

Redescriptions of Three Species of the Genus *Asteralobia* (Diptera, Cecidomyiidae)

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Received for Publication September 1, 1982

Introduction

When the Japanese species of the supertribe Asphondyliidi were revised in Yukawa¹⁴⁾, four species of the genus *Asphondylia* were not redescribed, being temporarily placed in that genus, which was chiefly due to a lack of adult specimens to be examined. Thereafter, the present author had some opportunities to obtain the specimens of these species from various localities in Japan. One of the species, *Asphondylia sphaera* Monzen⁶⁾ was confirmed to be placed in the genus to which it had originally been referred, and was redescribed together with notes on its bionomics¹⁸⁾. The generic status of the remaining three species, *Asphondylia humuli* Shinji⁸⁾, *Asphondylia patriniae* (Shinji)⁷⁾ and *Asphondylia styraci* Shinji¹⁰⁾ has been kept in doubt, with their exclusion from the species list of the Japanese *Asphondylia*^{17, 19)}.

The present paper is intended to combine the three species with a proper genus and to redescribe them in the light of the recent taxonomic studies.

Materials and Methods

The specimens examined here were obtained by dissecting and rearing midge galls collected from various parts of Japan during the period from 1971 to 1981. In preparing microscope slides, the author adopted the xylene-balsam method, and drawings were made with the aid of a camera lucida. Wing length was measured from the basal end of costa to apex. Setal counts are of setal insertions rather than of actual setae, since many setae come to be lost through the processes of collection, preservation and preparation.

Unfortunately, the type specimens of the three species described by Shinji^{7, 8, 10)} have been lost. Therefore, the specimens reared from the galls similar to those described by him were examined instead of the types, and neotypes of the species are newly designated in this paper. The slide-mounted specimens including the neotypes are kept in the collection of the Entomological Laboratory of the Kagoshima University in Kagoshima, Japan.

Genus *Asteralobia* Kovalev

Asteralobia Kovalev, 1964. *Ent. Obozr.* 43: 419.

Type-species, *Asteralobia doellingeriae* Kovalev⁴⁾.

Asteralobia Kovalev: Yukawa¹⁴⁾.

The genus *Asteralobia* is closely related to the genus *Schizomyia* Kieffer¹⁾ [= *Parasphondylia*

Kieffer²⁾] in respect of male genitalia, ovipositor and many other adult and larval features. The former is, however, distinguishable from the latter by having male flagellomeres constricted shallowly and divided into 3 parts (subgenus *Asteralobia*), or by having those the lower constriction of which forms a neck between the basal and distal enlargements of the respective flagellomere (subgenus *Euasteralobia*).

Other generic characters are summarized as follows: palpi consisting of 1 + 4 segments, with setae moderate in number; antenna with 2 + 12 segments in both sexes; scape larger than pedicel, both with more numerous setae ventrally; length of each flagellomere successively a little shortened distally in male, successively shortened distally and terminal one subglobular in female; basal enlargement of female flagellomeres not distinctly constricted; tarsomere 1 with a minute apical lobe not extending beyond distal end of the segment; tarsal claws simple on all legs, bent nearly at right angle on distal third; vein R_5 meeting with costa nearly at wing apex. Seventh abdominal segment of female with a chitinized ventral sclerite. Male genitalia showing a typical shape of *Asteralobia*; cerci incised by a V-shaped emargination, forming a pair of lobes which are rounded on outer margin; hypoproct slender, distally incised by an U-shaped emargination, forming a pair of narrow lobes, each of which has an apical seta; gonostylus relatively short, slightly curved inwardly, ending ventro-

