

## Two Newly Recorded Species of the Genus *Dacnusa* Haliday (Hymenoptera: Braconidae: Alysiinae) Parasitic on Agromyzid Flies in Korea

### 굴파리류에 기생하는 한국産 *Dacnusa*屬 (별목: 고치벌과: 장승입고치벌아과)의 2 미기록종

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구덕서 · 한만종 · 안성복

**Abstract** - *Dacnusa (Aphanta) sasakawai* Takada and *Dacnusa (Dacnusa) nipponica* Takada are reported for the first time from Korea with their redescription and figures. The former species was parasitic on the leafminers *Liriomyza bryoniae* (Kaltenbach) and *Chromatomyia horticola* (Gourea), and the latter was parasitic on the *C. horticola*.

**Key Words** - Systematics, Hymenoptera, Braconidae, Alysiinae, *Dacnusa*, Korea

**초 록** - *Dacnusa*屬 (별목: 고치벌과: 장승입고치벌아과)의 2종 *Dacnusa (Aphanta) sasakawai* Takada와 *Dacnusa (Dacnusa) nipponica* Takada를 한국미기록종으로 보고한다. 전종은 *Liriomyza bryoniae* (Kaltenbach), 오이잎굴파리와 *Chromatomyia horticola* (Gourea), 완두굴파리에 기생했으며, 후종은 완두굴파리에 기생했다.

**검색어** - 분류, 별목, 고치벌과, 장승입고치벌아과, *Dacnusa*속, 한국

The genus *Dacnusa* Haliday is a moderately large group belonging to the subfamily Alysiinae. The genus comprises more than 100 species throughout the world (Shenefelt, 1974). Almost all species of this genus are solitary endoparasitoids of dipteran larvae. The leaf miners *Liriomyza bryoniae* (Kaltenbach) and *Chromatomyia horticola* (Gourea) (Diptera: Agromyzidae) are serious pests of many economically important crops, and yet braconid parasitoids of the pests have been unknown from Korea. We intended to survey of parasitoids from vegetable crop pests, and reared some larvae of the leaf miners collected on various crops. As the result, recently we could collect two braconid species.

*Dacnusa (Aphanta) sasakawai* Takada is emerged from the pupae of *L. bryoniae* on gypsophila, lisianthus, oriental melon, and cucumber, and from the pupae of *C. horticola* on Chinese cabbage and edible chrysanthemum. While *Dacnusa (Dacnusa) nipponica* Takada is emerged from pupae of *C. horticola* on radish and pea. Both species were previously recorded as parasitoids of the vegetable leaf miner *C. horticola* in Japan (Takada, 1977; Takada and Kamijo, 1979), and *D. (A.) sasakawai* was recorded as a parasitoid of *L. bryoniae* in Europe (Griffiths, 1984). In present study, two braconid species are reported for the first time from Korea with their redescriptions and figures.

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All the materials are deposited in the insect collection of National Institute of Agricultural Science and Technology (NIAST), Rural Development Administration, Suwon, Korea. The terminology and measurements used in this paper follow the suggestions of van Achterberg (1979, 1988, 1993).

## Description

### *Dacnusa (Aphanta) sasakawai* Takada (Figs 1-3, 7-9, 13-16)

*Dacnusa sasakawai* Takada, 1977: 2; Takada and Kamijo, 1979: 22; Griffiths, 1984: 350.

Body length 1.3~1.6 mm, fore wing 1.7~1.9 mm.

Head.- Antennal segments 19~23, its apical segment without spine; third segment 1.0~1.1 times longer than fourth segment; length of third, fourth and penultimate segments 4.5~5.0, 4.5~5.1, and 2.0~2.8 times of their width, respectively; head transverse in dorsal view, smooth and shining; eye in dorsal view 1.0~1.3 times as long as temple; eye in dorsal view slightly protuberant; temple rounded posteriorly; frons smooth; occipital carina absent; vertex with long scattered hairs; OOL: diameter of ocellus: POL = 5~8 : 2 : 3~4; ocelli small; face slightly convex and moderately pubescent; clypeus smooth and convex with several long hairs; eye nearly touching base of mandible; mandible with three teeth, slightly rugose.

