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## Two New Species of the Genus *Alysson* PANZER (Hymenoptera, Sphecidae) in Japan

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**Synopsis** *Alysson japonicus* sp. nov. and *A. monticola* sp. nov. are described, both belonging to the group of *A. ratzeburgi*, having the triangular area dorsalis.

### *Alysson japonicus* sp. nov.

Based upon the literature this species has hitherto been considered identical with *Alysson ratzeburgi* DAHLBOM. But the direct comparison of the specimens reveals that they are considerably different from each other and it seems better to separate them at the specific rank. The differences of *A. japonicus* from *A. ratzeburgi* are as follows (in case of necessity the character of the latter species is given within parenthesis):

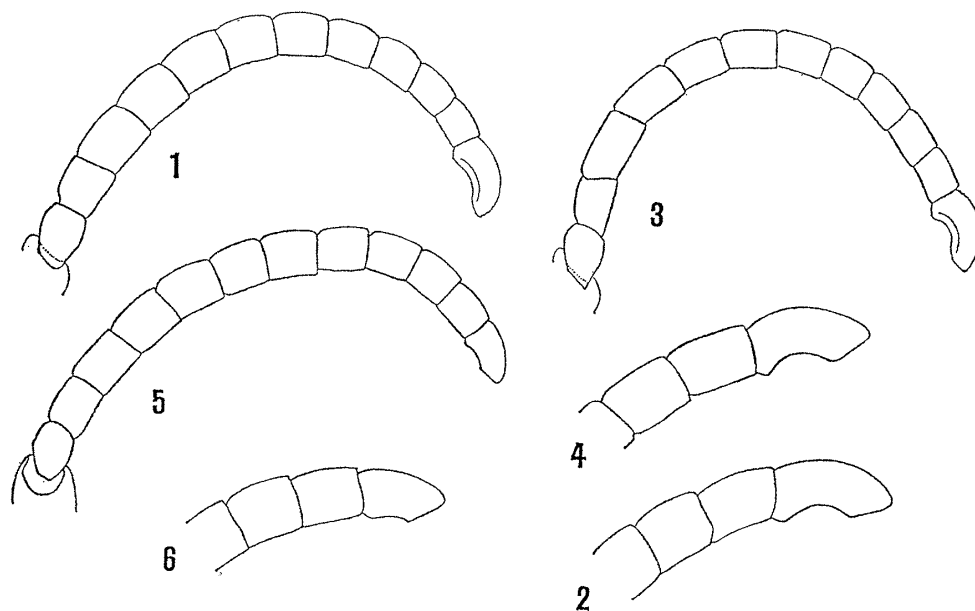
♂ ♀. Frontal furrow indistinct (broad and deep in ♂, narrow and weak in ♀, but in both quite distinct); scutellum and postscutellum entire or nearly entire (medianly deeply furrowed); the transverse series of hair-bearing punctures on clypeus small and weak (large and coarse, in particular in ♀); pubescence covering head and thorax thicker and closer, especially on clypeus; legs generally more broadly black, especially in ♀.

♂. Antenna thicker and more markedly attenuated apically, relative width of joints 4 and 12 appr. 9:6 (7.5:7 under the same scale), each joint relatively thicker and shorter, relative length to width of joints 4, 7 and 12 appr. 1.2, 1.1 and 1.2 (1.5, 1.4 and 1.3) (Figs. 1 and 2, cf. Figs. 3 and 4). In genitalia paramere slightly broader, with hairs on apical portion markedly longer and thicker, penis valve with apical curved part somewhat longer (Fig. 10, cf. Fig. 11); hind tibiae without impression (sometimes with a small impression on outer side).

♀. Antenna slenderer, each joint relatively longer, joints 3, 7 and 11 respectively about 4 times, 2.2 times and twice as long as wide at apex (appr. thrice, 1.7 times and 1.5 times so); hind tibiae without the impression on outer side (bearing a distinct elongate impression), with spine-like hairs thin and whitish (strong and ferruginous); punctures on head and mesoscutum larger and more broadly spaced from each other, on upper frons puncture-intervals appr. as broad as puncture-diameter; yellow on head generally more broadly extended: clypeus, supraclapeal area, circumantennal areas, genae, broad bands along inner orbits up to middle of eyes and mandibles except apices, all connected without interruption.