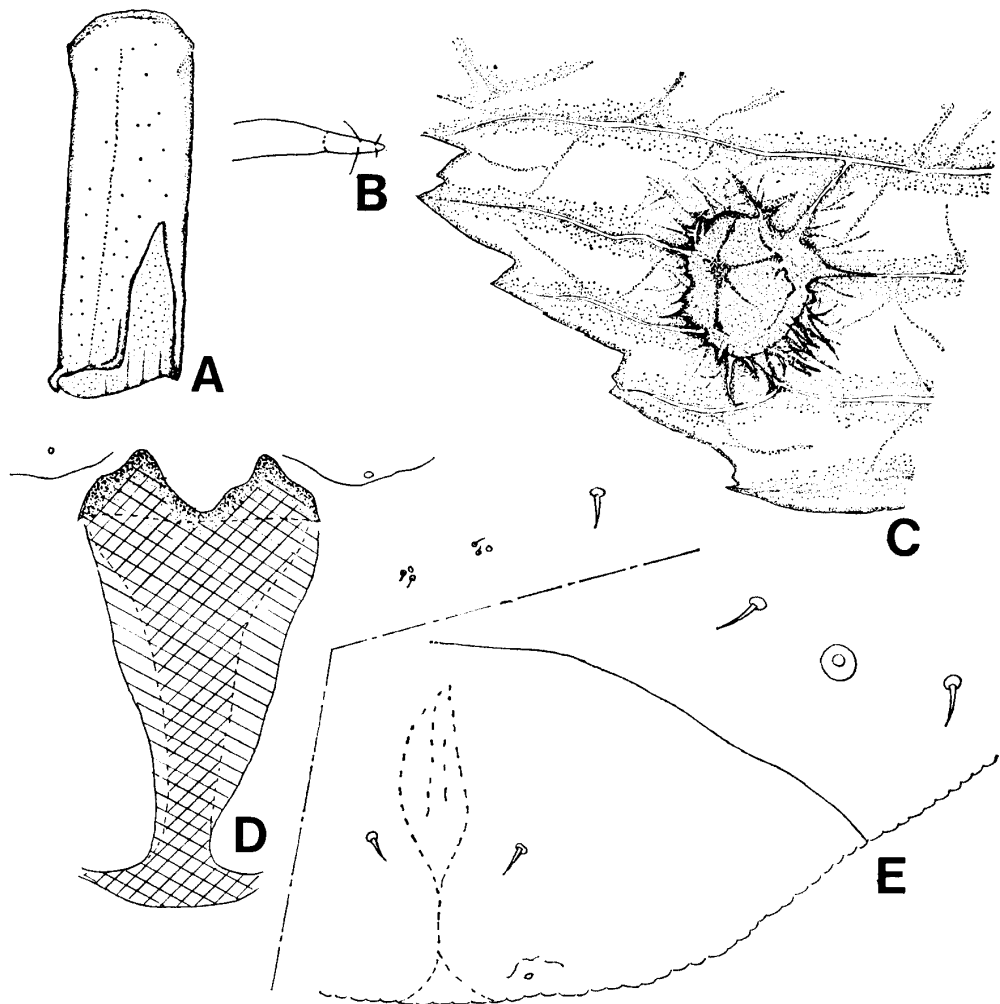


Fig. 1. *Asteralobia humuli* (Shinji). A: Tarsomere 1 of hind leg; B: Minute apical lobe of ovipositor with cilia; C: Gall produced on hypophyllous portion of leaf vein; D: Sternal spatula of mature larva; E: Dorsal surface of eighth and ninth abdominal segments of mature larva.

distally in an acute angle, with a dense group of short, stiff setae subdistally; gonocoxite elongated, ventro-distally developed into a large setose lobe, with a finger-like medio-basal lobes; root of gonocoxite relatively short; aedeagus slender, laterally weakly sclerotized, distally tapering. Ovipositor protractile, slender, aciculate, basally with a small dorsal lobe.

Asteralobia humuli (Shinji) new combination

Figs. 1(A-E), 2(A-C); Tables 1-3.

Asphondylia humuli Shinji^{8,9)}.

Parasphondylia humuli Shinji: Shinji¹⁰⁾.

Asphondylia humuli Shinji: Yukawa^{14,15)}.

English name: Humulus leaf gall midge, new name

Japanese name: "Kanamugura-nise-hario-tamabae" Shinji¹⁰⁾

(="Kanamugura-hario-tamabae" Shinji⁸⁾; "Yaemugura-hario-tamabae" Shinji⁸⁾)

Male: Eye bridge 7 to 8 facets wide medially. Post vertical peak very low. Flagellomeres dark brown; distal stem of each flagellomere without microtrichea; flagellomeres 1 and 2 fused. Thorax reddish brown on dorsum, orange on sides. Coxa and basal 2/3 of femur pale brown; remainder parts of legs with dark greyish hairs densely; empodium about 2/3 as long as claw. Wing length 1.78 to 1.90 mm, 2.3 to 2.6 times as long as maximum width. Male genitalia showing a typical shape of *Asteralobia*.

Female: Wing length 1.80 to 2.05 mm, about 2.6 times as long as maximum width. Ovipositor pale brown; minute apical lobe of ovipositor with a few short cilia. Otherwise almost as in male.

