

TWO NEW SPECIES OF THE GENUS
RHOPALUM FROM JAPAN
(Hymenoptera, Sphecidae, Crabroninae)¹⁾

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Rhopalum (*Rhopalum* sect. *Rhopalum*) *guttatum* sp. nov.

♀. Length 4.2-4.8 mm. Black and shining. Body covered moderately closely with short whitish pubescence, hairs on clypeus and sides of lower front silvery, on ante-apical margin of each abdominal sternite long and conspicuous; mesopleuron posteriorly, metapleuron, the portion corresponding area cordata and sides of propodeum glabrous. Yellow: palpi, scape of antennae, pedicel beneath, humeral angles (usually with a brownish spot in the middle), apex of front and mid femora, tibiae (except inner face) and tarsi of front and mid legs, greater part of hind trochanters, base of hind tibiae and base of wings partly. Testaceous yellow: mandibles except apex, apex of front and mid coxae, all trochanters beneath, inner and upper faces of front femora and mid femora apically. Testaceous red: hind tibiae apically broadly, hind tibial spurs, ventral surface and apical half of caudal segment and usually the middle of dorsal surface of abdomen. Tegulae and veins of wings brown, antennal flagella and remaining portions of legs brownish black.

Head from above: Fig. 1, ocelli each in a hollow, intervals slightly raised, OOD:POD:OCD nearly 9:6:12, median frontal furrow distinct with both sides gently roundly elevated. Head seen in front with inner margins of eyes strongly convergent below, the distance between eyes at base of clypeus nearly half as long as antennal scape, without space between eye and socket of antenna, frontal prominence between the sockets of antennae conspicuous, rather acutely produced and covered with silvery piles; clypeus: Fig. 2, rarely as in Fig. 3; mandibles provided with a blunt protuberance on the inner margin near the middle (Fig. 2), relative length of five basal joints of antennae:— 11:3:4:3:2.7, joint 3 slightly less than twice as long as wide at apex (ratio 7:4), occipital carina gradually terminated at its ends. Pronotum with antero-lateral corners roundly angulated, mesonotum with medio-anterior impression (or furrow) slight, postscutellum with lunate impression at base, propodeum at base transversely strongly crenate, medianly feebly grooved where the surface longitudinally delicately striate; posterior slope with a large hollow in the middle which is longitudinally furrowed at bottom and marginated posteriorly by carinae, also with lateral carinae well-defined up to the middle of the segment. Petiole (Fig. 4) somewhat characteristic in form, comparatively less narrowed backward in the apical portion, ratio of

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length to width at the broadest part 11:4, relative length between head-width, petiole, hind trochanter, femur, tibia and the 1st and 2nd tarsal joints 33:22:7:20:25:12:6, hind tibia sparsely spinose on the outer face; pygidial area: Fig. 8, medianly longitudinally excavated with the surface rather flatly inclined toward the median line, with lateral carinae well-defined only on apical third; remainder of the lateral borders of the area merely angulated. Radial cell of forewing: Fig. 5, receiving transverse cubital nervure slightly before third from base (ratio 25:7). Upper front and vertex finely rather closely punctured, temples impunctate, punctuation on mesonotum anteriorly finer and closer, on disc and posteriorly and on scutellum similar to on vertex; mesopleuron with episternum wholly and epimeron anteriorly and ventrally covered with rather close fine punctures; abdomen including petiole practically impunctate, pygidial area and its sides minutely coriaceous.

