The First Description of the Female of Epeolus tarsalis himukanus Hirashima, 1955 (Hymenoptera: Andrenidae) from Kyushu, Japan

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https://doi.org/10.5109/16148

出版情報：ESAKIA. 49, pp.71-74, 2009-12-21. Entomological Laboratory, Faculty of Agriculture, Kyushu University
バージョン：
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ESAKIA, (49): 71-74. December 21, 2009

The First Description of the Female of *Epeolus tarsalis himukanus* Hirashima, 1955 (Hymenoptera, Apidae) from Kyushu, Japan

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Abstract. The hitherto unknown female of *Epeolus tarsalis himukanus* is described from Kyushu, Japan.

Keywords: taxonomy, description, Hymenoptera, Apidae, *Epeolus*, Kyushu.

INTRODUCTION

The Japanese cleptoparasitic bee *Epeolus tarsalis himukanus* Hirashima, 1955 was originally described as the good species *E. himukanus*, based only on two males from Kyushu, Japan. Subsequently, Lith (1956) made taxonomic notes on the *Epeolus tarsalis* group whose species have the characteristic interantennal elevation. In his revision, *Epeolus praeustus* Pérez, 1883 and *E. rozenburgensis* van Lith, 1949 were sunk into subspecies of *E. tarsalis*. *Epeolus tarsalis*, therefore, is a geographically variable species with a wide distribution in the Palaearctic Region from Europe to Japan. Additionally, Lith suggested the possibility that *E. himukanus* is a junior synonym of *E. tarsalis*. Hirashima and Tadauchi (1979) agreed with Lith's opinion, and treated *himukanus* as a Japanese subspecies of *E. tarsalis.* During the long period following Hirashima and Tadauchi (1979), no additional information about this subspecies was reported until the record of males from North Korea by Mitai *et al*. (2008). The division of *E. tarsalis* at the subspecies level was based on the punctuation or color on body, which often seems to vary individually or gradually throughout the distribution, and therefore must be carefully revised. The revision of *E. tarsalis*, however, is beyond the scope of the present paper since that would require examination of a massive number of specimens from various areas.

Here we are going to give a description of the hitherto unknown female of *E. tarsalis himukanus*. All specimens examined are deposited in the collections of the Entomological Laboratory in Kyushu University, and the Graduate School of Science and Technology, Kumamoto University.

Before going further, we would like to express our hearty thanks to Associate Professor N. Sugiura (Graduate School of Science and Technology, Kumamoto University) for offer the valuable specimens.

This is a contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 6, No. 78).

Epeolus tarsalis himukanus Hirashima, 1955

[Japanese name: Shiiba-mukashihanabachi-yadori]

(Figs. 1-6)

Epeolus himukanus Hirashima, 1955, Ins. Mats., 19: 40-41 [Holotype: Male. Type locality: Funaishi-Okawachi, Prov. Hyuga, Kyushu, Japan]; Lith, 1956, Tijd. Ent., 99: 35 [tanoxomic notes].

Epeolus tarsalis himukanus: Hirashima & Tadauchi, J. Fac. Agr., Kyushu Univ., 24: 122-123.

Description of female (new to science)**.**

Color. Head, mesosoma and metasoma black with the following portions reddish brown: mandible with apical one-third distinctly darker, lateral corner of labrum, area between labral denticles, tegula, hypoepimeral area, pronotal lobe, axilla, scutellum. Antenna wholly black. Legs

