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**A new genus and a new species of the subtribe Anisodactylina
from Vietnam and remarks on the taxonomic
position of *Hiekea picipes* N. ITO 1997
(Coleoptera: Carabidae: Harpalini)**

B.M. KATAEV & D.W. WRASE

Abstract: *Pseudorhysopus kabakovi* gen. novum, spec. nova, is described from northern Vietnam. The taxonomic position of the new genus within the subtribe Anisodactylina is discussed. A key to the East Asian and Oriental genera of Anisodactylina is provided. The following new synonyms are established: *Pseudognathaphanus* SCHAUBERGER 1932 = *Hiekea* N. ITO 1997, syn. novum; *Pseudognathaphanus dekkanus* ANDREWES 1933 = *Hiekea picipes* N. ITO 1997, syn. novum.

Key words: Coleoptera, Carabidae, Harpalini, Anisodactylina, *Pseudorhysopus*, *Hiekea*, *Pseudognathaphanus*, Vietnam, new genus, new species, new synonyms.

Introduction

The subtribe Anisodactylina is well defined by a combination of two morphological characters: penultimate segment of labial palpi plurisetose at anterior margin and ventral surface of male protarsi with spongy vestiture. The subtribe includes more than 40 valid genera and subgenera with approximately 340 species distributed in all major faunal regions. The supraspecific taxa of Anisodactylina were revised on a worldwide basis by NOONAN (1973, 1976). He provided also an analysis of the geographical distribution of all included taxa and reconstructed their phylogeny. His contributions are a very important foundation for further studies of this group.

The rich and diverse fauna of Anisodactylina of Southeast Asia has not been adequately investigated and a number of taxa are still undescribed. In the present paper, we describe a new monotypic genus for a new species which was found in northern Vietnam in the last few decades.

Material and methods

The following abbreviations were used herein for identification of deposition of the type material:

MCSN..... Museo Civico di Storia Naturale, Milano, Italy (M. Pavesi)

MNHUB	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (M. Uhlig, B. Jaeger)
ZISP	Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia
cKAB	Coll. O. N. Kabakov, St. Petersburg, Russia

Measurements were taken as follows: body length from anterior margin of clypeus to elytral apex; width of head as maximum linear distance across head, including compound eyes, and as minimum linear distance across neck constriction just behind eyes; length of pronotum along its median line; length of elytra from basal ridge in scutellar region to apex of sutural angle; width of pronotum and elytra at their broadest point.

Results

Pseudorhysopus gen. novum

Type species: *Pseudorhysopus kabakovi* spec. nova

D i a g n o s i s : Dorsum glabrous. Head with wide genae and deep fronto-clypeal suture continued postero-laterally into clypeo-ocular prolongation; latter reaching supraorbital furrow, deep at clypeus and shallow at inner margin of eye. Mentum completely fused with submentum, lacking median tooth and with a pair of medial setae. Ligula comparatively narrow, only slightly expanded apically, without dorsal setae. Pronotum with one lateral seta on each side. Elytra with only one discal pore on 3rd interval and with external intervals covered with nonsetigerous punctures. Apical spur of protibia trifold. First metatarsomere rather slender.

D e s c r i p t i o n : Body medium sized, glabrous on dorsal side and slightly iridescent on elytra.

Head large, impunctate, with comparatively small and moderately convex eyes broadly separated from buccal fissure ventrally and with genae notably wider than width of first antennomere (Fig. 1, 2). Fronto-clypeal suture deep, continued postero-laterally toward eyes as clypeo-ocular prolongation; latter deep at clypeus and shallow at inner margin of eyes. Clypeus with one setigerous pore on each side, arcuately emarginate anteriorly, with labral base slightly exposed. Labral apex rather deeply emarginate medially. Mandibles stout, left sharply truncate at apex (Fig. 3). Labium (Fig. 9) with mentum and submentum completely fused. Mentum lacking median tooth, with a pair of median setae. Submentum with two lateral setae on each side. Ligular sclerite comparatively narrow, slightly widened at apex, with two ventroapical setae. Dorsoapical setae absent. Paraglossae glabrous, narrow, scarcely extended beyond ligular sclerite and separated distally from it by deep notch. Penultimate labial palpomere approximately as long as terminal, with several (5-7) setae at anterior margin. Antennae slender, pubescent from apical half of 3rd segment.

