

## A New Orthotyline Plant Bug (Heteroptera: Miridae), Associated with *Rhododendron macrosepalum* (Ericaceae) in the Kii Peninsula, Japan

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**Abstract.** *Orthotylus gotohi* is described as new, and a new subgenus of *Orthotylus*, *Kiiorthotylus*, is proposed to accommodate the new species. A description of the last-instar nymph is also provided. This species is associated with a semievergreen shrub, *Rhododendron macrosepalum*, which is endemic to Japan.

During my recent collecting trip in the Kii Peninsula of Honshu, many nymphs of an orthotyline plant bug were collected from *Rhododendron macrosepalum* (Ericaceae, Japanese name: Mochi-tsutsuji). These nymphs were reared with young leaves and stems of this plant in the laboratory, and 31 ♂ 4 ♀ adults emerged after several days. Subsequently, additional adults were offered by Mr. S. Gotoh of Tanabe City and I could get enough materials to examine.

These mirids can be regarded as a species of the genus *Orthotylus*, judging from the external appearance, but the male genital structure sufficiently differs from those of any known subgenera and species groups previously proposed by several authors (Southwood and Leston, 1959; Wagner and Weber, 1964; Wagner, 1972). In addition to such structural differences, this new species has a special host preference; it is associated only with *Rhododendron macrosepalum* which is restricted to western Japan (Horikawa, 1972).

In the present paper, both adult and last-instar nymph of the new species, *Orthotylus gotohi*, are described and figured, and a new subgenus *Kiiorthotylus* is proposed for the new species.

All measurements in the text are given in millimeters.

### Genus *Orthotylus* Fieber, 1858

*Orthotylus* Fieber, 1858, Wien. ent. Monat., 2: 315, type species: *Cimex nassatus* Fabricius, 1787, by subsequent designation by Kirkaldy, 1906, Trans.

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This is a large Holarctic genus, including more than 90 species; only 3 species, *O. (O.) pallens* (Matsumura, 1911), *O. (Melanotrichus) flavosparsus* (Sahlberg, 1842) and *O. (Neomecomma) bilineatus* (Fallén, 1807), have been recorded from Japan (Miyamoto and Yasunaga, 1989).

Most species of the genus are plant-feeders and several are of economic importance, while predation on psylla and aphids has been reported (Wheeler and Henry, 1992).

### *Kiiorthotylus*, n. subgen.

Type species: *Orthotylus gotohi*, n. sp.

Similar in general coloration and shape to *Orthotylus* s. str., but differing in having the smaller body, extremely long rostrum, and peculiar shape of the male genitalia as follows: sensory lobe of left paramere with a median rounded spinulate process and toothed apical-inner margin; hypophysis slender and strongly hooked at middle (Fig. 2 C-E); right paramere widened and flattened, with marginal teeth apically (the teeth are variable in number and shape as in Fig. 2 A-B) and basal long shaft; vesica composed of three lobes (F); lobe  $\alpha$  (seminal lobe) almost membranous and not elongate; lobe  $\beta$  sclerotized and 3-branched—two apical branches bifurcate; lobe  $\gamma$  sclerotized, curved and elongate, with a median short branch.

### *Orthotylus (Kiiorthotylus) gotohi*, n. sp.

*Adult* (Fig. 1 A). Body generally pale green,

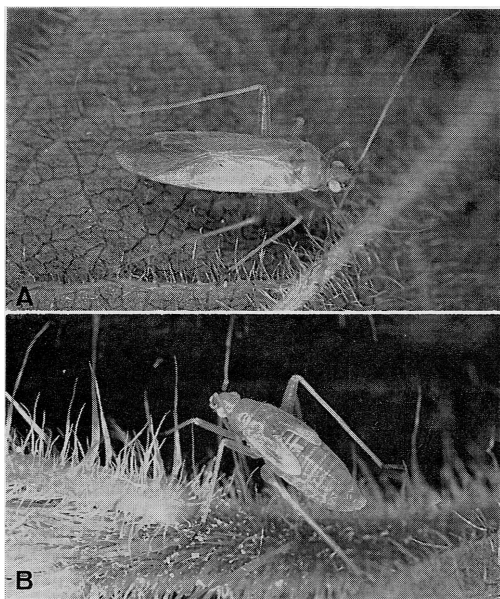


Fig. 1. Male adult (A) and last-instar nymph (B) of *Orthotylus gotohi* on *Rhododendron macrosepalum*.

