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A NEW SPECIES OF THE GENUS ANISOLABIS FROM JAPAN AND KOREA, WITH NOTES ON THE NOMENCLATURAL PROBLEM OF TWO SUBSPECIFIC NAMES OF ANISOLABIS MARITIMA (BONELLI) (DERMAPTERA: ANISOLABIDIDAE)

By MASARU NISHIKAWA

Abstract

NISHIKAWA, M. 2008. A new species of the genus *Anisolabis* from Japan and Korea, with notes on the nomenclatural problem on two subspecific names of *Anisolabis maritima* (Bonelli) (Dermaptera: Anisolabididae). *Ins. Matsum. n. s.* 64: 35–51.

Anisolabis seirokui sp. nov. is described from Japan and Korea. The nomenclatural problem of two subspecific names of *Anisolabis maritima*, formerly stated as "*longiforceps*" and "*ishigakiensis*", is discussed, and the former name is concluded to be unavailable under the International Code of Zoological Nomenclature, 4th edition. Information is also provided on the materials of "*ishigakiensis*" and "*longiforceps*" on which late Dr. S. Sakai originally proposed the two subspecic names.

Author's address. Laboratory of Environmental Entomology, Faculty of Agriculture, Ehime University, 5-7, Matsuyama, 790-8566 Japan. E-mail. dermap@dance.plala.or.jp

Introduction

The genus *Anisolabis* Fieber, 1853, was redefined by Srivastava (1999) on the basis of the shape of parameres of male genitalia. This genus can be separated from other genera of the subfamily Anisolabidinae by the following characteristics: parameres more than five (perhaps erroneous for "three") times but less than 10 times longer than broad, with obtuse tip. He listed 49 species including 13 uncertain ones of the genus in the world. So far, 11 species (including five uncertain ones) of them (see Table 1) are known from the Palaearctic and Oriental regions (Eschscholtz, 1822; Bey-Bienko, 1960; Steinmann, 1989a, b; Srivastava, 1999, 2003). Only one cosmopolitan species, *A. maritima* (Bonelli, 1832), has hitherto been recorded from Japan and Korea. However, the taxonomy of *Anisolabis maritima* and its allies in Japan is somewhat confusing at present.

In his private publication "*Forficula*, Vol. 6", Sakai (2000c: published on April 1st, 2000) listed three subspecies and one form of *A. maritima* from Japan, namely "*A. m. piceus*", "*A. m. longiforceps*", "*A. m. ishigakiensis*" and "*A. m.* forma *microforceps*". Among them names "*longiforceps*" and "*ishigakiensis"* were originally proposed by Kohno & Sakai (2000a) in Sakai (2000a). As discussed below, validity of these names as well as the nomenclatural act is questionable.

On the other hand, Kohno (1999) reported three forms of *A. maritima* from Ishigaki-jima Island in Yaeyama Islands, namely "Kokushoku-kyakunyuhakushoku-gata", "Chakasshoku-kyôbutanshoku-gata", and "Chashoku-chôkyô-gata". He suggested that the third form is a different species from *A. maritima* because of the differences in its habitat and external characters, and he also recorded the third form from Akuseki-jima Island and Iriomote-jima Island. Since then, "Chashoku-chôkyô-gata" has been additionally recorded from various localities in Japan by some entomologists (Ishikawa, 2000; Battarigisu Ed. Dept, 2001; Tominaga, 2003a, b; Nishikawa, 2006b, 2007; Nishikawa & Ogawa, 2006; Ogawa & Hisamatsu, 2006).

I have recently examined almost all specimens previously recorded as "*A. m. longiforceps*" or "Chashoku-chôkyô-gata", and examined also many specimens agreeing with so-called "*A. m. longiforceps*" or "Chashoku-chôkyô-gata", which collected in Japan and Korea. On the basis of these specimens, I concluded that "Chashoku-chôkyô -gata" is conspecific with so-called "*A. m. longifoceps*", and it is a different species from *A. maritima*. As discussed below, the species-group name, "*longiforceps*", is considered here to be invalid under the International Code of Zoological Nomenclature. A new species, therefore, is described here.

Materials and Methods

The specimens used in this study are deposited in the following institutions and the private collections: Laboratory of Systematic Entomology, Graduate School of Agriculture, Hokkaido University, Sapporo, Japan (SEHU); Osaka Museum of Natural History, Osaka, Japan (OMNH); SAKAI collection in the Osaka Museum of Natural History (SS/OMNH); Laboratory of Environmental Entomology, Faculty of Agriculture, Ehime University, Ehime, Japan (EEEU); and the private collections of Messrs. Yoshitaka Kamimura (YK), Shota Shimizu (SSH), Katsuyuki Kohno (KKO), Hitoshi Ishikawa (HI), Kunio Karasuyama (KKA) and mine (MN). Holotype and allotype now in

MN will be deposited in SEHU. Some paratypes will be divided and deposited in SEHU, OMNH, EEEU, Laboratory of Entomology, Tokyo University of Agriculture, Kanagawa, Japan (ETUA) and Invertebrate Research Division, National Institute of Biological Resources, Incheon, Korea (NIBR). Some label data are modified or translated to make them clearly understandable; a slash (/) divides data on different labels. The location data of all examined specimens are available in the distribution database at "http://www.earwigs-online.de".

Some collected nymphs were fed with cat food until fully pigmented adult. Some females, including allotype and paratypes, were also reared and the offspring were reared and killed by the same manner as described above.

For the observation, male genitalia was removed from the body of the fresh specimen, washed with distilled water, and then transferred to glycerol on a microscopic glass slide. After the observation, the genitalia was transferred to glycerol in a glass tube ("genitalia vial" of Bioquip Products, Inc. USA) and attached to the same pin as the specimen. Manubrium was also observed based on the removed male penultimate sternite from fresh specimen, which was placed on a Petri dish filled with 70% ethanol. After the observation, the penultimate sternite was dried, mounted on a piece of paper with the vinyl acetate resin as adhesive and attached to the same pin with the specimen.

Nomenclatural Problem

Note on the availability of two subspecies names formerly stated as "*ishigakiensis*" and "*longiforceps*", with information on Sakai's materials.

As I already explained in my recent paper (Nishikawa, 2006a) Sakai had his first cerebral stroke in the summer of 1998 and he had an impediment on his eyesight (trouble in recognition of shapes). According to his wife, he had a symptom, called "unilateral spatial neglect", but had written several works after the stroke occurred. So, I assume that he must have unknowingly made a lot of mistakes in his publications.