Pronotum roundly narrowed basad, with one lateral seta on each side and with obtuse basal angles. Apical and basal beads usually obsolete medially. Basal pronotal edge glabrous. Surface, except for central portion, punctate.

Elytra oval, rather broad, with rounded humeral angles and deep subapical situation.

Striae deep, impunctate. Ninth stria apically separated from lateral furrow by distinct short convexity. Seventh stria with ocellate pore-puncture before apex. Scutellar stria long, with a basal pore. Intervals convex, inner ones smooth, external ones densely punctate. Third interval with one discal pore behind middle; 5th and 7th intervals without pores. Marginal series either with narrow gap medially or more or less continuous. Wings fully developed.

Ventral surface of body, except for standard fixed setae and very fine pubescence on pro-, metasternum and median part of third abdominal sternum, glabrous. Anal sternum in both sexes with two pairs of setigerous pores along apical margin, apex in male slightly concave, in female rounded. Apex of anal tergum in both sexes rounded.

Protibia with two or three apical spines at outer margin and one spine at apex of very small ventroapical tubercle; apical spur strongly dentate laterally at base, trifid (Fig. 4). Metafemur with two setigerous pores at hind margin. Tarsi dorsally impunctate and glabrous; 5th segment with usually three, sometimes four, pairs of latero-ventral setae. Metatarsus as long as width of head measured at neck constriction; 1st metatarsomere slender, approximately as long as 2nd and 3rd together and four times as long as its apical width. Pro- and mesotarsi of male moderately dilated and carrying spongy adhesive vestiture underneath; 1st mesotarsomere with adhesive vestiture only apically.

Median lobe of aedeagus (Figs. 6, 7) with apical orifice in dorsal position and with small oblique terminal capitulum.

Hemisternite of female genitalia (Figs. 10, 11) with two short spines latero-apically. Apical stylomere strongly arcuate and narrowly rounded at tip, with a seta at inner margin before apex.

E t y m o l o g y : The generic name is a combination of the prefix Pseudo- and the generic name *Rhysopus*, referring to the close relationship to this genus.

C o m p o s i t i o n : A single species, *Pseudorhysopus kabakovi* spec. nova, from northern Vietnam.

R e m a r k s : The new genus is most closely related to the monotypic Southeast Asian genus *Rhysopus* ANDREWES 1929 (with the species *R. klynstrai* ANDREWES 1929). The members of both genera are similar to each other in many characters including labium with mentum and submentum completely fused, deep fronto-clypeal suture continuing laterally into clypeo-ocular prolongations, trifid apical spur of protibia, one discal pore on third elytral interval and absence of mental median tooth. Also, the members of both genera are characterized by clearly visible nonsetigerous punctures on external intervals of elytra and by the notably widened genae (although the genae in *Rhysopus* are narrower than in *Pseudorhysopus* gen. novum). The main differences between these genera are in their labia: in the species belonging to the new genus, the mentum possesses the two normal median setigerous pores at the anterior margin and the ligular sclerite is only slightly expanded at the apex; in *Rhysopus*, contrastingly, the mental median pores are lacking and the apex of the ligular sclerite is strongly expanded as in the genus *Anisodactylus* DEJEAN 1829. In addition, the clypeo-ocular prolongation in *Rhysopus* is deep up to the supraorbital furrow, as opposed to that in *Pseudorhysopus* gen. novum, which becomes shallower before the eye. The absence of mental pores in *Rhysopus* seems to be an unique feature amongst the members of Anisodactylina, which may be treated as an autapomorphic character arisen in this taxon at a rather late stage of development.