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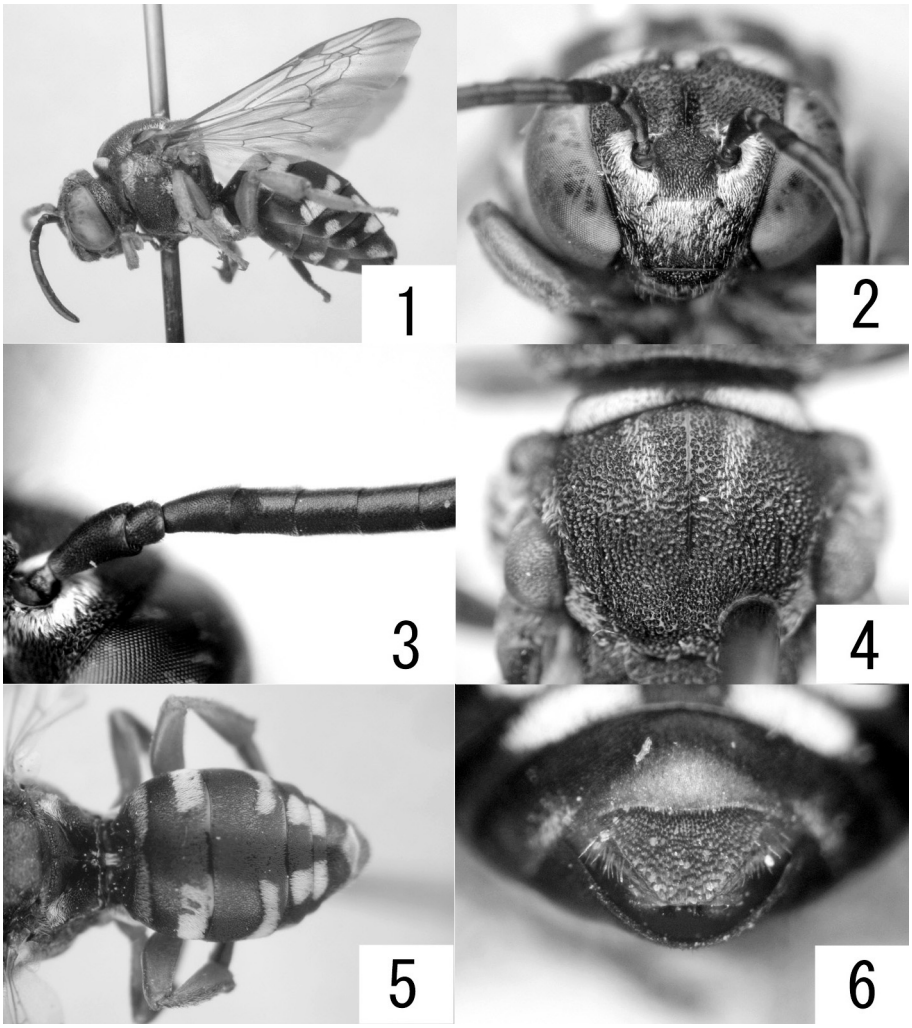
reddish brown (slightly paler than scutellum) with coxae partially blackish; tibial spurs black; claws dark red.

Sculpture. Labrum densely punctate, area between punctures usually less than a puncture diameter, but the punctures smaller and denser around labral denticles. Clypeus with small dense punctures mixed with distinctly larger ones; impunctate apical margin of clypeus distinct. Interantennal elevation deeply areolate. Upper paraocular area areolate more weakly than interantennal elevation. Vertex and gena with punctures separated by less than two puncture diameter, smaller and denser near preoccipital carina. Collar with minute punctures close to each others; top of collar covered by patch of plumose hairs except middle portion. Pronotal lobe with distinct punctures separated by a puncture diameter. Scutum densely areolate to densely punctate with punctures separated mostly by less than a puncture diameter, smaller and denser near apical margin of scutum (Fig. 4). Scutellum and axillar spine coarsely punctate. Mesopleuron on upper half minutely areolate. Hypoepimeral area and mesopleuron on lower half areolate to densely punctate. Metapleuron and lateral sides of propodeum minutely wrinkled with small, sparse punctures. Propodeal triangle irregularly wrinkled basally, tessellate on other portion. Posterior surface of propodeum outside of triangle polish to faintly wrinkled with sparse, hair-bearing punctures. All punctures on metasomal terga bear hairs; those on anterior vertical surface of first tergum small and sparse, area between punctures polished; posterior half of first, and second to fifth terga with plumose-hair-bearing punctures which obscure the surface of terga, but narrow apical impunctate margin recognized each on second to fifth terga. First metasomal sterna with shallow, sparse punctures separated at most by about five puncture diameters width; punctures on following sterna successively denser. Foreside of hind femur densely punctate, quickly sparser upward and downward.