Some supplements. ♂. Length 5.5–7.0 mm. Yellow on head as in ♀, but the inner orbital bands broader and interantennal mark triangularly extended up-

wards, antenna beneath and palpi except base yellow or pale ferruginous. Pronotal tubercles with marginal area broadly yellow; yellow marks on tergite 2 comparatively large. Legs ferruginous yellow; coxae, trochanters and tibiae of all legs partly black, fore and mid femora on posterior side wholly and hind femora wholly or nearly wholly black, sometimes hind tibiae wholly and tarsi partly black. Area dorsalis always equilateral triangle in form, with lateral lines straight, with the surface longitudinally striate, sometimes the striae except the medial two oblique and weak, arising from the medial ones. Genitalia from beneath: Fig. 7, apical form of paramere more or less variable, but always strongly haired (Fig. 7), penis valve variable in appearance at the apical portion according to the condition of preparation (Figs. 8 and 9, dorsal). Sculpture on the sides of propodeum variable, sometimes nearly wholly smooth, but sometimes broadly striate and punctate.



Figs. 1-6. — 1 and 2. *Alysson japonicus* sp. nov., ♂. — 3 and 4. *A. ratzeburgi* DAHLBOM, ♂. — 5 and 6. *A. monticola* sp. nov., ♂. — 1, 3 and 5. Flagellum. — 2, 4 and 6. Apical three joints.

♀. Length 7.0-8.5 mm. Antenna with scape broadly yellow in front, more broadly so than in ♂, flagellum sometimes with basal half yellow beneath, sometimes wholly black; palpi except base wholly yellow; pronotal tubercles with marginal area narrowly yellow, marks on tergite 2 comparatively large. Legs ferruginous or ferruginous yellow; fore and mid legs with bases of coxae, trochanters above, posterior sides of femora and of tibiae black, fore metatarsi externally and mid tarsi on outer side wholly dark brown; hind legs wholly black, only tarsi somewhat brownish beneath. Area dorsalis in form equilateral triangle, with lateral carinae nearly straight, with the surface longitudinally, somewhat divergently, strongly and

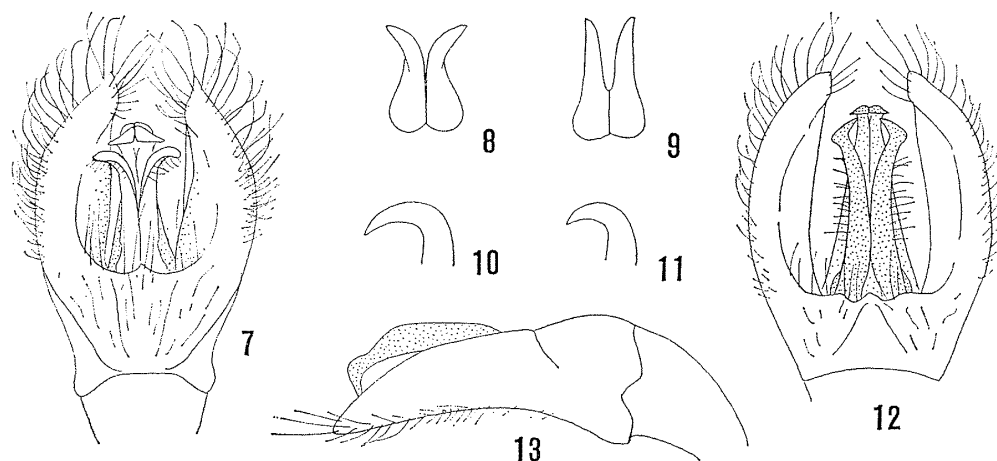
coarsely striate. Punctures on head and mesoscutum larger and somewhat sparser than in ♂ and sculpture on the sides of propodeum variable as in ♂.

Holotype: ♂, Mt. Haku (near Ichinose, at about 1,200 m high), 29. VII. 1956, K. TSUNEKI leg. (Coll. TSUNEKI).

Paratypes: 1 ♀, Koike (900 m), Fukui Pref., 25. VIII. 1965, Y. HANEDA leg.; 1 ♀ 7 ♂, Arashi (800 m), Fukui Pref., 31. VII, 4. VIII. 1974; 2 ♀, the same place, 15. IX. 1975, H. KUROKAWA and T. TANO leg.; 1 ♂, Mt. Heike-dake (at about 1,000 m), Fukui Pref., 23. VIII. 1975, C. NOZAKA leg.; 1 ♀, Mt. Myôkô, Niigata Pref., 8. VIII. 1957, H. ITAMI leg.; 1 ♀, Mt. Nansetsurei (at about 1,000 m), 27. VII. 1943, K. TSUNEKI leg. (1 ♀ 4 ♂, Coll. TSUNEKI; 1 ♀ 4 ♂, Coll. KUROKAWA; 1 ♀ 1 ♂, Coll. HANEDA; 1 ♀, Coll. ITAMI; 1 ♀, Coll. TANO).