Mature larva: Second antennal segment short, conical, about 12 μm , 1.6 to 1.7 times as long as basal width; cervical papillae all without seta. Number and position of spiracles normal; 6 dorsal and 2 (sometimes 3) pleural papillae each with a seta; 2 dorsal papillae of eighth abdominal segment each with a seta; 2 of 8 terminal papillae not sclerotized, each with a seta; remaining 6 terminal papillae inconspicuous, probably without seta, if present. Sternal spatula 160 to 200 μm in length, 2.0 to 2.6 times as long as maximum width, distally emarginated, forming a pair of triangular lobes; number and position of inner and outer lateral papillae normal; sternal papillae without seta on all thoracic segments; inner pleural papillae without seta on prothorax, each with a seta on meso- and metathorax; usually 4 anterior ventral papillae without seta; 2 posterior ventral papillae each with a seta; 4 ventral papillae of eighth abdominal segment without seta; 4 anal papillae visible, each without seta.

Pupa: Apical spine relatively short, 45 to 50 μm , rounded apically; seta of apical papillae about 75 μm ; anterior (upper) and posterior (lower) frontal spines absent; usually 1 of 2 pairs of posterior (lower) facial papillae and 1 of 3 pairs of lateral facial papillae each with a seta; prothoracic horn relatively long, 260 to 310 μm ; stigma short, 16 to 23 μm , present on second to sixth abdominal segments; each abdominal segment except first and terminal ones dorsally with 2 or 3 transvers rows of spines of anterior third; usually 2 of 5 dorsal papillae each with a short seta.

Host plants: *Humulus japonicus* Sieb. et Zucc. "Kanamugura", *Humulus lupulus* L. var. *cordifolius* (Miq.) Maxim. "Karahanaso" [Moraceae].

Gall: Subglobular or ellipsoidal swelling normally on the hypophyllous portion of leaf veins, sometimes on the flower bud, peduncle or on the epiphyllous portion of leaf veins; surface white or pale yellow, with white hairs, sometimes with a reddish tinge; major axis 1.7 to 5.0 mm, minor axis