Sakai's paper (2000a: published on March 30th, 2000) entitled "Recent Dermapteran information" is the most complicated one. It is composed mainly of many copies of related parts of references on the species dealt with, and there are a lot of mistypes. Furthemore, the irregular page assignment and useless words and/or paragraphs in some places make the content hard to understand. Therefore, I assume that it unfortunately must have been printed without any proofreading not only by him but also by the editorial board. In this paper, he proposed two new subspecies of *Anisolabis maritima* named as "*A. m. ishigakiensis*" and "*A. m. longiforceps*" together with Kohno. This Sakai's paper was copied onto his private publication "*Forficula*, Vol. 2" (Sakai, 2000b: published on 1 April, 2000) and a corrected legend for Figs. 1 and 2 of page 30 was inserted as well. However, the paper (Kohno & Sakai, 2000a) entitled "Insect fauna of Ishigaki-jima Island" (in Japanese) was published without Kohno's approval (personal communication with Dr. Katsuyuki Kohno). Its content cannot be understood without another Sakai's publication "*Forficula*, Vol. 6" (2000c: published on April 1st, 2000) and the corrected legend inserted in Sakai's publication (2000b). Although such a segmentalized description seems to be invalid [Article 10.1, the International Code of Zoological Nomenclature, 4th edition], detailed discussion on the availability of each subspecific name is given below.

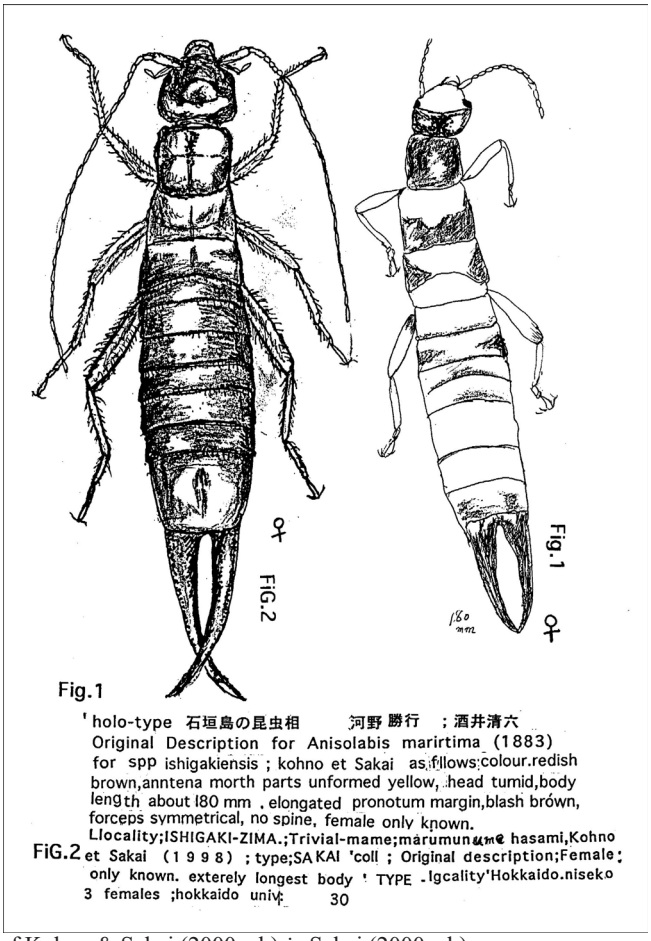
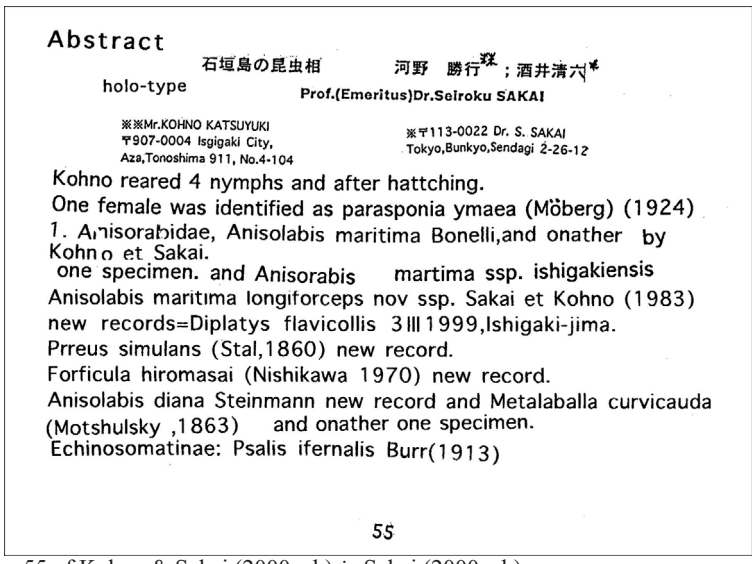


Fig. 1. Page 30 of Kohno & Sakai (2000a, b) *in* Sakai (2000a, b).

For readers' comprehension of the availability of the new subspecific names formally stated as "*ishigakiensis*" and "*longiforceps*", the related parts of the paper of Kohno & Sakai (2000a) and the corrected legend inserted in Sakai's publication (2000b) are copied here (see Figs. 1 - 3) with the permissions of Daito Bunka University, Sakai's bereaved family and Dr. Katsuyuki Kohno.

On the availability of names "*ishigakiensis*"
and information on the specimen examined by Sakai

Though it is ambiguously described (*i.e.* many mistypes, abnormally large size: about 180mm), the legend of fig. 1 (Kohno & Sakai, 2000a; see Fig. 1) is regarded as the original description, and the corrected legend of fig. 1 (Kohno & Sakai, 2000b; see Figs. 3) is not related to the nomenclature [Article 21.2]. The word "holo-type" printed in the legend of fig.1 is considered to be the fixation of holotype. The description is long for certain extent, and the type depository seems to be mentioned as "Sakai coll."