Remarks. Relative length of OOD:POD:OCD is considerably varied among specimens. When OOD is 10, the other two are respectively 8:10 (Holotype), 7:9, 7:9 and 8:9 (Korean ex.) in the males measured and 7:12 and 8:12 in the females measured; while in the compared *ratzeburgi* specimens 8:8 (♂) and 9:12 respectively. Receiving point of recurrent veins by cubital cells in fore wing are also variable: both veins interstitial, vein 1 interstitial and 2 by cell 3, vein 1 by cell 2 and 2 interstitial, vein 1 by cell 2 and 2 by cell 3 and rarely vein 1 by cell 1 and 2 by cell 3; variation is observed sometimes between both wings of the same individual, but in the case of non-interstitial always close to interstitial. Head and mesoscutum of the Japanese specimens are usually with more or less aeneous shine, but sometimes without on head. In ♂ ultimate antennal joint is in form as in the compared species (Fig. 2, cf. Fig. 4).

In the Korean specimen head and thorax lacking the aeneous shine and with punctures as large and as sparse as in the Japanese female specimens and the tri-



Figs. 7-13. — 7-10. *Alysson japonicus* sp. nov., ♂. — 11. *A. ratzeburgi* DAHLBOM, ♂. — 12 and 13. *A. monticola* sp. nov., ♂. — 7 and 12. Genitalia (ventral). — 8 and 9. Varied states of apical part of penis valve. — 10 and 11. Apical curved part of penis valve (lateral). — 13. Genitalia (lateral).

angle of area dorsalis abnormally constricted before apex.

The specimens of *A. ratzeburgi* observed are considered somewhat deviating from the normal, as compared with the descriptions of the previous authors. In ♂ punctures on head and thorax larger and more remotely separated than in ♀, and in ♀ clypeus and supraclypeal area wholly black, interantennal mark very small, inner orbital bands very narrow and pronotal tubercles and scutellum wholly black. In both head and thorax without aeneous lustre and well shining. According to literature the colour of the legs in this species is considerably variable. In ♂ observed it is as in our male specimens except that the fore tarsi are largely and mid and hind ones apically black, in ♀ fore femora black except the underside, but the rest of fore legs and mid and hind legs from apices of coxae apically wholly ferruginous except the elongated impressions of hind tibiae (1 ♂ 1 ♀ from Finland).

*Alysson monticola* sp. nov.

Closely resembles *A. japonicus*, but is separable from it by the distinctions as given in Table 1.

♂. Length 5.5–7.0 mm. Black; yellow are antennal joint 1 wholly, flagellum

Table 1. Differences between *A. japonicus* and *A. monticola* (♀♂).