In our opinion, the two monotypic genera *Pseudorhysopus* gen. novum and *Rhysopus* form together a natural group related to the polytypic genus *Harpalomimetes* SCHAUBERGER 1933, which includes several species from Southeast Asia (N. ITO 1995). All three genera share such morphological features as mentum and submentum completely fused, mental tooth lacking and 3rd elytral interval with one discal pore. The genus *Harpalomimetes*, however, differs strikingly from *Pseudorhysopus* gen. novum and *Rhysopus* in having the fronto-clypeal suture and fronto-ocular prolongation much shallower, the apical spur of the protibia lanceolate, the genae narrow, all elytral intervals punctate and the external ones also finely pubescent. It should also be noted that the colour of the legs is dark in species of *Pseudorhysopus* gen. novum and *Rhysopus* and pale in all known representatives of *Harpalomimetes*. According to NOONAN (1973), the genus *Rhysopus* together with the genus *Harpalomimetes* represent a separate, rather apomorphic phylogenetic lineage, which may be treated as a sister group to the moderately apomorphic lineage *Chydaeus* with the single genus *Chydaeus* CHAUDOIR 1854. Clearly the former lineage should also include the genus *Pseudorhysopus* gen. novum. The genus *Chydaeus*, with about 30 described species from East and Southeast Asia to New Guinea, is easily distinguished from the genera *Pseudorhysopus* gen. novum, *Rhysopus* and *Harpalomimetes* by having the mentum with a prominent median tooth and the elytra lacking a discal pore on the 3rd interval.

***Pseudorhysopus kabakovi* spec. nova**

Type material : **Holotype** : Vietnam, Tonkin, pr. Hoang Lien Son, Sa Pa, 11-15.V.1990, V. Kubán leg. (MCSN). **Paratypes**, 1 : Vietnam, Lao Cai Prov., env. Sa Pa, Hoang Lien Son Nat. Reserve, 1250 m, 27.V.-2.VI.1998, A. Napolov leg. (ZISP); 1 : Vietnam, Nghe tinh Prov., mountains NO of Cua-Rao, 20.III.1962, O. Kabakov leg. (cKAB).

Description : Body length 9.0-9.4 mm, width 3.9-4.1 mm (in holotype 9.4 and 4.1 mm, respectively).

Body black, with labrum and clypeus externally, palpi, antennae and tarsi brownish; antennae infuscated from 2nd antennomere. Dorsum shiny, slightly iridescent on elytra.

Head, measured across eyes and across neck constriction, correspondingly 0.75-0.77 and 0.62-0.63 times as wide as pronotum. Tempora moderately long, flat, sloped to neck. Antennae short, with middle antennomeres a little more than twice as long as wide, reaching only basal ridge of elytra. Dorsal microsculpture strongly obliterated, in male fine weakly transverse meshes clearly visible only under and behind eyes, in female shallow isodiametric meshes visible also on frons and vertex.

Pronotum moderately convex, rather narrow, 1.51-1.52 times as wide as long, widest before middle and with lateral setigerous pore on each side inserted approximately at end of first third. Anterior margin deeply arcuately emarginate, posterior margin more or less straight, slightly narrower than former and much narrower than elytral base between humeral angles. Apical angles strongly protruded, narrowly rounded at apex. Basal angles well marked, obtusangular, blunted at apex. Lateral depressions beginning from apical angles as narrow furrows, then strongly widened in posterior half to base and fused there with broad basal foveae forming comparatively deep united latero-basal depressions; latter separated from each other by convexity. Pronotal surface, except for central part, densely punctate, with coarser punctures in latero-basal depressions. Microsculpture very fine in central part, more distinct along margins, consisting of weakly transverse meshes

(nearly isodiametric in mediobasal portion).

Elytra moderately convex, 1.35-1.37 times as long as wide, 2.47-2.58 times as long and 1.19-1.25 times as wide as pronotum, widest behind middle. Humeri slightly prominent, rounded at apex, without denticle. Sutural angles acutangular, in male slightly blunted, in female sharp at apex. Basal edge glabrous, weakly sinuate, meeting lateral margin at very obtuse angle. Intervals strongly narrowed before apex; two lateral intervals with nonsetigerous punctures. Striae wide at apex. Marginal series consisting of 18-22 umbilicate pores. Microsculpture clearly visible throughout, consisting of fine transverse lines.