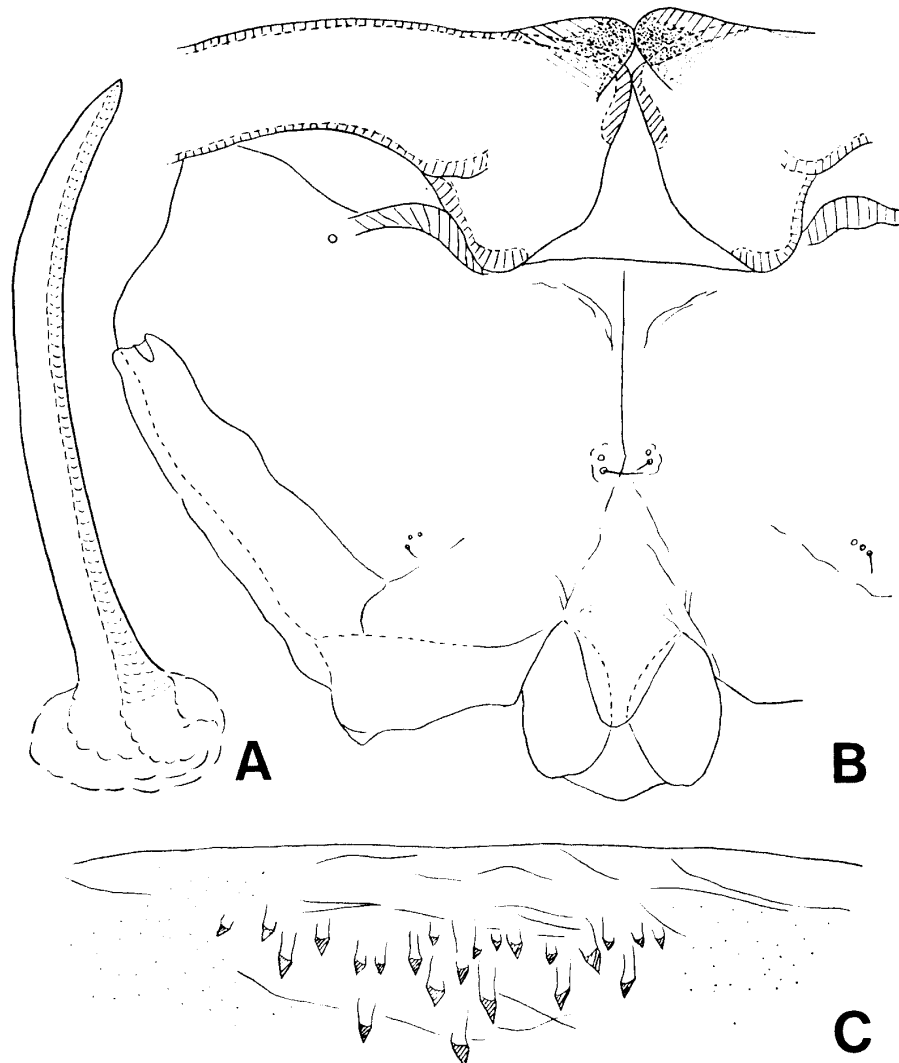


Fig. 2. *Asterolobia humuli* (Shinji). A: Prothoracic horn of pupa; B: Basal portion of antennal sheath and frontal area of pupa; C: Spines on dorsal surface of sixth abdominal segment of pupa.

1.2 to 3.0 mm, height 1.0 to 2.2 mm; monothalamus; each gall containing normally 1, rarely 2 midge larvae; number of galls per leaf normally ranging from 1 to 12; sometimes 2 or 3 galls produced continuously. Japanese name of the gall; "Kanamugura-haura-fushi" Shinji¹⁰⁾; Yukawa¹⁵⁾.

Biological notes: According to Shinji⁸⁾, there are 2 generations a year (probably in Morioka Iwate pref.). Larvae of the second generation escape from the galls to hibernate in the soil, and adults emerge in July of the following year. Later, Shinji¹⁰⁾ stated that the species repeated 3 generations a year (probably in Tokyo or its vicinity). The present study also reveals that this species has at least 3 generations a year from June to September in southern Kyushu. A species of eulophid parasitoid emerged from the gall obtained in Hayato, Kagoshima pref. (see data of collection), but it has not been identified yet.

Slide-mounted specimens examined: Neotype ♀, gall collected from Toso, Kagoshima city, 17. VIII. 1971, J. Yukawa leg., host: *Humulus japonicus*, emerged on 24. VIII. 1971, reared by J. Yukawa, Cecid. No. B9101. 1 ♀, 2 mature larvae, same data as the Neotype, Cecid. Nos. B9102-B9105; 6 ♀♀, 3 puparia, galls collected from Nejime, Kagoshima pref., 22. VII. 1971, S. Hashimoto leg., host: *ibid.*, emerged on 31. VII. 1971, reared by J. Yukawa, Cecid. Nos. B9106-

Table 1. *Asteralobia humuli* (Shinji) and *Asteralobia styraci* (Shinji): fronto-clypeal and thoracic setal counts and measurements of wing length and width (♂, ♀)

Gall midge	<i>Asteralobia humuli</i>		<i>Asteralobia styraci</i>	
Host plant	<i>Humulus japonicus</i>		<i>Styrax japonica</i>	
Locality	Kagoshima		Urawa, Saitama	
No. of specimens examined	2 ♂♂, 6 ♀♀		4 ♂♂, 4 ♀♀	
	Mean ± s.d	(range)	mean ± s.d.	(range)
Fronto-clypeal setae	♂	16.00	28.33 ± 4.19	(24–34)
	♀	11.00	22.67 ± 4.64	(18–29)
Mesopleural setae	♂	32.50	14.25 ± 9.73	(5–29)
	♀	26.50 ± 8.27	12.75 ± 3.49	(8–17)
Mesepimeral setae	♂	15.50	63.75 ± 2.38	(61–67)
	♀	15.50 ± 1.22	56.25 ± 1.48	(54–58)
Wing length (mm)	♂	1.84	2.95 ± 0.04	(2.90–3.00)
	♀	1.97 ± 0.10	2.97 ± 0.03	(2.93–3.00)
Wing width (mm)	♂	0.74	1.39 ± 0.05	(1.33–1.45)
	♀	0.78	1.38 ± 0.04	(1.33–1.43)

B9114.