Abstract

石垣島の昆虫相　　河野　勝行※；酒井清六※

holo-type　　Prof.(Emeritus)Dr.Seiroku SAKAI

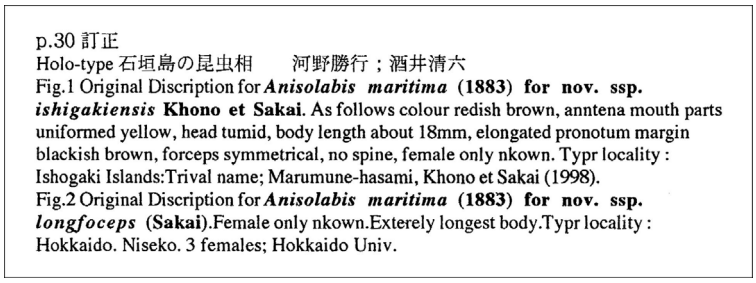
※※Mr.KOHNO KATSUYUKI
〒907-0004 Isgigaki City,
Aza,Tonoshima 911, No.4-104

※〒113-0022 Dr. S. SAKAI
Tokyo,Bunkyo,Sendagi 2-26-12

Kohno reared 4 nymphs and after hattching.
One female was identified as parasponia ymaea (Möberg) (1924)
1. Anisorabidae, Anisolabis maritima Bonelli,and onather by Kohno et Sakai.
one specimen. and Anisorabis martima ssp. ishigakiensis
Anisolabis maritima longiforceps nov ssp. Sakai et Kohno (1983)
new records=Diplatys flavicollis 3 III 1999,Ishigaki-jima.
Prreus simulans (Stal,1860) new record.
Forficula hiromasai (Nishikawa 1970) new record.
Anisolabis diana Steinmann new record and Metalaballa curvicauda (Motshulsky ,1863) and onather one specimen.
Echinosomatinae: Psalis ifernalis Burr(1913)

55

Fig. 2. Page 55 of Kohno & Sakai (2000a, b) *in* Sakai (2000a, b).



p.30 訂正
Holo-type 石垣島の昆虫相　　河野勝行；酒井清六
Fig.1 Original Discription for ***Anisolabis maritima*** **(1883) for nov. ssp.** ***ishigakiensis*** **Khono et Sakai.** As follows colour redish brown, anntena mouth parts uniformed yellow, head tumid, body length about 18mm, elongated pronotum margin blackish brown, forceps symmetrical, no spine, female only nkown. Typr locality : Ishogaki Islands:Trival name; Marumune-hasami, Khono et Sakai (1998).
Fig.2 Original Discription for ***Anisolabis maritima*** **(1883) for nov. ssp.** ***longfoceps*** **(Sakai).**Female only nkown.Exterely longest body.Typr locality : Hokkaido. Niseko. 3 females; Hokkaido Univ.

Fig. 3. Corrected legend of Page 30 inserted in Kohno & Sakai (2000b) *in* Sakai (2000b).

(now in OMNH: SS/OMNH). Therefore, the nomenclatural act for this subspecies done in the original description seems to be valid. However, there are some problems on the correspondence with the specimens. Name "*ishigakiensis*" has the possibility of becoming an invalid name, but the decision will not be done here.

There is no specimen in SS/OMNH that is clearly designated as holotype of this subspecies, but a female specimen (Fig. 4, b), which was collected from Ishigaki-jima Island by K. Kohno and labeled as "*Anisolabis maritima* forma *ishigakiensis* Sakai et Kohno, K (1999) nov. forma" by Sakai (in handwriting), in SS/OMNH. It seems to be the same specimen that was described by Kohno & Sakai (2000a) as "*A. m. ishigakiensis*". However, morphology of this specimen does not agree with the female illustrated in the original description, it agrees with so-called "*A. m. longiforceps*" instead (see below). According to Dr. Kohno, it is the specimen offered to Sakai by him as one of the specimens of "Chashoku-chôkyô-gata" (Kohno, 1999) and its location data ("Isobe seaside") is wrong; the correct data is: "On rock, Seaside near the exit of Sabichi Cave, Ibaruma" (personal communication with Dr. Kohno). Guessing from Sakai's condition at that time, he may have misassigned an illustration of other specimen (such

Fig. 4. Specimens examined by Sakai (2000a, b). *a*. "*Anisolabis maritima longiforceps*" collected from Tangohantou, Kyoto (SS/OMNH; total length: 33.0mm); *b*. "*Anisolabis maritima ishigakiensis*" collected from Ishigaki-jima Island (SS/OMNH; total length: 27.5mm).

Fig. 5. Maternal care of *Anisolabis seirokui* sp. nov. (Mouth of River Imagire-gawa, Tokushima City, June 17, 2006).

as "*A. maritima* ssp. *piceus* Shiraki 1905" (Sakai, 1996: 9329; 2000c: 6)) collected from Ishigaki-jima Island.

On the availability of "*longiforceps*" and information on the specimens examined by Sakai

The name "*longiforceps*" was first proposed as a form of *Anisolabis maritima* in Sakai (1996), and the name is not regarded as a species-group name [45.5]. In Kohno & Sakai (2000a), "*longiforceps*" is proposed as a subspecies name without any description (see Fig. 2). In the corrected legend inserted in Kohno & Sakai (2000b), "*longforceps*" is described as subspecies for the first time (see Fig. 3). "*longforceps*" is considered as

an incorrect original spelling to be corrected to "*longiforceps*" because "*longiforceps*" is present in Kohno & Sakai (2000b, p. 55: see Fig. 2) [32.5]. Therefore, the corrected legend is considered to be the original description of "*longiforceps*", and the figure of a female in the original description can be considered as the fixation of holotype because the word "Holo-type" is present in the title of the corrected legend. However, the description of the subspecies is extremely short, only "Exterely (presumably "Extremely") longest body", and there is a problem in the availability under the Article 13.1.1. Therefore, "*longiforceps*" dose not become an available name.

The depository of 3 females (as "Typr" (presumably "Type")) collected from Hokkaido (Niseko), is indicated as "Hokkaido Univ.", but they are not preserved in there (SEHU) and neither in Sakai Collection of OMNH (SS/OMNH). Furthermore, according to the staffs of SEHU, there is no record of their depository there whatsoever. There is a female specimen (Fig. 4, a) collected from Tangohantou, Kyoto, labeled as "*Anisolabis maritima* ♀ forma *longiforceps* SAKAI (1993) nova forma" and "forma nova (1996) *longiforcepis*, Sakai" by Sakai (in handwriting) in SS/OMNH. One female specimen collected from Futamigaura, Mie is also preserved in OMNH. These specimens must be the same ones examined by Sakai (1996), but not included in the type-series of "*A. m. longiforceps*".

Description

Anisolabis seirokui Nishikawa, sp. nov.
(Figs. 5; 6, *a-i*; 7, *c-n*)
[Japanese name: Iso-hasamimushi]

The names formerly stated are listed in Table. 2.

Length of body excepting forceps: male, 13.5-38.0 mm; female, 16.3-38.2 mm.

Length of forceps: male, 3.5-6.4 mm; female, 5.0-10.0 mm.

Colour: Body yellowish to dark reddish brown sometimes almost blackish; colour pattern varied as in Fig. 6 (*a-i*); head and thorax usually lighter in colour, each thoracic notum and each basal abdominal tergite sometimes with dark marking at sides and along caudal margin; legs and antennae yellowish to reddish brown (in some specimens, the legs has discoloured secondary and blackish.).