immaculate, slender, parallel-sided; dorsal surface uniformly clothed with pale brown suberect hairs. Head oblique, slightly shorter than width including eyes, with silky suberect pubescence; eyes small, about half as wide as vertex; vertex not carinate basally. Antenna pale brown; 1st segment bearing several pale erect setae inward; 2nd segment about half as thick as 1st; apical part of 2nd, almost entire 3rd and 4th segments usually darkened; length of segments I-IV as 0.47:1.67:1.17:0.58 in ♂, 0.43:1.82:1.27:0.55 in ♀. Rostrum pale, shining, extending beyond hind coxae; apical 1/3-1/2 of 4th segment darkened; length of segments I-IV as 0.42:0.50:0.43:0.53 in ♂, 0.43:0.50:0.49:0.52 in ♀.

Pronotum shining, rather flattened, impunctate. Mesoscutum and scutellum slightly shagreened. Hemelytra shining, impunctate; cuneus about twice as long as width; membrane pale grayish brown. Legs pale brown, long; tibial spines pale; tarsi brown; length of hind femur: tibia: tarsus as 1.76:2.83:0.54 in ♂, 1.90:3.08:0.56 in ♀.

Abdomen pale green; ventromedian part of male genital segment slightly infuscate. Male genitalia as described under subgeneric diagnosis.

Dimensions. ♂: Body length 4.5-4.7, head width 0.68-0.70, pronotal width 1.03-1.06 and width across hemelytra 1.33-1.35; ♀: 4.4-4.5, 0.68, 1.03-1.06 and 1.42-1.47, respectively.

HOLOTYPE: ♂, Tsubaki hot-spring, Shirahama T., Wakayama Pref., Honshu, Japan, on *Rhododendron macrosepalum*, 22.vi.1993, S. Gotoh (deposited in Biological Laboratory, College of General Education, Kyushu University). PARATYPES: 31 ♂ 4 ♀, Doro valley, Tamakiguchi, Wakayama Pref., on *R. macrosepalum*, 6.vi.1993, T. Yasunaga (all were last-instar nymphs when collected and emerged on 8-11.vi.1993); 6 ♂ 3 ♀, same locality, on *R. macrosepalum*, 15.vi.1993, S. Gotoh; 21 ♂ 6 ♀, same data as for holotype.

*Last-instar nymph* (Fig. 1 B). Body generally pale green, rather elongate; dorsal surface immaculate, clothed with brownish suberect hairs. Head somewhat pointed in front, about as long as width including eyes, sparsely with brownish erect hairs. Antennae somewhat brownish; 1st segment bearing several setae inward; length of segments I-IV as 0.37:1.34:1.03:0.67. Rostrum long, extending beyond hind coxae; apical 1/3 of 4th segment infuscate.

Pronotum, mesonotum and metanotum immaculate, clothed with brownish suberect hairs; apical part of wing pad tinged with yellow. Legs

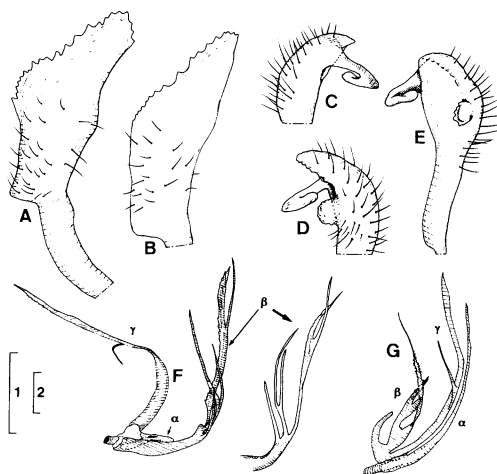


Fig. 2. Male genitalia of *Orthotylus* spp. A-F, *O. gotohi*; G, *O. (O.) interpositus* K. Schmidt (from S. Primor'je, Russia)—A-B, Right paramere; C-E, left paramere; F-G, aedeagus. Scales: 0.2 mm—1 for A-E & 2 for F-G.

long; tibiae yellowish, with pale spines; tarsi brown with darker apices; length of hind femur: tibia: tarsus as 1.60: 2.43: 0.50. Abdomen pale green, with dorsal brownish suberect hairs; dorsal scent gland opening yellowish.