Miscellaneous data of collection: 11 galled leaves collected from Ijûin, Kagoshima pref., 28. VI. 1973, T. Sunose leg., host; *Humulus japonicus*; 20 mature larvae (in alcohol), galls collected from Kirishima-jingû, Kagoshima pref., 1. VII. 1973, T. Sunose leg., host: *ibid.*; 7 mature larvae (in alcohol), galls collected from Motonakago, Ojiya city, Niigata pref., 1.X.1975, K. Yamagishi leg., host: *ibid.*; 3 mature larvae (in alcohol), galls collected from Shiroyama, Kagoshima city, 29. V.1977, S. Yamauchi leg., host: *ibid.*; many 1st and 2nd ins. larvae (in alcohol), galls collected from Myôken, Hayato, Kagoshima pref., 8.VIII.1977, K. Miyamoto & K. Nakagawa leg., host: *ibid.* The galls produced on *H. japonicus* were also collected from Shimoda, Shizuoka pref., 28. VII.1977, and from Mt. Takao, Tokyo, 1.X.1977 (Usuba, S. 1977, personal communication).

Distribution: Japan (Honshu, Kyushu).

Asteralobia styraci (Shinji) new combination

Fig. 3(A-C); Tables 1–3.

Asphondylia styraci Shinji¹⁰⁾.

Asphondylia styraci Shinji: Yukawa^{14, 16)}; Yamauchi *et al.*¹²⁾.

English name: Styrax vein gall midge

Japanese name: “Egonoki-nise-hario-tamabae” new name (= “Egonoki-hario-tamabae” Shinji¹⁰⁾)

Male: Eye bridge 5 to 6 facets wide medially. Post vertical peak absent. Flagellomeres dark brown; distal stem of each flagellomere without microtrichea; flagellomeres 1 and 2 not completely fused, with a distinct suture between those; empodium nearly as long as claw. Wing length 2.90 to 3.00 mm, 2.0 to 2.4 times as long as maximum width. Male genitalia showing a typical shape of *Asteralobia*.

Table 2. *Asteralobia humuli* (Shinji) and *Asteralobia styraci* (Shinji): measurements of the flagellomeres 3 and 5, and of legs (♂)

Gall midge		<i>Asteralobia humuli</i>		<i>Asteralobia styraci</i>	
Host plant		<i>Humulus japonicus</i>		<i>Styrax japonica</i>	
Locality		Kagoshima		Urawa, Saitama	
No. of specimens examined		2 ♂♂		4 ♂♂	
		mean ± s.d.**	(range)	mean ± s.d.	(range)
Flagellomere 3	ds* (μm)	19	(18–20)	18 ± 2	(15–20)
	be	116	(113–120)	166 ± 1	(165–168)
	w	40	(38–43)	59 ± 1	(58–60)
Flagellomere 5	ds	20	(20)	18 ± 3	(15–20)
	be	115	(110–120)	166 ± 4	(160–170)
	w	39	(38–40)	55 ± 2	(53–58)
Fore leg	Fe (μm)	780	(750–810)	1212 ± 28	(1175–1250)
	Ti	810	(730–890)	1225 ± 25	(1200–1250)
	T ₁	95	(90–100)	147 ± 5	(138–150)
	T ₂	—	—	900 ± 18	(875–925)
	T ₃	—	—	409 ± 24	(375–438)
	T ₄	—	—	259 ± 10	(250–275)
	T ₅	—	—	147 ± 5	(138–150)
Mid leg	Fe	750	(720–780)	1200 ± 18	(1175–1225)
	Ti	735	(650–820)	1094 ± 21	(1075–1125)
	T ₁	95	(90–100)	147 ± 5	(138–150)
	T ₂	400	(400)	881 ± 27	(850–925)
	T ₃	280	(280)	400 ± 18	(375–425)
	T ₄	185	(185)	247 ± 10	(238–263)
	T ₅	120	(120)	147 ± 5	(138–150)
Hind leg	Fe	835	(760–910)	1475 ± 40	(1425–1525)
	Ti	835	(750–920)	1241 ± 24	(1213–1275)
	T ₁	103	(90–115)	153 ± 5	(150–163)
	T ₂	420	(420)	1044 ± 37	(1000–1100)
	T ₃	295	(295)	450 ± 18	(425–475)
	T ₄	210	(210)	284 ± 10	(275–300)
	T ₅	125	(125)	159 ± 10	(150–175)

*ds: distal stem, be: basal enlargement, w: maximum width of basal enlargement.

**s.d. was not calculated because only 2 males were available.

Female: Wing length 2.93 to 3.00 mm, 2.1 to 2.3 times as long as maximum width. Minute apical lobe of ovipositor without cilia, otherwise extremely minute if present. Otherwise almost as in male.

Mature larva: Unknown.

Pupa: Because the pupal specimens were collected in poor conditions, they could not be described.

Host plant: *Styrax japonica* Sieb. et Zucc. "Egonoki" [Styracaceae].