Male: Head cordiform, smooth, longer than broad, posterior margin almost straight or very slightly concave, frons moderately convex, vertex depressed, sutures distinct, sometimes coronal suture indistinct or party visible at posterior half. Eyes small, less than half length of the post-ocular length. Antennae around 28-segmented (in holotype 27 segments remain), 1st stout, expanded apically, about as long as the distance between antennal bases; 2nd minute, slightly broader than long; 3rd long and slender, about as long as or slightly shorter than 4th and 5th combined; 4th and 5th subequal; 7th onwards gradually increasing in length. Pronotum smooth, about as wide as head, longer than wide, gently widened posteriorly; sides almost straight, sometimes weakly concave; posterior margin rounded, sometimes very feebly sinuate; median sulcus distinct, sometimes party visible in prozona; division into prozona and metazoan not or slightly expressed. Meso- and metanotum transverse, smooth, former almost truncate or feebly sinuate caudad and latter broadly concave; median sutures distinct, sometimes indistinct in metanotum. Thoracic sternites typical of the genus; mesosternum with caudal margin

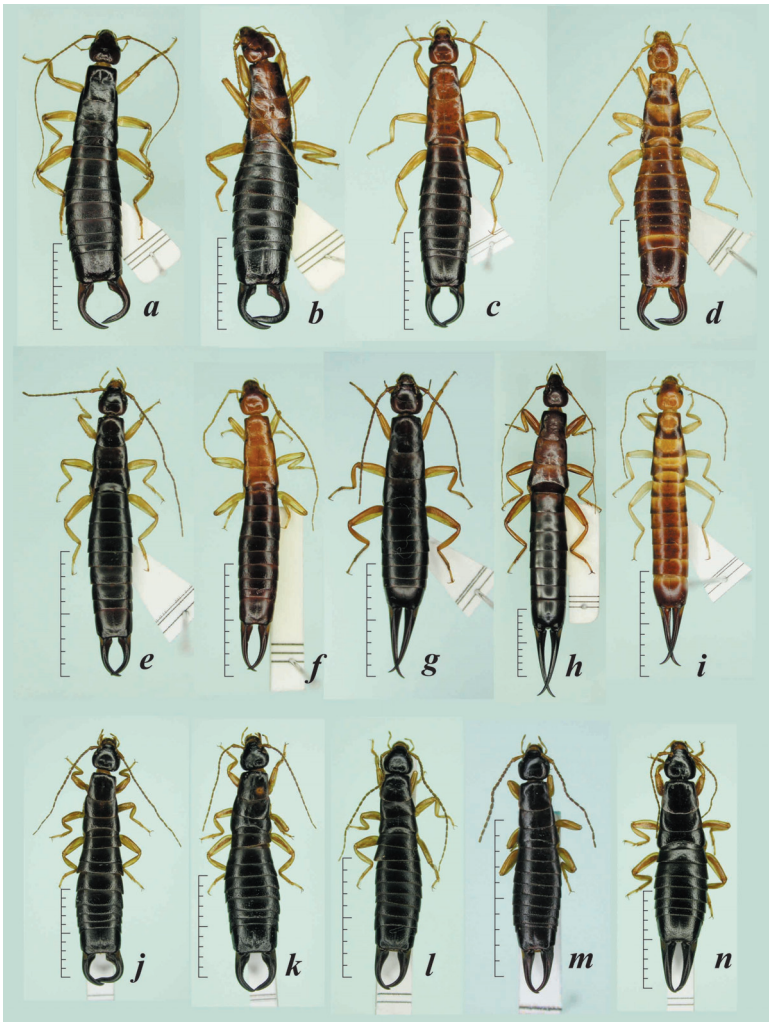


Fig. 6. *Anisolabis* spp. *a–i*, *A. seirokui* sp. nov.; *j–n*, *A. maritima* (Bonelli). *a–f*, *j–m*, male; *g–i*, *n*, female. *a*, paratype (Chungcheongnam-do, Korea); *b*, paratype (Jeollanam-do, Korea); *c*, holotype (Tokushima); *d*, paratype (Ishigaki-jima Is.); *e*, paratype (Tokushima); *f*, paratype (Miyazaki); *g*, paratype (Tokushima); *h*, allotype (Tokushima); *i*, paratype (Okinawa-jima Is.); *j–n*, (Tokushima). Scale: 10 mm.

convex and rounded; metasternum with caudal margin truncate. Legs typical of the genus; hind tarsi with 1st segment longer than the third. Abdomen more or less depressed or moderately convex, spindle shaped and widest at tergite V, each tergite covered with fine pubescences and sparsely punctured at sides; tergites V-IX rugose laterad; sides of tergites III-VII (sometimes III-IX) with lateral carinae. Ultimate tergite transverse, almost parallel-sided or very slightly narrowed posteriorly, sparsely punctured, settled with about ten longitudinal rows of fine pubescences, with weak lateral carinae and lateral depressions; disc in middle feebly depressed with a median sulcus (sometimes indistinct); caudal margin almost straight between the branches of forceps. Penultimate