Metepisterna (Fig. 5) longer than wide, strongly narrowed posteriad. Metacoxae each with only two standard fixed setigerous pores, without any additional pores.

Median lobe of aedeagus (Figs. 6,7) evenly arcuate, with apex slightly curved dorsad (lateral aspect), with apical orifice wide and extended to large basal bulb. Terminal lamella rather short, moderately broad, rounded at apex, with sides sinuately convergent apicad (dorsal aspect). Internal sac with two small spiny patches medially.

D i s t r i b u t i o n : The new species is known only from two localities in northern Vietnam.

E t y m o l o g y : Named after our friend, entomologist and geologist, Oleg N. Kabakov, the first collector of this interesting species.

On the taxonomic position of *Hiekea picipes* N. ITO

Recently, N. ITO (1997) established the new monotypic genus *Hiekea* for the new species *H. picipes* from Hindustan. According to the author, the genus *Hiekea* is most related to the genera *Anisodactylus* DEJEAN 1829 and *Chydaeus* CHAUDOIR 1854, but in fact, his taxon should be treated as a junior subjective synonym of *Pseudognathaphanus* SCHAUBERGER 1932 (type species: *Harpalus punctilabris* MACLEAY 1825) because *Hiekea picipes* is identical to *Pseudognathaphanus dekkanus* ANDREWES 1933. This conclusion seems evident by taking into consideration following facts and observations. First, each of these taxa was based on many individuals from the same region in Hindustan: *H. picipes* on individuals from "Khandalla" (according to the labels of the type specimens the type locality is written "Khandalla" and not "Kahndalla" like in the description), Bombay and Karnataka (Talewadi Distr.), and *P. dekkanus* – on individuals from Parleh (type locality), North Kanara, Talewadi, Khandala, Kasara, Satara and Panchgani. Second, we were unable to find some remarkable differences of characters given in the original descriptions of both species. Third, the examination of a specimen collected together with most of the paratypes of *H. picipes* [male: India, Karnataka Belgaum Distr., Talewadi, 780 m, 26.II.1980, Gy. Topál leg. (ZISP)] revealed that it fully agrees with the description of *H. picipes* and possesses all the characters peculiar to the genus *Pseudognathaphanus* sensu NOONAN (1973) including the specific vestiture of the ventral surface of the metatarsus. Unfortunately, N. ITO (l.c.) omitted the latter character in his very long description. He also failed to note the very fine and poorly visible setigerous punctation at the apex of the external elytral intervals, which is present in the specimen examined by us from Talewadi and was also noted by ANDREWES (1933) in the original description of *P. dekkanus*. N. ITO also stated that the elytra of *Hiekea* are without any setigerous dorsal pores and therefore this genus is related to the genus *Chydaeus*. However, it

is known that the number of setigerous pores on elytral intervals is highly variable within *Pseudognathaphanus* and the number of pores in *P. dekkanus* is highly reduced as compared with the other representatives of this genus. According to ANDREWES (1933) and NOONAN (1973), *P. dekkanus* has at most only one discal pore on each 3rd interval and two to three pores at the apex of each 7th interval. The specimen examined by us from Talewadi has one pore just at the apex of the 3rd interval on the left elytron and one pore just at the apex of the 7th interval on the right elytron. The later re-examination of the three type specimens of *Hiekea picipes* (stored in the MNHUB) confirmed the high variability of this character: the holotype has no pores at the apex of the 3rd elytral interval but possesses three pores on the left and two pores on the right 7th interval apically. One paratype has apically one pore on each 3rd and three pores on each 7th interval. Finally, the second paratype has one pore on the left 3rd interval, three pores on the left 7th interval and even four pores on the right 7th interval and no pores on the right 3rd interval.