Vestiture. Labrum and mandible with simple, yellowish hairs; those on apical half of labrum and mandible longer than those on basal half of labrum. Lower half of face below level of upper margin of antennal socket covered with dense, appressed, silvery vestiture of strongly plumose hairs, especially dense around antennal socket except hairless interantennal elevation (Fig. 2). Upper paraocular area, vertex and gena with vestiture that is similar on frontal face, but much sparser and shorter. Collar covered with a pair of dense patches of yellowish, strongly plumose hairs which obscure top of collar except middle portion. Pronotal lobe bears black, erected, weakly plumose hairs on inner area, and fringed by dense, whitish, strongly plumose hairs. Scutum bears blackish, posteriorly directed hairs which are simple on inner area, and somewhat denser, strongly plumose on peripheral area; a pair of dense, short, longitudinal patches of yellowish hairs present, extending from apical margin of scutum to level of upper margin of tegula (Fig. 4). Scutellum, axillar spine and mesopleuron with vestiture as inner scutum except upper peripheral area of mesopleuron which is covered with strongly plumose hairs. Metanotum with silvery, dense, short, strongly plumose hairs. Lateral sides of scutellum and metanotum with yellowish, long, not dense, minutely plumose, weakly sinuate hairs. Propodeum with a dense patch of silvery, appressed, strongly plumose hairs on lateral projection above spiracle; other portion covered with somewhat yellowish, appressed, very short, sparse hairs except hairless dorsomedial portion. All coxae with silvery, appressed, dense, plumose hairs laterally; similar vestiture present on anteriorly and posteriorly, but much shorter and sparser than that laterally. All trochanters with silvery, somewhat dense, suberected to erected, plumose hairs ventrally; similar vestiture present on anteriorly and posteriorly, but much shorter and sparser than that ventrally. Fore femur with silvery, dense, erected, plumose hairs ventrally, sparse to nearly hairless anteriorly, blackish, sparse, inconspicuous, simple hairs posteriorly; posterior surfaces of mid and hind femora with a row of blackish, not long, simple hairs of roughly equal length, and blackish, not dense, appressed, short, simple hairs above the row; anterior surface of mid femur with blackish, scattered, appressed, simple hairs; that of hind femur with similar vestiture but much denser than that on mid femur, and apically directed. Anterior surface of all tibiae and basitarsi covered with pale brown, apically directed, not dense hairs [those on hind tibia and hind basitarsus plumose]; posterior surface covered with blackish, erected, brush-like vestiture of simple hairs; hind tibia with a tuft of blackish, short, simple setae on apicomedially. Metasomal terga (Fig. 5) covered with black, dense vestiture of strongly plumose, appressed, short hairs; vestiture on anterior face of first tergum much sparser. White, dense patches or band of strongly plumose, appressed hairs present on terga as follows: first tergum with a band on boundary of anterior and posterior face; second and third each with a pair of transversely long, widely separated patches [narrower and longer on third]; fourth with four patches separated equally from each others; fifth with a pair of distinct patches, but an additional loose patch seen each on lateral side under a certain direction of light; sixth with a pseudpygidium and a pair of patches. Pseudopygidium composed of slender, scale-like seta.



Figs. 1-6. *Epeolus tarsalis himukanus*, female. 1: habitus in lateral view; 2: frontal face; 3: antenna; 4: scutum; 5: metasoma; 6: pygidial plate.

Structure. Total body length 9 mm; forewing length 7.5 mm. Head width 3 mm, length 2 mm. Mandible simple, bluntly acute apically. Labrum roughly transversely oblong; 0.9 mm in width, 0.6 mm in height; lower half of surface produced to form a pair of small denticles, which are downward-directed triangular in lateral view; no other denticle or carina present; apical margin simply serrated, not turning upward and not forming rim; degree of serration varied individually, but always not forming a distinct projection. Interantennal area highly elevated; elevated area occupying supraclypeal area and frons up to level of upper margin of antennal socket, and lateral portions of elevation produce over antennal socket; a low carina which connect high frontal carina present in the middle of elevation. Scape slightly shorter than total length of pedicel and first flagellar segment. Pedicel slightly broader than long, 1.1-fold in a narrow sense. Flagellar segments subeqaul (Fig. 3), except tenth segment 1.1-fold and eleventh 1.5-fold longer than first segment. Paraocular carina distinct, fading out before level of midpoint of frons. A distance from ocelli to preoccipital ridge 1.1-fold longer than a diameter of ocellus. Gena gently angulated dorsolaterally. Preoccipital ridge sharp dorsally and laterally, not high behind vertex, but high behind gena. Compound eyes strongly convergent below, distance between inner upper corners of compound eyes 1.7-fold wider than distance between inner lower corners of compound eyes in frontal view. Collar not developed, slightly concave at the middle. Axillar spine not reaching posterior margin of scutellum. Mesoscutal line distinct, running slightly beyond middle of scutum, with a thin groove on it. Scutellum biconvex; anterior flat portion parallel with ventral portion of thorax in lateral view. Propodeal spiracle with extended ridge above and poste-

riorly. Mesotibia with a short carina on apical posterolateral corner. Pygidial plate as in Fig. 6.

Specimens examined. **[JAPAN: Kyushu]** 3 females, Tatsutayama, Kumamoto City, 23. v. 2001 (M. Sakai).

Remarks. Among the Japanese *Epeolus* bees, the female of *E. tarsalis himukanus* has the characteristic interantennal elevation in common with *E. melectiformis* Yasumatsu, 1938. The former can be easily separated from the latter by the wholly reddish brown scutellum and axillar spine.

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