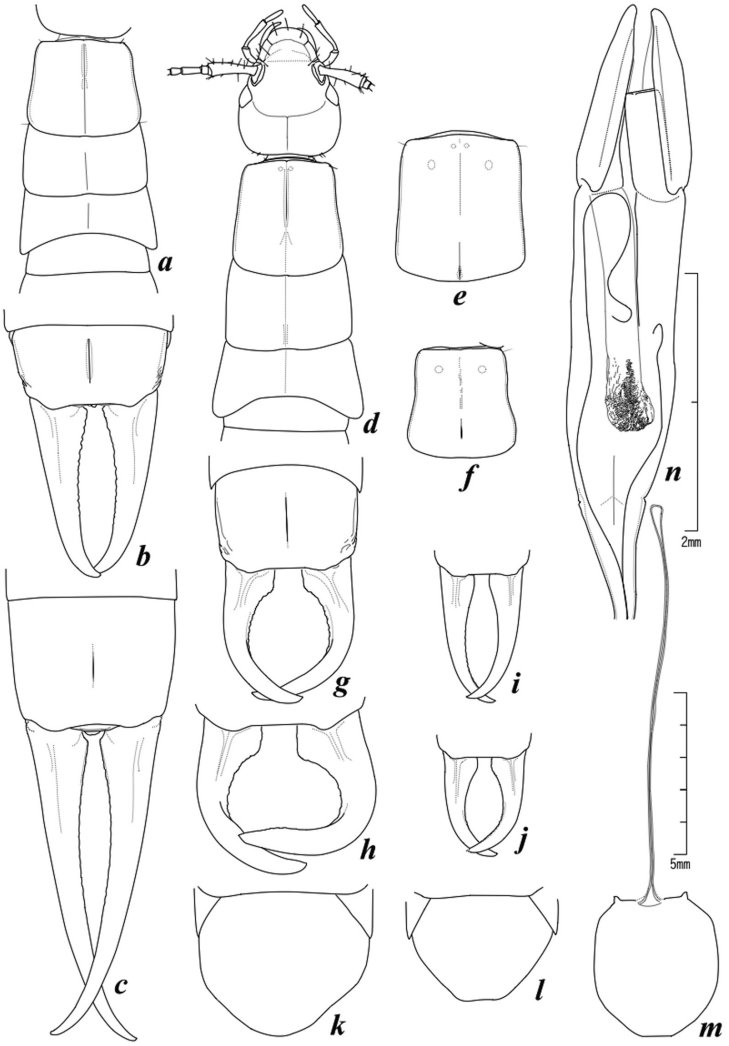


Fig. 7. *Anisolabis* spp. *a–b*, *A. maritima* (Bonelli); *c–n*, *A. seirokui* sp. nov. *a*, thoracic nota and first abdominal segment (male); *b*, ultimate tergite and forceps of female; *c*, ditto (allotype); *d*, head, thoracic nota and first abdominal segment (holotype); *e*, pronotum (allotype); *f*, ditto (paratype, Ishigaki-jima Is.); *g*, ultimate tergite and forceps of male (holotype); *h*, male forceps (paratype, Korea); *i*, ditto (paratype, Miyazaki); *j*, ditto (Tokushima); *k*, penultimate sternite of female (allotype); *l*, penultimate sternite of male (holotype); *m*, manubrium and penultimate sternite of male (paratype, Tokushima); *n*, male genitalia (holotype). Scales: 5 mm for *a–m*, 2 mm for *n.*

sternite transverse, setaceous; disc obscurely punctured in middle and rugose along caudal margin; caudal margin with fine pubescences and truncate mesad; manubrium about 2.5 times as long as the length of the sternite, apex forming a narrow elongated loope. Forceps remote at base, varied in shape, usually asymmetrical (right branch more

strongly incurved), sometimes nearly symmetrical in small specimens, almost as long as or longer than the width of the base; each branch trigonal in basal one third (the upper ridge distinct in basal one third), afterwords depressed and tapering apically, with apex pointed. Genitalia typical of the genus; parameres about half as long as pro-paramere and about four times as long as broad, with outer margin straight at middle and weakly sinuate at the apical one third; one distal lobe (in Fig. 7: *n*) direct proximad and provided with hyaline minute denticles on the apex; virga long and simple.

Female: Similar to male, but abdominal punctures weaker; sides of abdominal tergites rounded and not rugose; ultimate tergite narrower and more strongly narrowed posteriorly; penultimate sternite with caudal margin rounded; forceps symmetrical, long and slender, more than twice as long as width of the base.

Type material. Holotype: ♂, JAPAN: Shikoku: Mouth of Riv. Imagire-gawa (under stone), Tokushima City, Tokushima Pref., Japan, 14.V.2006, M. Nishikawa leg. [MN]. Allotype: ♀, same data as the holotype / *Colony: IMAGIRE 2006, Primary female #5, Oviposition: ?~28.V.2006, Rearing: M. Nishikawa* [MN]. Paratypes: KOREA: 1 ♂, 3 ♀♀, Inchon (as "Jinsen"), 18.VI.1925, Uchida leg. [SEHU]; 2 ♂♂, 2 ♀♀, Gageodo Is., Sinan, Jeollanam-do, 12.IX.2004, Tae-Hwa Kang leg. [MN]; 3 ♀♀, Pugdo Is., Ansan, Gyoenggi-do, 16.VI.2006, Tae-Woo Kim leg. [MN]; 1 ♂, Mongsanpo, Taean, Chungcheongnam-do, 26.VIII.2005, Tae-Woo Kim leg. [MN]. JAPAN: Honshu: 1 ♀, Iwachi, Matsuzaki-cho, Kamo-gun, Shizuoka Pref., 14.VII.1984, H. Ishikawa leg. [MN]; 1 ♀, Futamigaura, Futami-cho, Mie Pref., 9.X.1983, A. Ichikawa leg. / "hasamimushi Chôkaku-gata" (in Japanese) / Photo '93.V [OMNH]; 1 ♀, Tangohantou, Kyôto Pref., T. Yoshida leg., 14.VIII.1974 / *Anisolabis maritima* ♀ forma *longiforceps* SAKAI (1993) nova forma (in handwriting) / nova forma *longiforcepis* (1996) (in handwriting) [OMNH/SS]; 1 ♀, Tamashimakurosaki, Kurashiki City, Okayama Pref., 26.IX.2005, Y. Kamimura leg. / DNA extracted on 29.X.2005 [MN]; 1 ♀, Nagashima Is., Kamiseki-chô, Kumage-gun, Yamaguchi Pref., 24. VI. 2000, Team Nodai (S. Nagashima) leg., (Pit hole) [MN]. Shikoku: 1 ♀, In Office (dead), Kagasuno, Kawauchi-chô, Tokushima City, Tokushima Pref., 15.IX.2001, A. Ôhama leg. [MN] / *Anisolabis* sp. female, Det. M. Nishikawa, 2001 [MN]; 7 ♂♂, 15 ♀♀, same data as the holotype (4 females with additional label: *#1*, *#2*, *#3*, *#4*) [MN]; 6 ♂♂, 5 ♀♀, same data as the holotype, but 15.V.2006 (4 females with additional label: *#6*, *#7*, *#8*, *#10*) [MN]; 1 ♂, 1 ♀, same data as the holotype, but 2.IV.2007 [MN]; 8 ♂♂, 8 ♀♀ (emerged from nymphs collected on 14.V.2006), 4 ♂♂, 6 ♀♀ (emerged from nymphs collected on 15.V.2006), 2 ♂♂, 1 ♀ (emerged from nymphs collected on 7.VI.2006), same location data as the holotype [MN]; 9 ♂♂, 4 ♀♀ (offspring of #3 or #4 female), 28 ♂♂, 17 ♀♀ (offspring of allotype (#5) female), 8 ♂♂, 10 ♀♀ (offspring of paratype (#7 or #8) female), 3 ♂♂, 1 ♀ (offspring of paratype (#9) female), 4 ♂♂ (offspring of paratype (#10) female), rearing data are shown in Table 3 (mother females: same location data as the holotype) [MN]; 10 ♂♂, 5 ♀♀ (third generation: holotype male × allotype female), kill on 16.VII.2007 [MN]; 1 ♀ (third generation: paratype (#7) male × paratype (#7) female), kill on 16.VII.2007 [MN]; 1 ♀, Futagami Is., Ehime Pref., 17.VII.1965, S. Nomoto leg. [MN]. Kyushu: 1 ♂, Tomarigauchi, Usuki City, Oita Pref., 1.IV.2007, Y. Tsutsumiuchi leg. [MN]; 1 ♂, Wharf at Fukue-jima Is., Nagasaki Pref., 10. VI. 2004, K. Karasuyama leg. [KKA]; 1 ♂, 2 ♀♀ (emerged from the last instar nymph), Seaside between Uchiumi and Oryuzako, Miyazaki City, Miyazaki Pref., 24.X.2005, Y. Kamimura leg. [MN]; Nansei Islands: Oosumi Isls.: 1 ♂, Takeshima Is., 7. IX.1994, S. Onoda leg.