Therefore we propose the following synonymies:

Pseudognathaphanus SCHAUBERGER 1932 = *Hiekea* N. ITO 1997, **syn. novum**

Pseudognathaphanus dekkanus ANDREWES 1933 = *Hiekea picipes* N. ITO 1997, **syn. novum**

Since the genus *Pseudognathaphanus* is rather diverse and is in need of revision on worldwide basis, probably this genus will be divided into two or more natural subgeneric groups in future. I in this case, the name *Hiekea* could be restored for one of such groups.

In the same paper, N. ITO (1997) proposed a key to the Asian genera of the subtribe Anisodactylina which actually concerns only the East Asian and Oriental fauna because this author excluded the genera distributed in West Asia (*Diachromus* ERICHSON 1837, *Gynandromorphus* DEJEAN 1829 and *Scybalicus* SCHAUM 1862). Unfortunately, N. ITO misunderstood the real situation concerning the plasticity of some structural features and used in his key some characters which are highly variable amongst the Anisodactylina genera. Taking this into account, we present a new key which is based on the key of NOONAN (1973) and on our own data.

Key for the identification of the East Asian and Oriental genera of the subtribe Anisodactylina

- 1 Pronotum with two lateral setae on each side, one at middle and another closer to basal angle.....*Progonochaetus* G. MÜLLER
- Pronotum with three and more lateral setae on each side, located either before middle or along entire length.....*Chydaeus* CHAUDOIR (part)
- Pronotum with only one lateral seta on each side at middle.....2
- 2 Body, except median part of elytra in some specimens, with dense pubescence.....
.....*Crasodactylus* GUÉRIN-MÉNEVILLE
- Body without dense pubescence at least ventrally.....3
- 3 Mentum and submentum separated by complete transverse suture.....4
- Mentum and submentum completely fused.....5
- 4 Elytra with three and more setigerous pores at least on each 3rd interval; 1st metatarsomere longer than 2nd and 3rd together.....*Gnathaphanus* MACLEAY
- Elytra at most with one setigerous puncture on each 3rd interval; 1st metatarsomere shorter than 2nd and 3rd together.....*Hyparpax* MACLEAY

- 5 Mentum with prominent long median tooth.....*Chydaeus* CHAUDOIR (part)
 - Mentum without prominent median tooth.....6
- 6 Elytra with more than one discal setigerous pore at least on each 3rd interval
*Pseudognathaphanus* SCHAUBERGER (part)
 - Elytra at most with one discal setigerous pore on each 3rd interval.....7
- 7 Ligula more or less parallel-sided or weakly widened apically.....8
 - Ligula strongly widened apically 10
- 8 Paraglossae very broad, not removed distally from ligula; metatarsomeres 2nd to 4th of both sexes and pro- and mesotarsomeres 2nd to 4th of female with dense ventrolateral cover of somewhat thickened setae
*Pseudognathaphanus* SCHAUBERGER (part) (= *Hiekea* N. ITO)
 - Paraglossae narrow, well removed distally from ligula; tarsi lacking dense ventrolateral cover of somewhat thickened setae9
- 9 Elytra finely pubescent along sides and densely punctate throughout; apical spur of protibia more or less lanceolate; legs pale.....*Harpalomimetes* SCHAUBERGER
 - Elytra glabrous, only densely punctate along sides; apical spur of protibia trifid, legs dark*Pseudorhysopus* gen. novum
- 10 Fronto-clypeal suture extremely deep and continuing postero-laterally as deep clypeo-ocular prolongation; mentum lacking median setae*Rhysopus* ANDREWES
 - Fronto-clypeal suture shallow, not continuing postero-laterally as deep clypeo-ocular prolongation; mentum with two median setae *Anisodactylus* DEJEAN