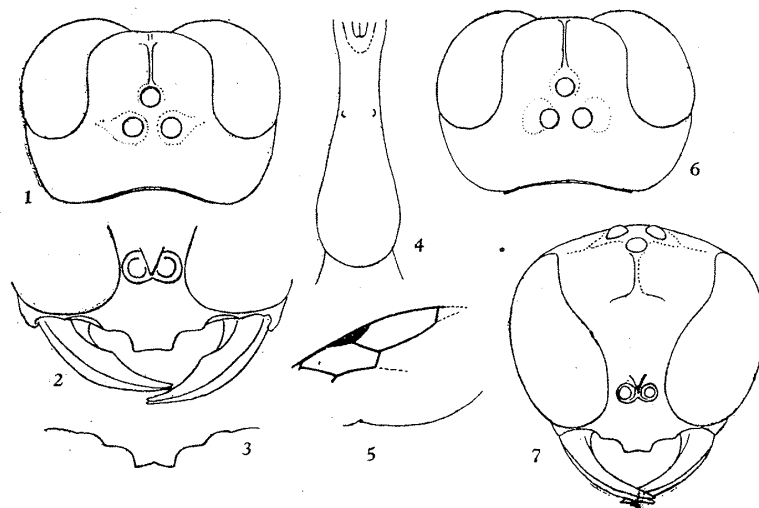
♂. Unknown.

Holotype: ♀, Koike (more than 1000 m high), Fukui Pref., Japan, 31. VIII. 1954.

Paratypes: 18 ♀♀, the same place, 28. VII.-5. VIII. 1954 (K. Tsuneki leg. and in his collection).

Comparative note. The present species resembles somewhat *R. kuwayamai* in the form of the clypeus, but can easily be separable therefrom in having the body smaller, the petiole relatively shorter and different in form and the pygidial area longitudinally excavated. This species can also be distinguished from *R. clavipes jessonicum* Bischoff, to which it is also similar, by the form of the clypeus, by the relative length of the antennae and by the structure of the petiole and of the pygidial area.

Biology. The wasps of this species were nesting in the hollow of thatches used as material for the roof of houses. The prey carried in their nests consisted of several species of midges belonging mainly to Chironomidae.



Figs. 1-4. *Rhopalum guttatum* sp. nov.

Figs. 5-7. *Rhopalum venustum* sp. nov.

Rhopalum (Rhopalum sect. Rhopalum) venustum sp. nov.

♀. Length 4.6-5.0 mm. Black and polished. Yellow: mandibles (somewhat testaceous) except inner margin and apex, palpi, scape of antennae, humeral angles, front and mid legs (except greater part of coxa, femur above and pulvillus), apex of coxa, base and apex of trochanter and base of tibia of hind legs, and wingtegulae. Testaceous: antennal joints 2-8 (or 9) beneath, latero-posterior margins of scutellum and of postscutellum, basal half of abdominal petiole (rather ambur colour), apex of petiole, apical and lateral portions of 2nd tergite, apical half of caudal segment and ventral surface of abdomen nearly wholly. Apical margin of each abdominal segment semitransparent, dark testaceous; antennal flagella and wingveins dark brown. Clypeus and extreme sides and median process of lower front silvery pilose. Body covered sparsely with greyish white pubescence, hairs on ante-apical margin of each abdominal sternite long. Mesopleuron posteriorly, metapleuron and sides and upper-dorsal portion (corresponding to area cordata) of propodeum glabrous.

Head seen from above: Fig. 6, with occipital margin more feebly emarginated than in *guttatum*, with OOD relatively somewhat larger as compared with POD. Ratio of OOD:POD:OCD=10:4:12; head seen in front (Fig. 7) with inner margins of eyes less strongly convergent below than in *guttatum*, the distance between eyes at base of antennae nearly as long as scape of antenna, with as wide a space between eye and one of sockets as that between sockets. Clypeus: Fig. 7, mandibles without protuberance on inner margin; relative length between six basal joints of antennae 10:3.5:2.5:2.7:2.7, the 3rd and 4th joints respectively 1.3 times as long as wide at apex; occipital carina gradually terminated beneath head. Pronotum transversely furrowed across the middle, with a feeble incision medianly in the middle, with latero-anterior corners rounded; mesonotum with medio-anterior furrow and parapsidal grooves indistinct, postscutellum bearing a deep lunate impression at base. Propodeum basally transversely crenate, without well-defined, enclosed area cordata, but with a distinct median longitudinal furrow which is feebler posteriorly; posterior slope slightly convex, provided with a deep elliptic hollow on upper portion, its bottom longitudinally grooved and its posterior margin distinctly outlined by feeble carina which extends medianly backward to apex of the segment; lateral carinae separating the area from the side of the segment defined only on posterior half of the slope. Petiole of abdomen similar