Takeshima Is., 7. IX.1994, S. Onoda leg. [MN]; 2 ♂♂ , 1 ♀ (offspring of a female: Kuchinoerabu-jima Is. 14.V.2006, T. Kadota leg., ex: Y. Kamimura's colony), rearing data are shown in Table 3 [MN]. Tokara Isls.: 1 ♂ , 1 ♀ , Kuchinoshima Is., 21.V.1962, M. Sato leg. [MN]; 3 ♀♀ , Akuseki-jima Is., 29.VI.1997, M. Sugimoto leg. / 2 specimens labeled as "Hamabe-hasamimushi (in Japanese) A. Ichikawa det. 2002" [OMNH]; 2 ♀ ♀ , Akuseki-jima Is. (seaside), 25.VI.1998, M. Sugimoto leg. [MN]. Amami Isls.: 1 ♂ , 1 ♀ , Hikatsu-Kaigan, Yoron-chô, Yoron-jima Is., 20.VI.1998, M. Sugimoto leg. [MN]. Okinawa Isls.: 1 ♀ , Seaside between Shoshi and Imadomari (limestone bluff), Nakijin-son, Okinawa-jima Is., 28~29.IX.2005, M. Sugimoto & M. Moriguchi leg. / #A [MN]; 1 ♂ , 1 ♀ (emerged from the last instar nymph), ditto [MN]; 1 ♂ , 3 ♀♀ , ditto, but 21.V.2006 (females with additional label: #X, #Y, #Z) [MN]; 2 ♂♂ , 1 ♀ (offspring of a female (#A) paratype), 1 ♀ (offspring of a female (#Y) paratype), rearing data are shown in Table 3 [MN]. Miyako Isls.: 1 ♂ , Uputoutouburi, Tarama-jima Is., 13.VIII.1996, M. Sugimoto leg. / det. S. Sakai, 1997.III.14, *Gonolabis distincta* ♂ (Nishikawa, 1969) [SS/OMNH]; 1 ♀ , ditto [OMNH]. Yaeyama Isls.: 1 ♀ (? Type of "*Anisolabis maritima* ssp. *ishigakiensis*"), Isobe Seaside, (location data is corrected here as "Seaside near exit of Sabichi Cave (on rock), Ibaruma"), Ishigaki-jima Is., 11.III.1998, Kohno Katsuyuki leg., Dead: 17.III.1998 / *Anisolabis maritima* forma *Ishigakiensis* Sakai et Kohno, K (1999) nov. forma (in handwriting) [SS/OMNH]; 1 ♂ , Yamabarê (seaside), Ishigaki-jima Is., 2.XII.1998, K. Kohno leg. [MN]; 1 ♂ , Seaside (rised coral leaf), Yonehara, Ishigaki-jima Is., 10–14.VIII.2007 (bait trap), M. Nishikawa leg. [MN]; 1 ♂ , Nakano, Iriomote-jima Is., 22.XII.1996, M. Sugimoto leg. [OMNH]; 1 ♂ , ditto [MN]. Daito Isls.: 1 ♀ , Nishi-minato, Minami-Daitô-jima Is., 4.XII.1996, M. Sugimoto leg. / det. S. Sakai, 1997.III.14, *Gonolabis distincta* ♀ (Nishikawa, 1969) [SS/OMNH].

Additional material. KOREA: 1 nymph, Gageodo Is., Sinan, Jeollanam-do, 12.IX.2004, Tae-Hwa Kang leg. [MN]. JAPAN: Honshu: 2 ♀♀ (1 ♀ in ethanol), Minabe fishery harbour, Minage-chô, Hidaka-gun, Wakayama Pref., 29.III.2007, S. Shimizu leg. [SSH]. Shikoku: 1 ♂ (damaged; in ethanol), same data as the holotype (dead on 26.VI.2006) [MN]; 1 ♂ (emerged from nymph; damaged; in ethanol), ditto (death date unknown) [MN]; 2 ♂♂ (ditto), ditto but 7.VI.2006 (dead on 1.VII.2006) [MN]; 1 ♂ (offspring of allotype female; damaged; in ethanol), dead on 15.I.2007 by female's attack [MN]; 1 ♀ (offspring of allotype female; damaged; in ethanol), dead on 1.IV.2007 [MN]; 3 nymphs, same data as the holotype [MN]; 1 nymph, ditto but 7.VI.2006 [MN]; 2 nymphs, ditto but 2.IV.2007 [MN]; 159 nymphs (offspring of allotype and paratype females; 10 are damaged; in ethanol) [MN]; 1 nymph, Matsunohama, Mitsukue, Ikata Town, Ehime., 20. IX. 2006, J. Ogawa leg. [ELEU]; 1 nymph, Akahone-jima Is., Iwagi, Kamijima, Ehime, 27-28.IX.2003, T. Yamamoto leg. [ELEU]. Kyushu: 3 nymphs, Tomarigauchi, Usuki City, Oita Pref., 1. IV. 2007, Y. Tsutsumiuchi leg. [MN]; 1 nymph (? Lasat instar), Cape Sata-misaki, Kagoshima Pref., 6. IV. 1964, K. Arichi leg. [MN]. Nansei Islands: Oosumi Isls.: 1 ♂ , 1 nymph (offspring of a female (Kuchinoerabu-jima Is., 14.V.2006, T. Kadota leg.); damaged; ♂ in ethanol), dead on 15~19.IX.2006 [MN]. Okinawa Isls.: 1 ♂ (damaged by female's attack; in ethanol), Seaside between Shoshi and Imadomari, Nakijin-son, Okinawa-jima Is., 28~29.IX.2005, M. Sugimoto & M. Moriguchi leg. [MN]; 1 ♀ (emerged from nymph), same data as above (dead on 25.X.2006) [MN]; 1 ♀ (damaged; in ethanol), ditto but 21.V.2006 (dead on 14~19.X.2006) [MN]; 2 nymphs (offspring of a female collected on 21.V.2006; damaged; in ethanol) [MN]. Yaeyama Isls.: 3 nymphs, Yamabarê, Ishigaki-jima Is., 13.II.1999,