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Zusammenfassung

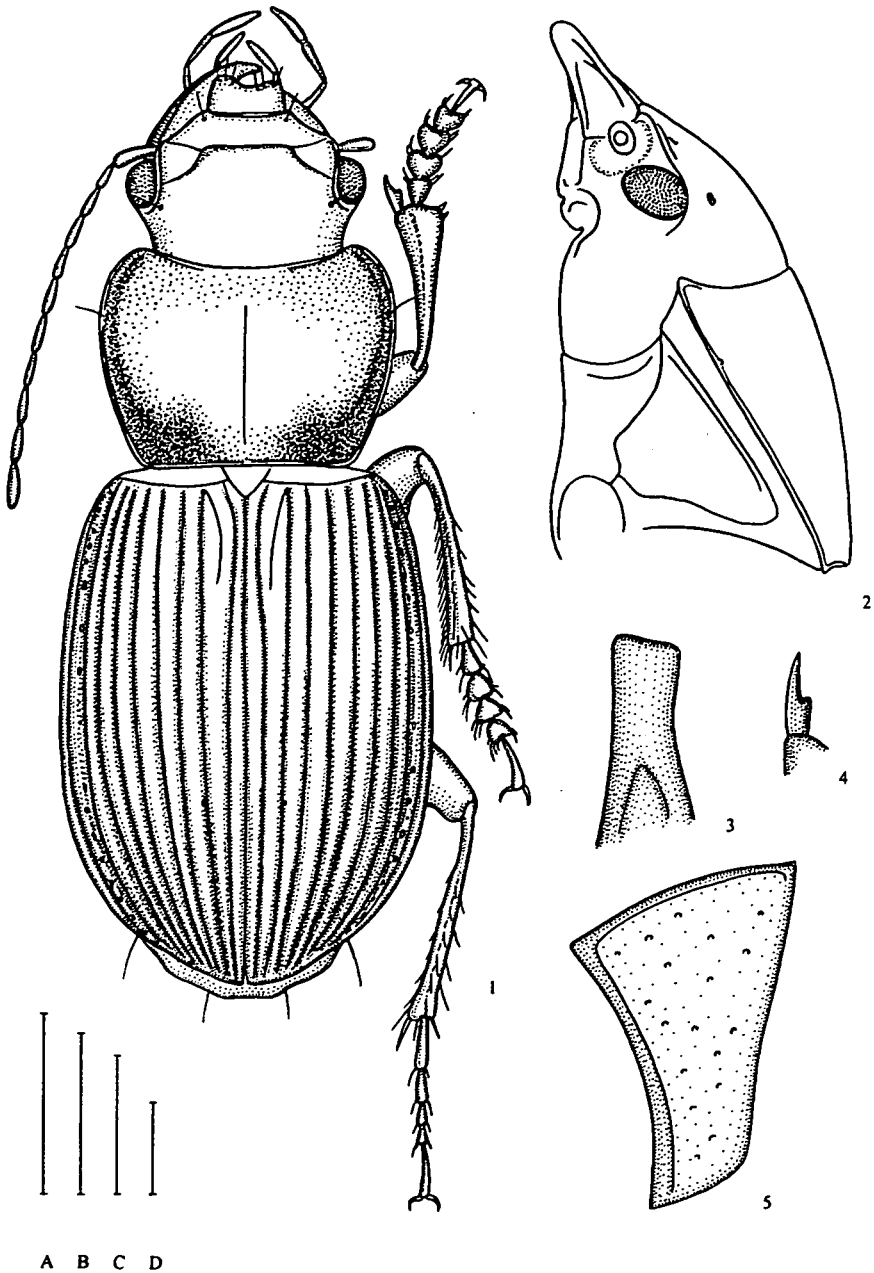
Aus Nordvietnam wird die neue Gattung *Pseudorhysopus* gen. novum mit der Art *P. kabakovi* spec. nova beschrieben und ihre Stellung innerhalb der Subtribus Anisodactylina diskutiert. Ein Schlüssel für die Identifizierung der ostasiatischen und orientalischen Gattungen wird repräsentiert. Weiterhin werden folgende Synonymien vorgeschlagen: *Pseudognathaphanus* SCHAUBERGER 1932 = *Hiekea* N. ITO 1997, syn. novum; *Pseudognathaphanus dekkanus* ANDREWES 1933 = *Hiekea picipes* N. ITO 1997, syn. novum.