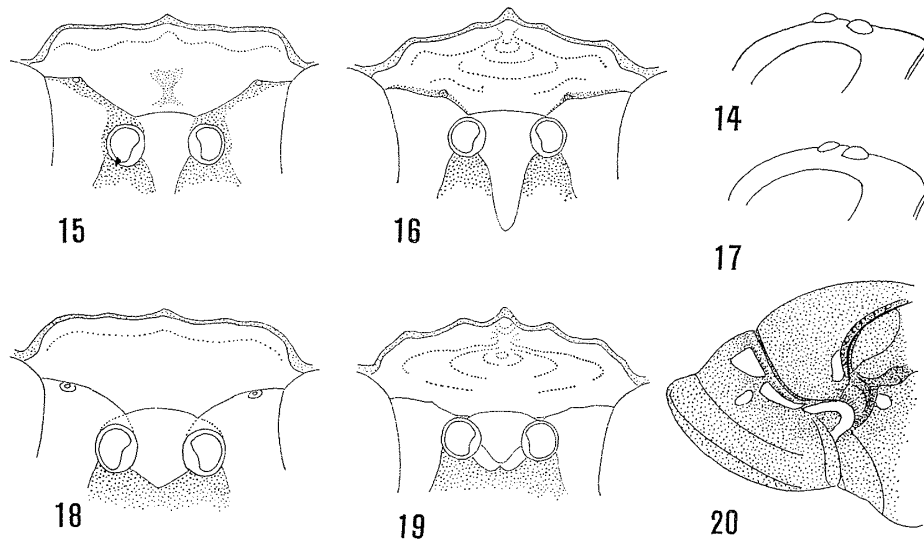
	<i>A. japonicus</i>	<i>A. monticola</i>
Medio-posterior part of vertex	Almost not raised	Distinctly raised
Punctures on vertex	Close (♂), fine (♀)	Sparse (♂), large (♀)
Occipital carina	Depressed much below level of vertex	Only slightly depressed
Interantennal mark	Not extended high	Extended much above level of antennal sockets
Ultimate joint of antenna	Appr. thrice as long as wide at base (♀); appr. 2.5 times so and strongly excavated beneath (♂)	Appr. 2.3 times so (♀); appr. 1.5 times so and weakly excavated beneath (♂)
Mandible	Comparatively broader (♀)	Narrower (♀)
Collar of pronotum	Appr. half the length of mesonotum (♀); slightly less than so (♂)	Less than so (♀); much less than so (♂)
Area dorsalis	Equilateral triangle, sculpture strong and rather sparse	Elongated triangle, sculpture weaker and closer
Antennal flagellum	Broadly darkened beneath (♀); black above and yellow beneath (♂)	Less broadly darkened beneath (♀); dark brown above and yellow beneath (♂)
Legs	More broadly black or dark brown	More broadly yellow or ferruginous
Spines of 8th sternite	Thick	Thin
Genitalia	Paramere broader, volsella: Fig. 7	Paramere narrower, volsella: Fig. 12

beneath (apically more or less ferruginous), mandible except apex, palpi, clypeus except upper lateral lines (sometimes upper third or a patch black or brown), supraclypeal area, interantennal mark, extending upwards beyond level of antennal sockets (distance variable), marginal area of pronotal tubercle, two lateral spots on tergite 2 and fore leg till tibia in front. Rest of legs pale ferruginous except parts of coxae, sometimes all or some of femora beneath partly and tibiae and tarsi in part brown to dark brown. Antenna above dark brown, wing tegula semitransparent brown, sometimes including a yellowish spot within; wings hyaline, obscurely somewhat dark banded beyond middle. Hairs on lower frons and clypeus silvery, but not close, on thorax dorsally short, sparse, appressed, somewhat ferruginous, on mesopleuron silky white and on caudal segment ferruginous, somewhat stiff.

OOD:POD:OCD=6-6.5:4:5, width of postocellus relatively 2.5, vertex posteriorly and occipital margin characteristically raised (Fig. 14, lateral, cf. Fig. 17 in *A. japonicus*), frontal furrow weak, sometimes very obscure; head seen in front with ratio of OAD:WAS:IAD=4:2.5:3, clypeus: Fig. 15 (cf. Fig. 18 in *japonicus*) with disc roundly raised across middle, mandible with apical inner tooth markedly short, without protuberance on inner margin; antennal flagellum: Fig. 5, joint 3 seen from above 1.2-1.3 times as long as broad at apex, ultimate joint short and not strongly curved (Fig. 6 and Table 1). On thorax scuto-scutellar furrow coarsely crenate, scutellum and postscutellum sometimes with medial furrow, sometimes entire, apical tergite of abdomen flattened, gently roundly raised towards apex, with apex broadly rounded.

Punctures on upper frons fine, but comparatively larger than in *A. japonicus*, close, with interspaces less than as wide as a puncture, on vertex somewhat sparser and much sparser posteriorly, on lower frons finer and closer than on upper frons, clypeus on upper half very minutely and closely punctured, on lower half almost smooth, but with a transverse row of gross punctures across middle; punctures on pronotum and mesoscutum similar in size to those of upper frons, but closer, with interspaces in some places linear and the surface appearing longitudinally rugoso-punctate, scutellum posteriorly sparsely punctured; punctures on mesopleuron much finer, anteriorly close and posteriorly very sparse. Propodeum on area dorsalis longitudinally, somewhat divergently and on the outer sides of the area obliquely striate or rugoso-striate; on posterior aspect transversely rugoso-striolate, the density, strength and rugosity of the striae are considerably variable, sides of the segment, together with metapleurons, smooth and polished, only on upper and posterior marginal areas shortly striate or punctate-rugoso-striate. Abdominal tergites 1 and 2 smooth and polished, as in *japonicus* and *ratzeburgi*, 3-6 rather sparsely covered with hair-bearing punctules, the punctules on each tergite posteriorly sparser and slightly larger. Genitalia: Fig. 12 (ventral), with volsella different in form from *A. japonicus* (cf. Fig. 7).