**Dimensions.** Body length 3.17–4.00, head width 0.58–0.62, rostral length 1.67–1.83, pronotal width 0.68–0.70 and width across mesonotum including wing pads 1.13–1.17.

**Distribution.** Japan (Honshu).

### Discussion

The genus *Orthotylus* is a large complicated group, and further study is needed to define the subgenera and/or species groups properly; several subgenera will be upgraded to the generic level as pointed out by Southwood and Leston (1959). The present new species, *gotohi*, is placed under the genus *Orthotylus*, based on the general appearance, but the male genital structure does not correspond to those of any subgenera and species groups previously proposed. Only structure of the aedeagus exhibits similarity to certain species of *Orthotylus* s. str. (Fig. 2 F-G), while the parameres are completely different in from (A-E). The present new taxon, *Kiorthotylus*, is here treated as a subgenus of *Orthotylus*, but it may be upgraded to the generic level in the future.

*Orthotylus gotohi* is associated strictly with *Rhododendron macrosepalum*, which is endemic to Japan and only found around Kii Peninsula (Fig. 3). Although the leaves and stems of this plant are

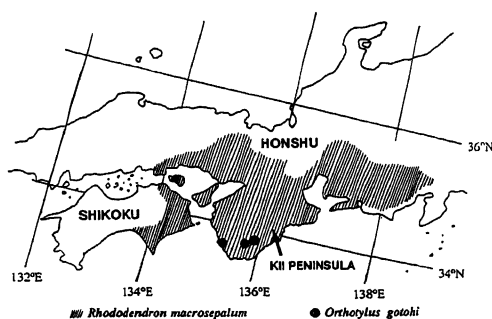


Fig. 3. Map showing the distribution of *Orthotylus gotohi* and its host plant *Rhododendron macrosepalum*.

densely covered with soft 'sticky' hairs (Fig. 1), the mirid can walk quickly on them. But many insects cannot walk or several are sometimes 'caught' by the sticky hairs as observed by Yasunaga (1992). It is possible that the sticky hairs of the host plant is effective for protection against enemies.

This interesting mirid seems to have been isolated by the special host preference, and it will be discovered in other places where *Rhododendron macrosepalum* grows.

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紀伊半島においてモチツツジに寄生するメクラカ  
メムシの 1 新種 (異翅目, メクラカメムシ科)

安永智秀

紀伊半島でモチツツジから発見された 1 新種 (*Orthotylus gotohi*) を, 記載, 図示した。本種は外観的特徴から判断すると, *Orthotylus* 属の一員であると考えられるが, 雄生殖器の形態が非常に独特で, 既知の亜属あるいは種群に該当しない。そこで新亜属 *Kiiorthotylus* を創設し, これに含めた。本種は, 形態的に特異なばかりでなく, 表記の通りモチツツジだけに寄生する。モチツツジは本州の紀伊半島周辺と四国東部に産地が限定され, 粘着性の軟毛を葉や茎に密生する変わったツツジで

ある。他の多くの昆虫が, しばしばこの軟毛に脚をとられて動けなくなるのに対し, このメクラカメムシは, 粘着性の軟毛上を自由に動き回ることができる。おそらく本種にとって, モチツツジは食糧としてだけでなく, 外敵に対する防壁の役割があるものと思われる。本種はこのような特殊な寄主選好性によって隔離され, 特化したメクラカメムシであるともいえる。

なお本種の和名は, “モチツツジメクラガメ (新称)” としておきたい。

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