Mesosoma.- Length of mesosoma 1.3~1.6 times of its height; pronope present; side of pronotum crenulate medially; episternal scrobe narrow, precoxal sulcus distinct and crenulate, epicnemial area with several hairs, remainder of mesopleuron smooth; metapleuron covered with whitish pubescence; notauli distinct anteriorly, becoming shallower towards posterior end, and with a longitudinal depression medio-posteriorly; middle lobe of mesoscutum smooth and densely pubescent; scutellar sulcus wide; scutellum slightly convex and smooth, sparsely setose; side of scutellum smooth; propodeum weakly rugose, covered with whitish pubescence, which forms a dense rosette of radiating hairs around spiracle.

Fore wing: pterostigma sexually dimorphic, female 5~6 times and male 3.0~3.5 times longer than their width; vein 1-R1 distinctly shorter than pterostigma; vein 1-SR+M absent;  $r : 2-SR = 3\sim 3.5 : 3.5\sim 4$ ;  $1-CU1 : 2-CU1 = 1.5\sim 2 : 3\sim 3.5$ .

Legs.- Hind coxa smooth; length of femur, tibia and basitarsus of hind leg 3~5, 7.6~10.8, and 4~6 times their width, respectively; tarsal claws simple.

Metasoma.- Length of first tergite 1.6~1.9 times of its apical width, its surface rugose and with a few scattered hairs; ovipositor sheath hardly protruding beyond apex of metasoma.

Color.- Black; annellus, ventral surface of scapus, clypeus, mandible (except for dark edge), labrum and palpi yellowish-brown; first metasomal tergite yellowish-brown, second and third tergite brownish-yellow; legs largely dark yellow, but slightly darker dorsally and telotarsus dark brown; wings hyaline, pterostigma of female brown (darker brown in male), veins pale brown.

**Material examined.** Korea, 11 ♀ 27 ♂ : 2 ♀ 1 ♂, Jaunri, Naemyŏn, Hongch'ŏn, Kangwŏn, 27. VIII. 1996, D.S. Ku and M.J. Han, emerged from pupae of *L. bryoniae* bred on oriental melon; 1 ♀ 5 ♂, Naekyo, Hampyŏng, Chŏnnam, 12. VI. 1996, D.S. Ku and I. S. Kim, ditto; 2 ♂, Buwang, Shinrim, Wŏnju, Kangwŏn, 21. V. 1996, D.S. Ku and K.J. Hong, emerged from pupae of *L. bryoniae* bred on gypsophila; 1 ♂, Sukmun, Dunnae, Heongsŏng, Kangwŏn, 21. V. 1996, D.S. Ku and K.J. Hong, emerged from pupa of *L. bryoniae* bred on gypsophila; 1 ♂, same locality, 22. V. 1996, ditto; 1 ♂, Wudu, Chunchŏn, Kangwŏn, ditto; 1 ♂, P'yungchang, Kangwŏn, 12. VII. 1995, K. J. Hong, emerged from pupa of *L. bryoniae* bred on celery; 3 ♀ 5 ♂, Gumma, Chuchŏn, Yŏngwŏl, Kangwŏn, 21. V. 1996, D.S. Ku and K. J. Hong, emerged from pupa of *L. bryoniae* bred on cucumber; 1 ♂, ditto, on lisianthus; 1 ♂, Kongju, Ch'ungnam, 29. V. 1996, K.J. Hong, emerged from pupa of *C. horticola* bred on edible chrysanthemum; 3 ♂, Hwasŏng, Kyŏnggi, 5. VI. 1996, D.S. Ku and K.J. Hong, ditto; 2 ♀ 1 ♂, Kusŏng, Kimch'ŏn, Kyŏngbuk, 18. VI. 1996, K.J. Hong, emerged from pupa of *C. horticola* on radish; 2 ♀ 1 ♂, ditto, emerged from *L. bryoniae*; 1 ♀ 1 ♂, Sujin, Koesan, Ch'ungbuk, 2. VII. 1996, D. S. Ku, emerged from pupae of *C. horticola* bred on chinese cabbage; 1 ♂, Sŏngam, Sinnae, Ch'ungju, Ch'ungbuk, 3. VII. 1996, D.S. Ku and I.S. Kim, emerged from pupa of *L. bryoniae* bred on radish; 1 ♂, Namji, Ch'angnyŏng, Kyŏngnam, 19. VI. 1996, M.J. Han, emerged from pupa of *C. horticola* bred on radish.