Gall: Jar-shaped swelling produced on the upper surface of midrib or on the petiole; surface smooth, green; height 54 to 73 mm, maximum diameter 37 to 53 mm; monothalamus; larval chamber considerably large; wall of chamber relatively thin; each gall containing 1 midge larva. Japanese

Table 3. *Asteralobia humuli* (Shinji) and *Asteralobia styraci* (Shinji): measurements of the flagellomeres 3 and 5, and of legs (♀)

Gall midge		<i>Asteralobia humuli</i>		<i>Asteralobia styraci</i>	
Host plant		<i>Humulus japonicus</i>		<i>Styrax japonica</i>	
Locality		Kagoshima		Urawa, Saitama	
No. of specimens examined		6♀♀		4♀♀	
		mean ± s.d.	(range)	mean ± s.d.	(range)
Flagellomere 3	ds* (μm)	9 ± 1	(8-10)	12 ± 2	(10-15)
	be	108 ± 14	(90-125)	136 ± 6	(130-143)
	w	35 ± 3	(33-38)	50 ± 2	(48-53)
Flagellomere 5	ds	8 ± 1	(8-10)	9 ± 2	(8-13)
	be	102 ± 15	(85-123)	126 ± 7	(120-133)
	w	33 ± 4	(30-38)	50 ± 4	(45-53)
Fore leg	Fe (μm)	802 ± 72	(700-900)	1081 ± 21	(1050-1100)
	Ti	852 ± 73	(760-970)	1031 ± 48	(975-1100)
	T ₁	108 ± 10	(100-120)	144 ± 6	(138-150)
	T ₂	648 ± 35	(600-700)	672 ± 75	(613-800)
	T ₃	390 ± 46	(310-450)	306 ± 11	(300-325)
	T ₄	266 ± 32	(220-300)	203 ± 5	(200-213)
Mid leg	T ₅	128 ± 19	(100-150)	144 ± 14	(125-163)
	Fe	768 ± 90	(690-940)	1063 ± 13	(1050-1075)
	Ti	768 ± 72	(660-860)	894 ± 21	(875-925)
	T ₁	114 ± 11	(100-125)	131 ± 6	(125-138)
	T ₂	600 ± 35	(550-640)	597 ± 18	(575-625)
	T ₃	386 ± 23	(350-410)	297 ± 14	(275-313)
Hind leg	T ₄	246 ± 23	(210-270)	191 ± 10	(175-200)
	T ₅	126 ± 18	(110-150)	138 ± 9	(125-150)
	Fe	888 ± 59	(780-950)	1331 ± 37	(1275-1375)
	Ti	906 ± 73	(800-1000)	1156 ± 45	(1100-1200)
	T ₁	116 ± 9	(100-125)	144 ± 6	(138-150)
	T ₂	744 ± 70	(660-820)	767 ± 31	(725-800)
Ovipositor	T ₃	464 ± 31	(440-510)	346 ± 16	(325-363)
	T ₄	308 ± 24	(290-350)	221 ± 16	(200-238)
	T ₅	139 ± 20	(110-160)	142 ± 6	(138-150)
	(μm)	1442 ± 52	(1400-1500)	1131 ± 27	(1100-1175)

*ds: distal stem, be: basal enlargement, w: maximum width of basal enlargement.

name of the gall: "Egonoki-ha-tsubo-fushi" Yamauchi *et al.*¹²⁾ (= "Egonoki-tsubo-fushi" Shinji¹⁰⁾; Yukawa¹⁶⁾.

Biological notes: The life history of the species has not been extensively studied yet. Mature galls were collected in February¹²⁾, March¹²⁾ and April (present data), and emergences of adults were observed in March¹²⁾, May (present data) and June¹⁰⁾.

Slide-mounted specimens examined: Neotype ♂, gall collected from Funayama, Urawa city, Saitama pref., 17.IV.1978, S. Usuba leg., host: *Styrax japonica*, emerged on 6.V.1978, reared by S. Usuba, Cecid. No. D9501. 3 ♂♂, 4 ♀♀, same data as the Neotype, Cecid. Nos. D9502-D9508.

Distribution: Japan (Honshu, Okinawa).