♀. Length 7.0 mm. Similar to ♂ except the following: rise of occipital



Figs. 14–20. — 14–16. *Alysson monticola* sp. nov. (14, 15, ♂; 16, ♀). — 17–19. *A. japonicus* sp. nov. (17, 18, ♂; 19, ♀). — 20. *A. monticola ezoensis* ssp. nov., ♀. — 14 and 17. Vertex of head (lateral). — 15–16, 18–19. Clypeus and lower face (15, 18, ♂; 16, 19, ♀). — 20. Pronotum, mesoscutum and mesopleuron (lateral), showing maculation.

carina in middle not so high, but in dorsal view occipital margin more markedly rounded out in middle; clypeus: Fig. 16, shorter than in *japonicus* (cf. Fig. 19), mandible with a blunt tooth on inner margin. Antennal joints slenderer and longer, joints 3 and 4 equal in length, slightly more than thrice as long as broad at apex, joint 7 appr. 1.7 times so; pronotum relatively slightly longer than in ♂; hind tibiae spinose on outer side, without the elongate smooth impression; fore wing with the dark band much more distinct than in ♂.

Holotype: ♂, Karisaka Pass (about 2,000 m), Saitama Pref., 4. VIII. 1974, T. NAMBU leg. (Coll. TSUNEKI).

Paratypes: 1 ♀ 5 ♂, collected with the holotype (Coll. NAMBU); 23 ♂, Konsei Pass (about 2,000 m), Nikko, 8. VIII. 1965, T. TANO leg. (4 ♂, Coll. TSUNEKI, others Coll. TANO).

Remarks. The inner orbital yellow band in ♂ is comparatively broad and broadly enlarged at the lower end, almost reaching the median supraclypeal mark; at the border between this orbital mark and clypeus most usually an obscurely dark brown streak runs along the lateral oblique margin of the clypeus, the latter with the disc yellow and medianly above carrying a small brownish mark which is sometimes pale to ferruginous brown, sometimes chestnut brown and very rarely black. In one of the male specimens from Karisaka Pass the upper third of the clypeus is wholly black, a maculation quite exceptional to the species. The sculpture within the area dorsalis is usually mixed with short oblique rugae, sometimes the longitudinal striae are obliterated on posterior half and the part is weakly irregularly rugose or uneven, with the surface considerably shining; the variation of the density

of the striae on the dorsal aspect of the propodeum is very marked, similarly the sculpture on the posterior aspect is quite inconstant.

*Alysson monticola ezoensis* ssp. nov.

The specimens (♂♀) of the preceding species from Hokkaido carry small yellow marks scattered on pro- and mesothorax and generally the bright parts of the appendages are much better developed.

In ♀ collar of pronotum, mesoscutum and mesopleuron with small yellow marks as given in Fig. 20 (lateral), the mesopleural mark is lacking on the right side; scutellum with a small spot on the right half alone, possibly the marks on mesopleuron and scutellum are variable. Besides the marks on thorax antennal flagellum is basally more broadly yellow and the dark areas of the legs are more narrowly restricted.

In ♂ pronotal collar with two somewhat larger yellow patches on disc, one on each side and near posterior margin, and a smaller free spot in front of each patch, but the marks on mesoscutum, scutellum and mesopleuron are absent; the marks on tergite 2 are larger than in the Honshu specimens as in ♂ and the legs except a part of each femur are completely pale ferruginous, mixing yellow parts on fore legs.

Otherwise as in the typical specimen (♀♂).

Holotype: ♀, Sapporo (Maruyama), Hokkaido, 26. VII. 1958, S. MOMOI leg. (Coll. TSUNEKI).

Paratype: 1 ♂, the same place, 10. VII. 1957, K. KAMIJÔ leg. (Coll. NAMBU).

Finally I express my hearty thanks to Dr. W. J. PULAWSKI, Wrocław University, Poland, for the loan of the valuable specimens of *Alysson ratzeburgi* and to the colleagues in Japan who kindly forwarded to me the specimens of their collections for study.

### Main Literature

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