**Distribution.** Korea (Central, South), Japan, Europe.

**Host.** *Liriomyza bryoniae* (Kaltenbach), *Chromatomyia horticola* (Gourea) (Diptera: Agromyzidae).

***Dacnusa (Dacnusa) nipponica* Takada  
(Figs 4-6, 10-12, 17, 18)**

*Dacnusa nipponica* Takada, 1977: 2; Takada and Kamijo, 1979: 22.

Body length 1.4~2.3 mm, fore wing 1.9~2.1 mm.

Head.- Antennal segments 21~23, its apical segment without spine; third segment 1.2~1.3 times longer than fourth segment; length of third, fourth and penultimate segments 4.5, 3.5, and 1.9~2.2 times of their width, respectively; head transverse in dorsal view, smooth and shining; eye in dorsal view 0.8~1.0 times as long as temple; eye in dorsal view slightly protuberant; temple rounded posteriorly; frons smooth; occipital carina absent; vertex smooth and with long scattered hairs; OOL : diameter of ocellus : POL = 5~9 : 2~2.5 : 3~3.2; ocelli small; face slightly convex and densely pubescent; clypeus with whitish hairs, smooth and convex; eye nearly touching base of mandible; mandible with three teeth, punctate.

Mesosoma.- Length of mesosoma 1.5~1.8 times of its height; side of pronotum slightly depressed medially and smooth; episternal scrobe narrow, precoxal sulcus slightly depressed, epicnemial area with several hairs, remainder of mesopleuron smooth; metapleuron covered with whitish pubescence; notauli weakly impressed only at basal part; middle lobe of mesoscutum smooth and shining, densely pubescent, lateral lobes of mesoscutum largely glabrous (but, pubescent in some specimens); scutellar sulcus wide; scutellum slightly convex and smooth, sparsely setose; side of scutellum smooth; propodeum almost smooth, covered with densely whitish hairs.

Fore wing: pterostigma considerably elongate, 11~14 times longer than its width; vein 1-R1 distinctly shorter than pterostigma; vein 1-SR+M present;  $r : 2-SR = 3.5 \sim 4.5 : 6-7$ ;  $1-CU1 : 2-CU1 = 2.0 \sim 3.0 : 5.5 \sim 6.0$ .

Legs.- Hind coxa smooth and shiny; tarsal claws simple.

Metasoma.- Length of first tergite 1.1 times its apical width, its surface weakly rugose and covered with densely whitish hairs; ovipositor sheath slightly projecting beyond apex of metasoma.

Color.- Black; annellus, ventral surface of scapus, mandible (except for dark edge), labrum and palpi yellowish-brown; legs largely dark brown, but dorsal surface of hind coxae and all telotarsus dark; wings hyaline, pterostigma and veins pale brown.

**Material examined.** Korea, 2 ♀ 1 ♂ : 1 ♀ 1 ♂, Naekyo, Hampyöng, Chönnam, 12. VI. 1996, D.S. Ku and I.S. Kim, emerged from *C. horticola* on radish; 1 ♂, Söngnam, Muan, Chönnam, 12. VI. 1996, D.S. Ku and I. S. Kim, emerged from *C. horticola* on pea.