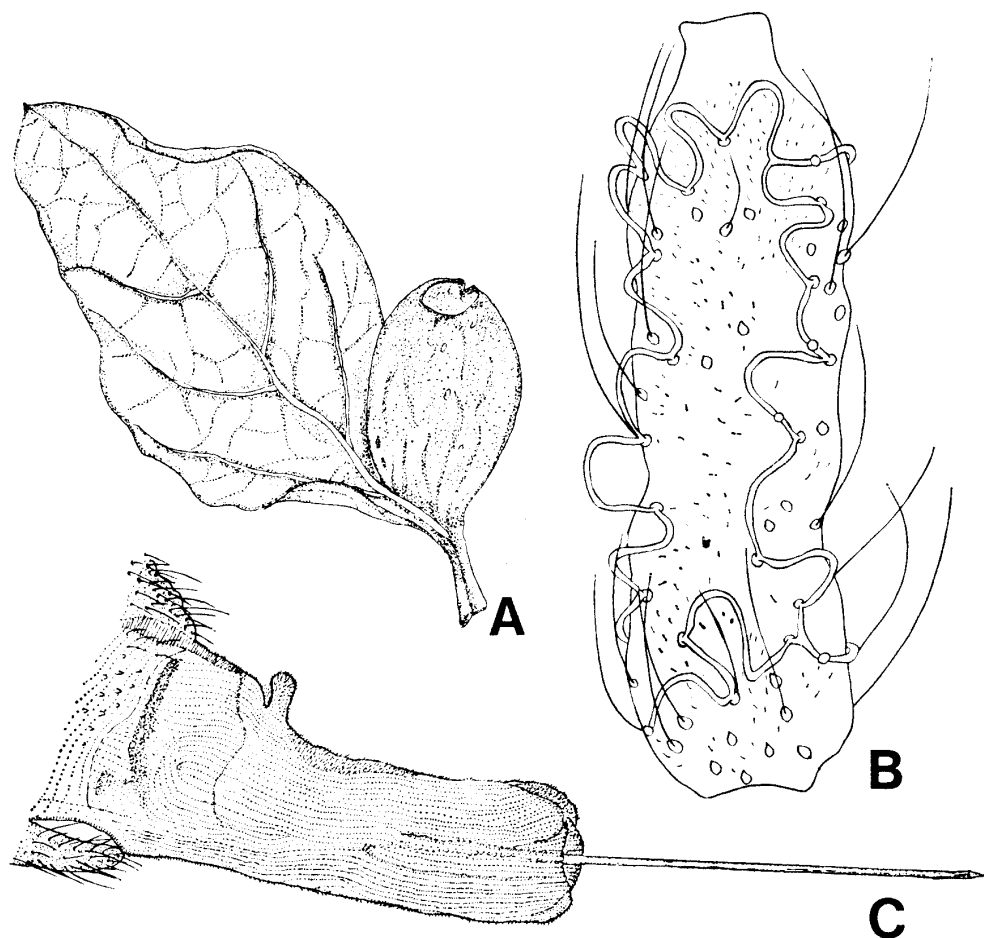


Fig. 3. *Asterolobia styraci* (Shinji). A: Jar-shaped gall produced on petiole; B: Male flagellomere 5; C: Ovipositor.

Asterolobia patriniae (Shinji) new combination

Fig. 4(A-E); Table 4.

Schizomyia patriniae Shinji⁷⁾.

Asphondylia partrinae Shinji¹⁰⁾.

Parasphondylia patrici Monzen: Shinji¹⁰⁾.

Asphondylia patriniae (Shinji): Yano¹³⁾; Yukawa^{14,16)}.

English name: Patrinia fruit gall midge, new name

Japanese name: "Otokoeshi-nise-hario-tamabae" new name

(="Otokoeshi-tamabae" Shinji^{7,10)}; Yano¹³⁾)

Male: Eye bridge 8 facets wide medially. A distinct post vertical peak present. Distal stem of each flagellomere with 2 to 4 rows of microtrichea; flagellomeres 1 and 2 fused; empodium could not be examined. Wing length 2.25 mm, about 2.4 times as long as maximum width. Genitalia showing a typical shape of *Asterolobia*.

Female: In the present study, the author could not examine any female specimen. See Shinji^{7,10)} for the description of the female.