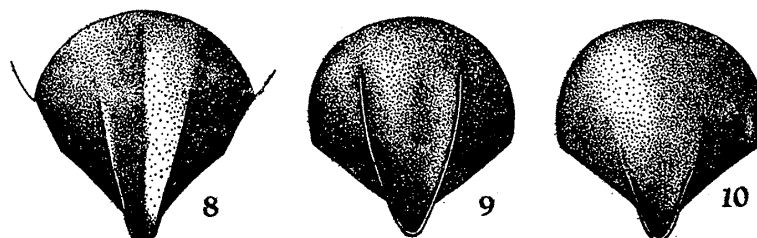


Fig. 8. Pygidial area of *Rhopalum guttatum* sp. nov.

Fig. 9. Ditto of *Rhopalum venustum* sp. nov.

Fig. 10. Ditto (variation).

in form to that of *R. clavipes*, but more gradually and less strongly incrassate posteriorly; ratio of its length to maximum and minimum widths 29:8:4, relative length of head-width, petiole, hind trochanter, femur, tibia and 1st and 2nd tarsal joints 32:29:9:24:29:15:7. Pygidial area: Fig. 9 or 10 (see *Remarks*). Transverse radial nervure of forewing obliquely inclined on radial nervure, the latter receiving recurrent nervure before third. Hind tibia with a few spines on outer surface.

Upper front, vertex, mesonotum, scutellum, postscutellum and mesopleuron anteriorly, finely but distinctly and moderately closely punctured (punctures are smaller than intervals), on anterior portion of mesonotum punctuation closer, on postscutellum finer and on posterior portion of propodeum very fine and sparse. Glabrous portions of body smooth and polished. Rarely, however, upper dorsal portion of propodeum (corresponding to area cordata) longitudinally finely closely striate. Caudal segment including area pygidialis finely coriaceous and mat.

♂. Very closely resembles the male of *R. clavipes jessonicum* Bischoff, but can be distinguished from it by the following points: 1) Coloration: In the present species, mandibles except apex, 2nd antennal joint, front, front and mid legs except basal portion of mid coxae and tegulae of wings whitish yellow or cream yellow. Hind femora, hind tibiae except basal ring, petiole except †-shaped macula on the swollen portion deep amber or bright testaceous. In *jessonicum* mandibles and front coxae black; 2nd antennal joint brownish, front and mid femora always with a large brownish macula on upper portion, hind femora, hind tibiae except base and petiole dark brown or blackish; wingtegulae also somewhat brownish amber (Palpi yellow, posterior lateral margins of scutellum and of postscutellum testaceous as in ♀, abdominal tergites 2 and 3 testaceous with brownish central macula). 2) Structure: In this species eyes separated at base of antennae by a distance as long as scape of antenna; in *jessonicum* the distance less than as long as the scape (21:17). Antenna of this species similar to that of the compared species, but generally slenderer and more delicate. The form of clypeus also similar. Petiole more strongly incrassate toward apex.

Holotype: ♀, Koike, Fukui Pref. (more than 1000 m high), 4. VIII. 1954 (leg. K. Tsuneki).

Allotype: ♂, the same as above.

Paratypes: 5 ♀♀, the same as above (types in the writer's collection).

Remarks. As referred to in a foregoing page, there are two forms of pygidium in this species. In one form (4 specimens) the area is excavated for a longer distance and the lateral carinae attain nearer to the base (Fig. 9). In the other form (2 specimens) the lateral carinae defined only on apical portion and the surface basally gently convex, without any bordering ridges (Fig. 10). However, there can be admitted no noteworthy differences in other characters between the two series. Hence they have been regarded as representing two phases of variation of the same species. Similar (but less in degree) variation of the form of the pygidial area can be met with in the examples of *R. clavipes jessonicum* Bischoff.