K. Kohno leg. [KKO]. OTHERS: 23 nymphs (hybrid: Tokushima ♂ × Okinawa ♀ ; in ethanol) [MN].

Specimens examined for comparison: *Anisolabis maritima* (Bonelli, 1832) collected in Tokushima Pref., Shikoku, JAPAN. 3 ♂♂ , 1 ♀ , Oomiko-Kaigan, Tokushima City, 30.X.2004, M. Nishikawa leg.; 1 ♂ , Aoki, Otoze, Aizumi-chô, Itano-gun, 8.IX.1996, M. Nishikawa leg.; 1 ♂ , Pine wood near Tsukimigaoka beach, Matsushige-chô, Itano-gun, 3.IV.1998, A. Kamada leg.

Distribution. Japan [?Hokkaido (Niseko), Honshu (Shizuoka, Kyoto, Mie, Wakayama, Okayama, Yamaguchi), Shikoku (Tokushima, Ehime), Kyushu (Oita, Nagasaki (Fukue-jima Is.), Miyazaki, Kagoshima), Nansei Islands lying between Kyushu and Taiwan (Tanegashima Is., Kuchinoerabu-jima Is., Takeshima Is., Kuchinoshima Is., Akuseki-jima Is., Amami-Ôshima Is. (information from Mr. Sugimoto), Yoron-jima Is., Okinawa-jima Is., Miyako-jima Is., Tarama-jima Is., Ishigaki-jima Is., Iriomote-jima Is., Minami-Daitô-jima Is.)]; Korea [Jeollanam-do (Gageodo Is.), Gyeonggi-do (Incheon, Pungdo Is.), Chungcheongnam-do (Mongsanpo)].

Etymology. The epithet "*seirokui*" is dedicated to the late Dr. Seiroku Sakai for his great contribution to the dermapterology and also as one of finders of this species.

Biology. This species lives in the cleft of rock at rocky shore, in the cavities of bulging coral reef and in the crack of concrete dike and estuary weir. It preys on small animals, such as sea slater and sandworm, and eats dead fish, club and shellfish at night.

Remarks. This new species is similar to *Anisolabis maritima* in general feature, but usually larger and lighter in colour, and it has a remarkably long pronotum and the female has long forceps. It differs also from all other Palaearctic and Oriental species by the combination of the morphological characters as shown in Table 4.

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Table 1. *Anisolabis* (sensu Srivastava, 1999) spp. known from the Palaearctic and Oriental regions.

Species	Belonging	Distribution
A. maritima (Bonelli, 1832)	–	Cosmopolitan
A. excisa Bey-Bienko, 1959	–	China (Yunnan)
A. robusta (Dubrony, 1879)	–	Myanmar, New Guinea
A. orientalis Ramamurthi, 1968	–	S. India
A. kudagae Burr, 1901	–	Sri Lanka, India (?)
A. rubella Brindle, 1977	–	Sri Lanka
A. pectoralis (Eschscholtz, 1822	uncertain (genitalia unknown)	Russia (Kamtchatka)
A. recurva Borelli, 1915	uncertain (genitalia unknown)	Philippines (Luzon)
A. vitalisi Burr, 1917	uncertain (genitalia unknown)	S. China, Vietnam
A. dubronyi Kirby, 1888	uncertain (genitalia unknown)	Myanmar
A. gaudens (Burr, 1904)	uncertain (male unknown)	India, Bhutan

Table 2. Synonymic list of *Anisolabis seirokui* sp. nov.

Reference	Recorded Name	Prefecture / Island [Distribution]	Sex / Stage	Depository	Remarks
Ichikawa (1993)	*Anisolabis maritima* 長角型 (chôkaku-gata)	Mie	1♀	OMNH	
Sakai (1996)	*Anisolabis* (*Anisolabis*) *maritima* forma *longifoceps* forma nova	Hokkaido Mie Kyoto	3♀ 1♀ 1♀	SEHU undescribed undescribed	missing now in OMNH now in SS/OMNH
Kohno (1999)	*Anisolabis maritima* 茶色長鋏型 (Chashoku-chôkyô-gata)	Ishigaki-jima Is. Iriomote-jima Is. Akuseki-jima Is.	♂,♀, nymph undescribed undescribed	KKO Sugimoto coll. Sugimoto coll.	1♂ now in MN 1♀ now in MN 1♀ now in MN
Sakai & Kohno (2000a)	*Anisolabis maritima* ssp. *longiforceps* nov. ssp. Sakai et Kohno (1983)	Ishigaki-jima Is.	undescribed	undescribed	? = "*ishigakiensis*" in SS/OMNH
Sakai & Kono (2000b) in corrected legend	*Anisolabis maritima* ssp. *longforceps* (Sakai)	Hokkaido	3♀	SEHU	missing
Sakai (2000c)	*Anisolabis maritima* ssp. *longiforceps* (Sakai) 1996	[Hokkaido, Mie, Kyoto, Ishigaki-jima Is.]	♀ only	3♀ in SEHU	missing
Ishikawa (2000)	茶色長鋏型 (Chashoku-chôkyô-gata)	Shizuoka	1♀	Uchida coll.	now in MN
Battarigisu Ed. Dept. (2001)	茶色長鋏型 (Chashoku-chôkyô-gata) 褐色長鋏型 (Kasshoku-chôkyô-gata)	[Shizuoka] [Miyako-jima Is., Tarama-jima Is., Ishigaki-jima Is., Iriomote-jima Is., Minami-Daitô-jima Is.]			
Takahashi (2002)	*Anisolabis maritima* ssp. *longiforceps* Sakai, 1996 イソベ亜種 (Isobe-ashu)	[Hokkaido, Mie, Kyoto, Ishigaki-jima Is.]			
Tominaga (2003a)	茶色長鋏型 (Chashoku-chôkyô-gata)	Tanegashima Is.	1♀ (?)	OMNH*	missing
Tominaga (2003b)	茶色長鋏 (Chashoku-chôkyô)	Tanegashima Is.	1♂, 2♂-nymphs	OMNH*	missing; sex is doubtful
Nishikawa (2006b)	茶色長鋏型 (Chashoku-chôkyô-gata)	Tokushima [Hokkaido, Shizuoka, Kyoto, Mie, Okayama, Yamaguchi, Tokushima, Nagasaki (Fukuejima Is.), Miyazaki, Kagoshima, Tanegashima Is., Kuchinoerabu-jima Is., Akuseki-jima Is., Yoron-jima Is., Okinawa-jima Is., Miyako-jima Is., Tarama-jima Is., Ishigaki-jima Is., Iriomote-jima Is., Minami-Daitô-jima Is.; Korea (Inchon and one other place)]	♂, ♀, nymph	MN	
Nishikawa & Ogawa (2006)	*Anisolabis* sp. 茶色長鋏型 (Chashoku-chôkyô-gata)	Ehime	1 nymph	EEEU	
Ogawa & Hisamatsu (2006)	*Anisolabis* sp. 茶色長鋏型 (Chashoku-chôkyô-gata)	Ehime (Akahone-jima Is.)	1 nymph	EEEU	
Nishikawa (submitted)	茶色長鋏型 (Chashoku-chôkyô-gata)	Tokushima	19♂, 20♀, 45 nymphs	MN	Some adults & all nymphs were reared.

