SHORT COMMUNICATION

A new species, *Hishimonus araii*, from Japan and Korea (Homoptera: Cicadellidae: Deltocephalinae, Opsiini)¹

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The genus *Hishimonus* was established by ISHIHARA (1953), based on *Thamnotettix sellata* UHLER (1896) which was originally designated as *Acocephalus disciguttus* WALKER. A revision of the genus has been made by KNIGHT (1970a), together with 25 species from Ethiopian and Oriental regions. In addition, so far as the author knows, one more new species has been recorded by EMELYANOV (1969) from Maritime Territory, U.S.S.R., 7 new species described by KUOH (1976) from China, and an Indian species transferred to the genus by ISIHARA (1972). *Naevus* and *Litura* by KNIGHT (1970b) are its related genera.

Hishimonus sellatus is an important leafhopper from a sericultural standpoint as a vector of the dwarf disease of mulberry trees, *Morus* spp. (Moraceae) in Japan and Korea. Besides, in Korea, the leafhopper is regarded as a vector of the witches' broom disease of the jujube tree, *Zizyphus jujuba* MILL. var. *inermis* REHD. (Rhamnaceae) (KIM, 1966). The leafhopper, which hibernates in the egg stage, had been the only species of the genus found in Japan. Recently, ARAI (1977b) recognized many adults of an undetermined *Hishimonus* species on several evergreen trees in March and April, 1977, in Saitama Pref., Honshu. According to his unpublished data, the mutual communication by male abdominal vibration of the species is different from that of *H. sellatus* previously reported by ARAI (1977a).

Japanese and Korean *Hishimonus* specimens provided by several persons, including Mr. Y. ARAI, were examined. It was found that the

undetermined species is as common as *H. sellatus* in Japan, and has genital characteristics different from the known *Hishimonus* species. The author had to know which of the two Japanese common leafhoppers is the true *H. sellatus*. Redescriptions of *H. sellatus* have been made by ISHIHARA (1959), LINNAVUORI (1960), NIELSON (1968) and by KNIGHT (1970a). Although the last two entomologists have already examined a cotype (female) of the species preserved in the United States National Museum, the author re-examined it and confirmed that the *Thamnotettix sellata* is the same as the *Hishimonus* species collected on mulberry and jujube trees in Japan and Korea. In this paper, the undetermined species is described as a new member of the genus *Hishimonus*.

Hishimonus araii sp. nov.

General length of male 3.9–4.1 mm, female 4.0–4.4 mm.

Vertex greenish yellow, yellowish brown in overwintered individuals, with colorless ocelli on cephalic margin, and with a longitudinal median groove arising from posterior margin and reaching the center of disc. Frons greenish yellow. Genae greenish yellow each with a small blackish spot near lorum. Clypeus and lorum yellowish. Pronotum greenish yellow on anterior half, yellowish brown on posterior half, with a dark tinge near postero-lateral margin. Scutellum greenish yellow, with a pair of triangular brownish marks anteriorly, a transverse black line medially, a longitudinal stripe at middle, two brown spots on lateral margin, and posterior apex whitish. Elytra grayish white, with a light brown reticulation, light brown veins, a large semicircular brown spot against commissural margin. The large semicircular spot grayish white centrally, covering distal half of clavus and brachial and inner distal cells of corium and bordered with dark brown in part of its anterior margin. Lower surface of thorax pale yellow or dull yellow. Legs greenish yellow, with dark brown mottles. Abdominal tergites dark brown medially, greenish yellow laterally. Sternites greenish yellow or dull yellow.

Male. Second sternite in ventral aspect with a pair of convex apodemes; apical process of genital style slender, attenuated apically, about 1/3 as long as total length of style, with apex round; connective in dorsal aspect Y-shaped, slightly

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Figs 1-7. *Hishimonus araii* sp. nov.

1. Genital style in dorsal aspects. 2. Connective and aedeagus in dorsal aspect. 3. Connective and aedeagus in lateral aspect. 4. Male first sternite in caudo-ventral aspect. 5. Male second sternite in ventral aspect. 6. Female seventh sternite in ventral aspect. 7. First valvulae in ventral aspect. Scale, 0.3 mm.

shorter than eadeagus; aedeagus with two shafts; shaft tubular, lamellated laterad on distal half, attenuated apically in lateral aspect, having round apex in dorsal aspect, acutely turned cephalad subterminally to a hook in lateral aspect; gonopore subterminal.

Female. Caudal margin of seventh sternite in ventral aspect convex and blackish brown medially with a pair of small yellowish rounded processes; inner margin of first valvula straight and even at base.