**Distribution.** Korea (South), Japan.

**Host.** *Chromatomyia horticola* (Gourea) (Diptera: Agromyzidae).

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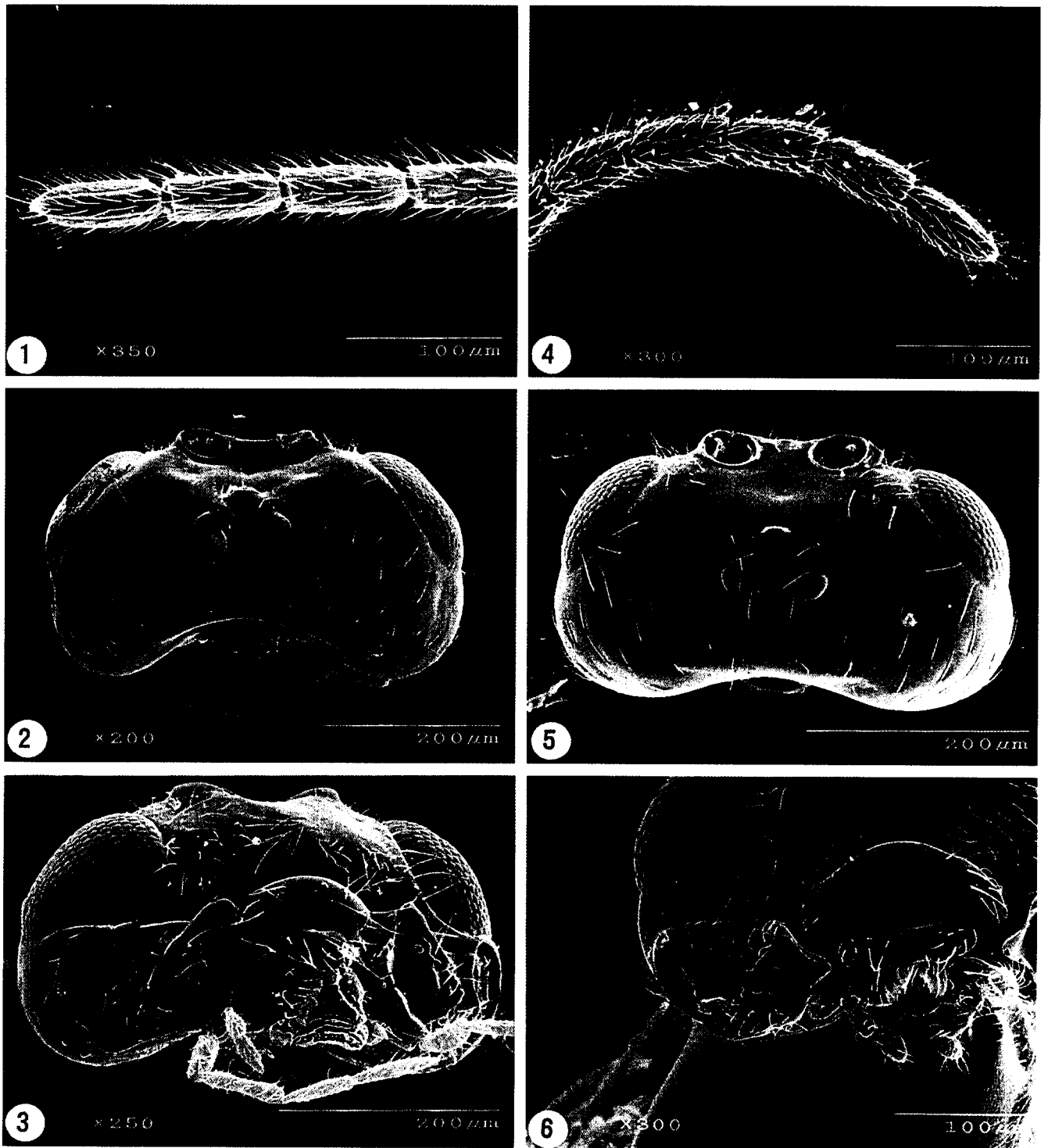
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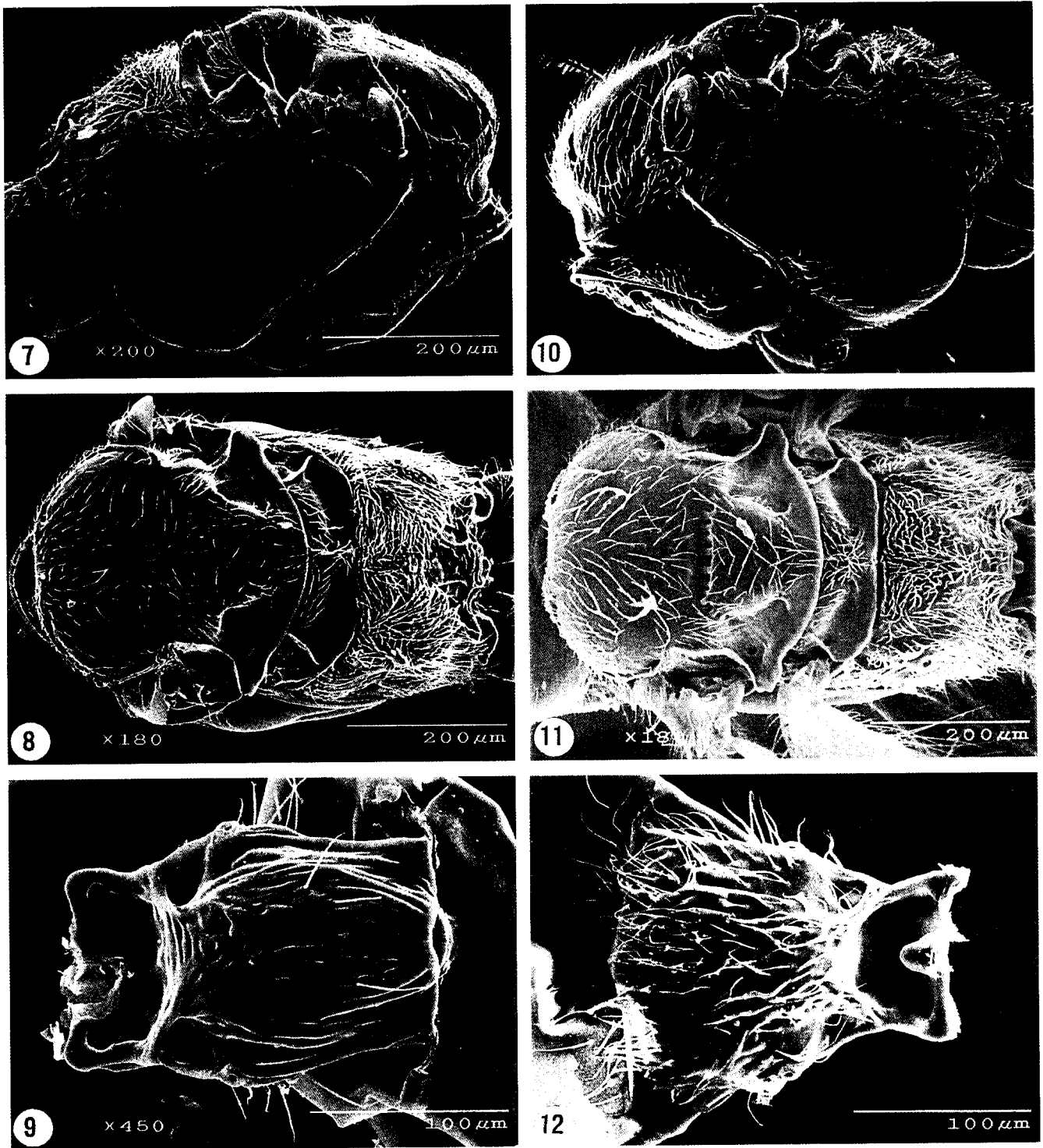
