mts.), Turkey..... ***Acolastus glabratus* (Lopatin, 1980)**

7(2) Aedeagus strongly curved in lateral view (Figs. 3, 9, 15).

8(9) Apex of aedeagus broad, as wide as base; lateral denticles pointy, prominent, large and well delimited (Fig. 9). Upper side dark brown, with labrum and small spots on elytra yellow. Length 2.6–3.3mm. Iran .....…… ***Acolastus lugubris*** **(Berti & Rapilly, 1973)**

9(8) Apex of aedeagus narrow, narrower than base; lateral denticles obtuse, not prominent, feebly delimited (Figs. 3, 15). Upper side yellow: pronotum with 5 blurred brown spots, forming M-shaped pattern; each elytron with 6 blurred brown or dark brown spots (sometime spots indistinct or partly fused). Length 3.6–5.0 mm. Iran (provinces Khorasan and Fars) .....… ***Acolastus klimenkoi*** **Romantsov et Bukejs, sp. nov.**

10(1) Frons broad, eyes smaller and moderately convex (Fig. 4).

11(12) Apex of aedeagus strongly constricted before apex, lateral denticles sharp, large and prominent (Fig. 10). Elytra black with two transverse yellow band. Ventral side, head (except for labrum), pronotum, scutellum and femora black. Length 3.3 mm. Known from holotype (male) only. NE Iran (Soltanabad) .....…… ……..... ***Acolastus pici*** **(Lopatin, 1985)**

12(11) Apex of aedeagus without lateral denticles (Figs. 11, 12). Elytra completely yellow or yellow with small humeral spot and punctures black.

13(14) Head black with labrum, clypeus and two small spots on posterior part of frons yellowish-rufous; pronotum dark brown with rufous margins; elytra yellow with small humeral spot and punctures black. Aedeagus narrowed in the middle, apex triangular with rounded corners (Fig. 11). Length 3.3–3.4 mm. SE Iran (prov. Baluchestan), Turkey …….....…….…. …..…. ***Acolastus iranicus*** **(Lopatin, 1980)**

14 (13) Upper side yellow, pronotum with 3 blurred brownish spots, scutelum black, elytra without dark pattern. Aedeagus without narrowing behind middle, apex widely rounded with small denticle (Fig. 12). Length 2.8 mm. Known from one male only. NE Iran (Sabzevar) ……..... **.....*Acolastus jelineki*** **(Lopatin, 1985)**

ACKNOWLEDGEMENTS

The authors are grateful to A. A. Klimenko (St. Petersburg, Russia) and A. V. Anichtchenko (Daugavpils, Latvia) for presented material, to G. S. Medvedev and B. A. Korotyaev (ZIN, St. Petersburg, Russia) for the opportunity to study material in their care, to I. K. Lopatin (Minsk, Byelarus) for his valuable comments, and to A. Warchałowski (Wrocław, Poland) for constructive advice.

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Received: 02.01.2009.
Accepted: 15.05.2009.