*: Tominaga's information

Table 3. Rearing data of *Anisolabis seirokui* sp. nov.

Mother female(s)	Offspring		
	Specimen(s)	Adult emergence	Killing (or Death)
#3 + #4 (paratypes)	5♂	18.IX.2006	23.IX.2006
Tokushima: Mouth of	1♀	12.X.2006	2.XI.2006
River Imagire-gawa,	1♀	19.X.2006	2.XI.2006
Tokushima City,	2♂	21.X.2006	2.XI.2006
14.V.2006	2♀	22.X.2006	2.XI.2006
Oviposition: 28~29.V.2006	2♂	29.X.2006	2.XI.2006
	1♂	27.VIII.2006	23.IX.2006
	9♂	6.IX.2006	23.IX.2006
	1♀	6.IX.2006	(5.X.2006)
	2♂	7.IX.2006	23.IX.2006
	3♂	10.IX.2006	23.IX.2006
	2♂	12.IX.2006	23.IX.2006
#5 (allotype)	5♂	13.IX.2006	23.IX.2006
Tokushima: Mouth of	2♀	18.IX.2006	(15.I.2007)
River Imagire-gawa,	1♂	19.IX.2006	10.IX.2006
Tokushima City,	1♂	22.IX.2006	2.XI.2006
14.V.2006	1♂, 3♀	25.IX.2006	2.XI.2006
Oviposition: ?~28.V.2006	2♀	4.X.2006	2.XI.2006
	1♂, 1♀	9.X.2006	(15.I.2007)
	1♀	12.X.2006	2.XI.2006
	1♂, 2♀	13.X.2006	2.XI.2006
	1♂, 1♀	14.X.2006	2.XI.2006
	3♀	18.X.2006	2.XI.2006
	1♀	19.X.2006	2.XI.2006
	1♂	13.IX.2006	23.IX.2006
#7 + #8 (paratypes)	2♂, 2♀	9.X.2006	2.XI.2006
Tokushima: Mouth of	1♂	12.X.2006	2.XI.2006
River Imagire-gawa,	1♀	13.X.2006	2.XI.2006
Tokushima City,	1♂	19.X.2006	2.XI.2006
15.V.2006	1♂, 4♀	22.X.2006	2.XI.2006
Oviposition:	1♂, 1♀	25.X.2006	2.XI.2006
5~6.VI.2006 (#7)	1♂	26.X.2006	2.XI.2006
28~29.V.2006 (#8)	1♀	7.XI.2006	(18.IV.2007)
	1♀	9.XI.2006	(2.XII.2006)
#9 (paratype)			
Tokushima: Mouth of	1♂	7.IX.2006	(19.X.2006)
River Imagire-gawa,	1♂	18.IX.2006	(19.X.2006)
Tokushima City,	1♂	4.X.2006	2.XI.2006
15.V.2006	1♀	22.X.2006	2.XI.2006
Oviposition: 8~29.V.2006			
#10 (paratype)			
Tokushima: Mouth of	1♂	9.X.2006	2.XI.2006
River Imagire-gawa,	1♂	10.IX.2006	2.XI.2006
Tokushima City,	2♂	18.X.2006	2.XI.2006
15.V.2006			
Oviposition: 5~6.VI.2006			
Kuchinoerabu-jima Is.	1♂	22.IX.2006	10.V.2007
14.V.2006	1♂	9.X.2006	10.V.2007
ex: Y. Kamimura's colony	1♀	12.X.2006	(27.XI.2006)
#A			
Okinawa-jima Is.: Seaside	1♂	28.XI.2006	10.V.2007
between Shoshi and Imadomari,	1♂	1.XII.2006	10.V.2007
Nakijin-son, 28~29.IX.2005	1♀	30.XI.2006	10.V.2007
Oviposition: 28.V. 2006			
#Y			
Okinawa-jima Is.: Seaside			
between Shoshi and Imadomari,	1♀	unknown	10.V.2007
Nakijin-son, 21.V.2006			
Oviposition: 16.VI. 2006			

Table 4. Main differences in morphological characters of *Anisolabis* (sensu Srivastava, 1999) spp. known from the Palaearctic and Oriental regions.

Species	General colour	Tegmina & Wings	Pronotum	Penultimate sternite of male	Forceps of male
A. seirokui sp. nov.	yellowish to dark reddish brown	entirely absent	longer than wide	truncate	asymmetrical to symmetrical
A. maritima	blackish	entirely absent	a little longer than wide	truncate	asymmetrical to symmetrical
A. excisa	shining black	entirely absent	very slightly transverse	deeply excised	almost symmetrical
A. robusta	dark brown	fully-developed	longer than wide	rounded	asymmetrical
A. orientalis	dark brown	tegmina present as lateral flaps; wings absent	a little longer than wide	rounded	symmetrical
A. kudagae	blackish	entirely absent	strongly transverse	excised	asymmetrical
A. rubella	reddish brown	entirely absent	nearly as long as wide	(missing)	asymmetrical
A. pectoralis	blackish brown	entirely absent	a little longer than wide	unknown	asymmetrical
A. recurva	dark brown	entirely absent	quadrate	rounded	asymmetrical
A. vitalisi	blackish brown	entirely absent	a little longer than wide	rounded	asymmetrical
A. dubronyi	dark reddish black	entirely absent	longer than wide	rounded	asymmetrical
A. gaudens	black	entirely absent	quadrate	(male unknown)	(male unknown)