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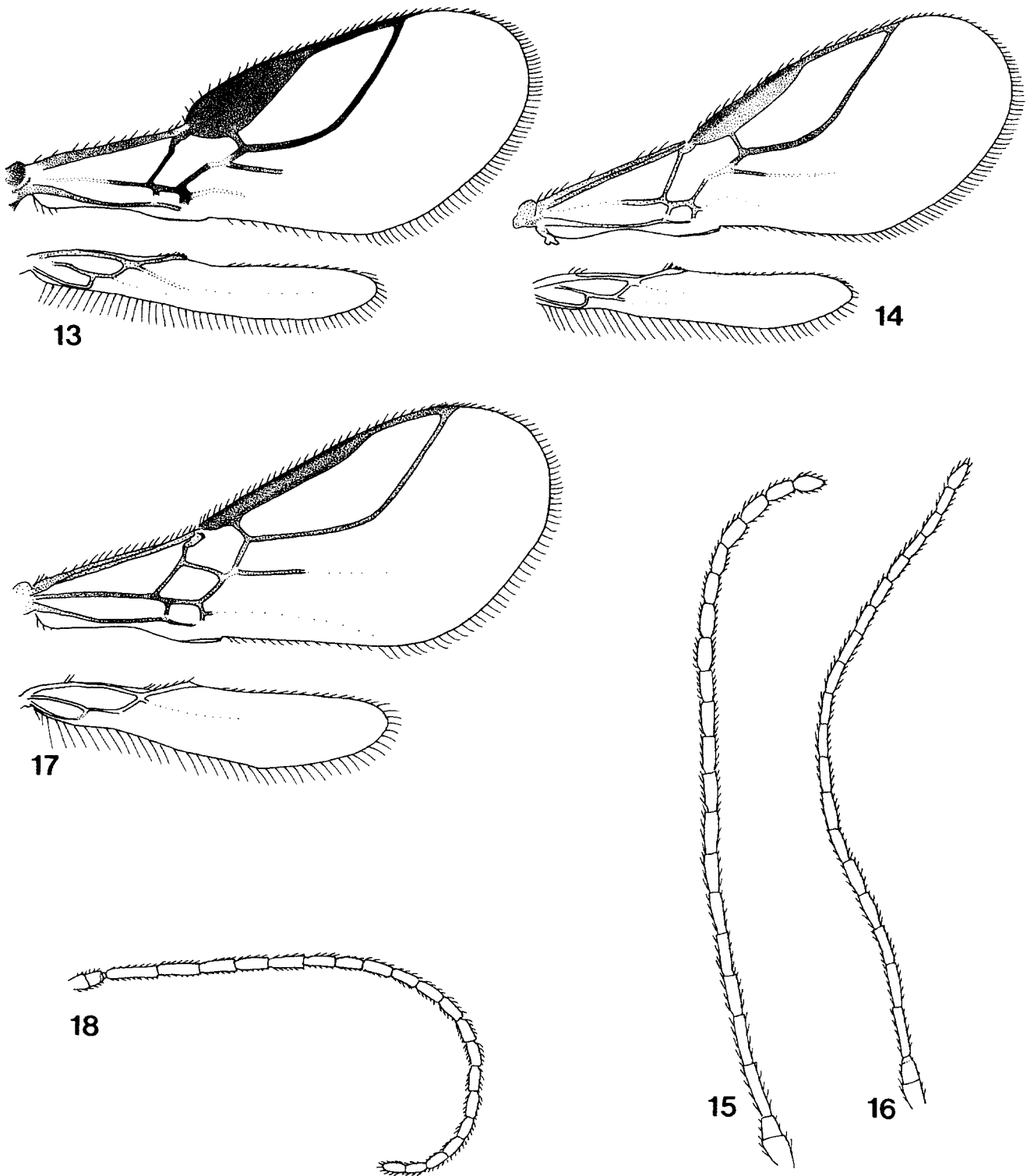
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Figs 1-3. *Dacnusa (Aphanta) sasakawai* Takada; Figs 4-6. *Dacnusa (Dacnusa) nipponica* Takada. 1, 4, antenna, apical segments; 2, 5, head, dorsal view; 3, 6, detail of mandibles.



Figs 7-9. *Dacnusa (Aphanta) sasakawai* Takada; Figs 10-12. *Dacnusa (Dacnusa) nipponica* Takada. 7, 10, mesosoma, lateral view; 8, 11, mesosoma, dorsal view; 9, 12, first metasomal tergite.



Figs 13-16. *Dacnusa (Aphanta) sasakawai* Takada; Figs 17-18. *Dacnusa (Dacnusa) nipponica* Takada. 13, wings, male; 14, wings, female; 15, antenna, male; 16, 18, antenna, female; 17, wings, male.