Holotype: ♂, Fukuyama, Hiroshima Pref., Honshu, IX-15, 1977, T. OKADA leg. on *Euonymus japonicus* THUNB. (Celastraceae). *Paratypes:* 1 ♂, the same data as the holotype; 4 ♂♂ 5 ♀♀, Kumagaya, Saitama Pref., Honshu, III, 1977, Y. ARAI leg. on evergreen trees; 1 ♀, Cape Ashizuri, Shikoku, VII-23, 1960, M. MIYATAKE leg.; 2 ♂♂

1 ♀, Chikugo-shi, Fukuoka Pref., Kyushu, VII-21, 1958, H. SUENAGA leg.; 1 ♂ 2 ♀♀, Kawaura, Amakusa-shimo-jima, Kumamoto Pref., XI-27, 1961, T. OKADA leg. on *Sambucus chinensis* LINDL. (Caprifoliaceae); 1 ♀, Ishigaki Is., Ryukyus, IV-16, 1976, H. SATOMI leg. on a light trap; 1 ♂, Milyang, Korea, X-8, 1974, H. -K. KIM leg. The holotype and several paratypes are preserved in the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama, Shikoku.

Other specimens confirmed: Honshu: Niitsu, Niigata Pref., 1 ♀, VII-19, 1965, 1 ♀, IX-1, 1965, 1 ♀, VII-25, 1966—S. SAKURAI leg.; Kuroiso, Tochigi Pref., 1 ♀, VII-11, 1975, 2 ♂♂ 1 ♀, VII-16, 1975—E. KATAYAMA leg. on a light trap; Kumagaya, Saitama Pref., 5 ♂♂ 5 ♀♀, VII-26, 1977, Y. ARAI leg. on *Euonymus japonicus* THUNB. (Celastraceae); Tottori, Tottori Pref., 8 ♂♂

Figs 8-14. *Hishimonus sellatus* (UHER)

1. Genital style in dorsal aspect. 2. Connective and aedeagus in dorsal aspect. 3. Connective and aedeagus in lateral aspect. 4. Male first sternite in caudo-ventral aspect. 5. Male second sternite in ventral aspect. 6. Female seventh sternite in ventral aspect. 7. First valvulae in aspect. Scale, 0.3 mm.

12 ♀♀, 1975, T. OKADA leg. from a light cover; Funaoka, Tottori Pref., 1 ♂ 1 ♀, 1975, T. OKADA leg. from a light cover; Miyanoshita, Kokufu, Tottori Pref., 1 ♀, 1975, T. OKADA leg. from a light cover; Yato, Nichinan, Tottori Pref., 1 ♂ 1 ♀, 1975, T. OKADA leg. from a light cover; Onuka, Tojo, Hiroshima Pref., 1 ♂ 1 ♀, 1975, T. OKADA leg. from a light cover; Tameshige-dani, Tojo, Hiroshima Pref., 1 ♂ 1 ♀, 1976, T. OKADA leg. from a light cover; Fukuyama, Hiroshima Pref., 1 ♀, VI-13, 1967, 1 ♀, VI-20, 1967, 1 ♂, VI-26, 1967, 1 ♀, VII-18, 1967—J. HIRAO leg. Hachijo Is.: 1 ♀, VII-21, 1957, S. HISAMATSU leg. Omi-shima, Ehime Pref.: 1 ♀, VII-16, 1959, S. HISAMATSU leg. Kyushu: Hoshino, Yame-gun. Fukuoka Pref., 1 ♂, VI-27, 1973, T. OKADA leg.; Chikugoshi, Fukuoka Pref., 1 ♀, V-20, 1953, 1 ♀, VI-12,

1958—S. NASU leg.; do, 1 ♀, X-6, 1959, 1 ♀, VIII-9, 1959, 1 ♂ 1 ♀, VII-17, 1960, 1 ♀, VII-22, 1960—H. SUENAGA leg.; do, 1 ♂, VI-19, 1961, 1 ♀, IX-28, 1961, 1 ♀, VI-29, 1962, 1 ♀, IX-2, 1962—T. OKADA leg.

Distribution. Japan (Honshu, Shikoku, Kyushu, Ryukyus) and Korea.

This species is somewhat related to *H. lindbergi* KNIGHT which occurs in the Cape Verde Islands, but the former differs from the latter in having the lamella on the distal half of the aedeagal shaft. This species resembles of *H. sellatus* which is similarly distributed in Honshu, Shikoku, Kyushu, Ryukyus (Okinawa Is. and Ishigaki Is.), Korea, China, etc. The genital characteristics are shown in Figs 8-14 for comparison. It is easy to distinguish the new species from *H. sellatus* by examining

the female seventh sternite.

This new species is named in honor of Mr. Y. ARAI who first became aware of the second Japanese species of the genus and made studies on its bionomics. Arai-hishimon-yokobai is proposed as the Japanese name for the species. *H. araii* is very common and often occupies the major part of the *Hishimonus* complex caught by lights in various localities of Japan. It is thought to hibernate in the adult-stage (ARAI, 1977b), and not to take its habitat on mulberry and jujube trees on which *H. sellatus* propagates, but on *Euonymus japonicus* (Celastraceae), *Ilex crenata* (Aquifoliaceae), *Sambucus chinensis* (Caprifoliaceae), *Serissa japonica* (Rubiaceae) and others. It will be necessary to take care not to confuse the new species with the mulberry leafhoppers, *Hishimonus sellatus* (UHLER) and *Hishimonoides sellatiformis* ISHIHARA, in sericultural research. So far as the author is aware, this species has been partially contained in the following literature as *H. sellatus*: SUENAGA and OKADA (1969) and Fig. 16–18 in Plate 2 of SAKAI (1937).

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