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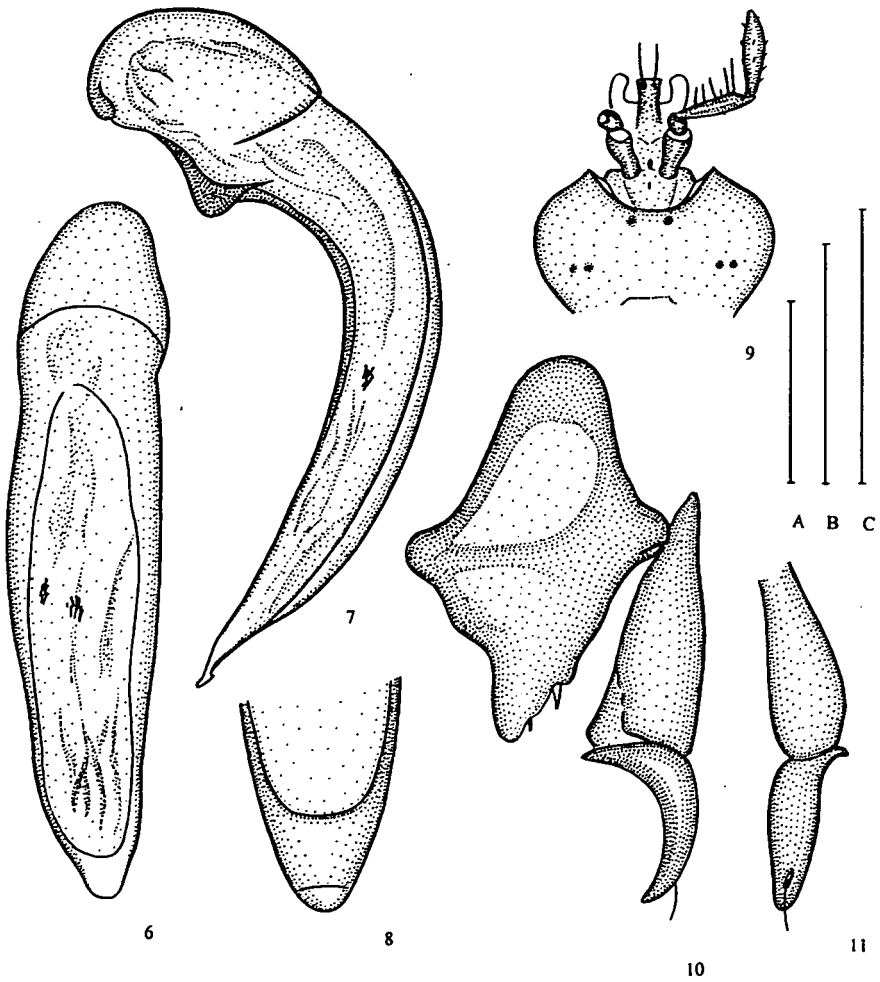
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Author's addresses: Boris M. KATAEV
Zoological Institut, Russian Academy of Sciences
Universitetskaya nab.1, RUS-St. Petersburg 199034, Russia
e-mail: blaps@zin.ru

David W. WRASE
Dunckerstr. 78, D-10437 Berlin, Germany
e-mail: david.wrase@t-online.de



Figs. 1-5: *Pseudorhysopus kabakovi* sp. n. 1 – habitus. 2 – head and pronotum, lateral aspect. 3 – apex of left mandible, frontal aspect; 4 – apical spur of fore tibia. 5 – left metepistemon. Scales: A = 1.0 mm (Fig. 5); B = 0.5 mm (Figs. 3,4); C = 1.0 mm (Fig. 2); D = 1.0 mm (Fig. 1).



Figs. 6-11: *Pseudorhysopus kabakovi* sp. n. 6,7 – median lobe, dorsal (6) and lateral (7) aspect. 8 – apex of median lobe, apical aspect. 9 – labium. 10 – valvifer and stylus, ventral aspect. 11 – stylus, lateral aspect. Scales: A = 1.0 mm (Fig. 9); B = 0.5 mm (Figs. 8,10,11); C = 1.0 mm (Figs. 6,7).

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