Mature larva: Second antennal segment short, conical, about 13 μ m, 1.6 to 1.8 times as long as basal width; cervical papillae all without seta. Number and position of spiracles normal; 6 dorsal

and 3 pleural papillae each with a seta; 2 dorsal papillae between spiracles of eighth abdominal segment absent; 2 of 8 terminal papillae not sclerotized, each with a seta; remaining 6 papillae without seta. Sternal spatula 195 to 215 μm in length, 4.2 to 4.8 times as long as maximum width, distally emarginated, forming a pair of triangular lobes; number and position of inner and outer lateral

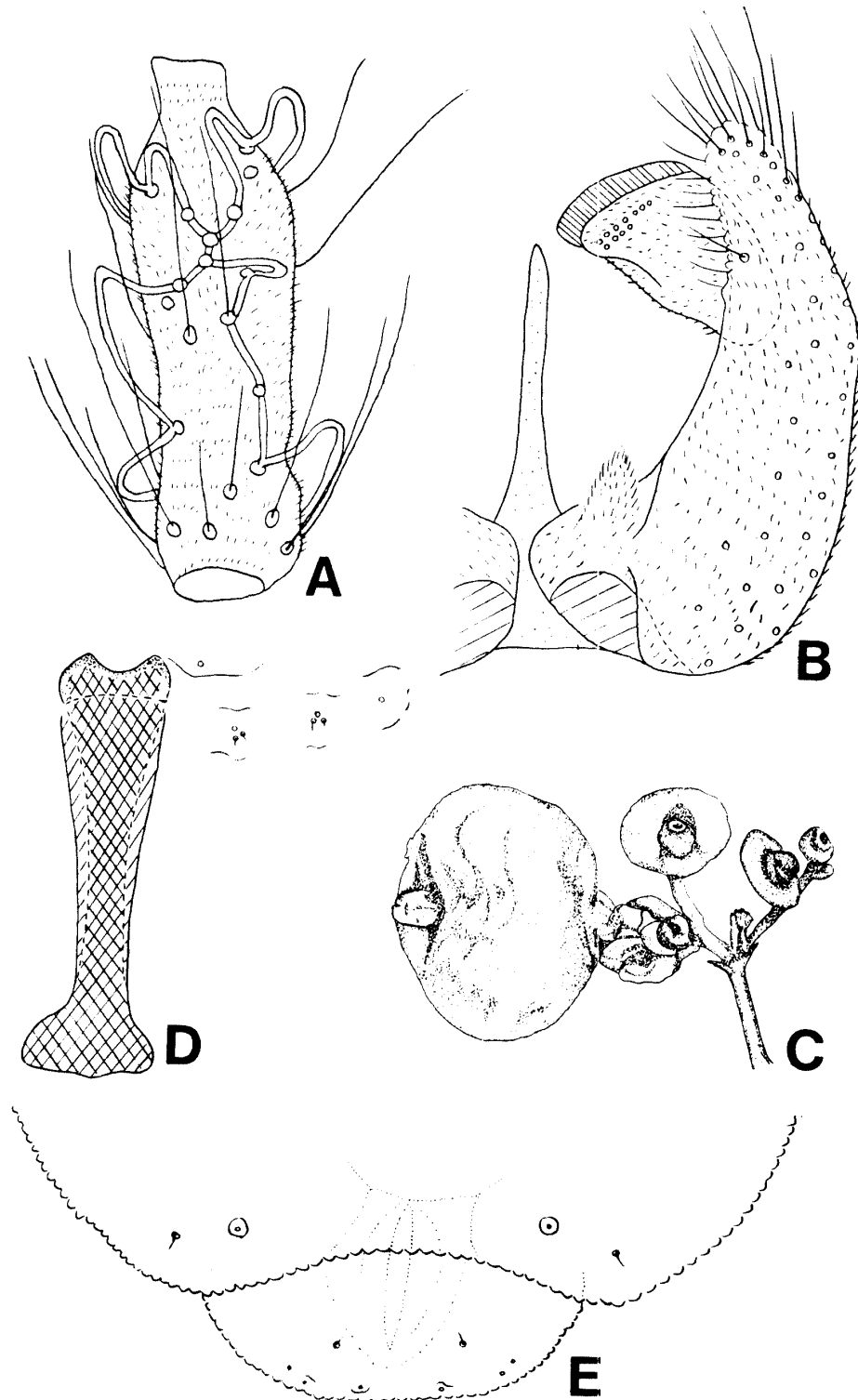


Fig. 4. *Asteralobia patriniae* (Shinji). A: Male flagellomere 5; B: Male genitalia; C: Fruit gall; D: Sternal spatula of mature larva; E: Dorsal surface of eighth and ninth abdominal segments of mature larva.

Table 4. *Asteralobia patriniae* (Shinji): fronto-clypeal and thoracic setal counts, and measurements of the flagellomeres 3 and 5, and of legs (♂)

Fronto-clypeal setae	20	Fore leg**	Fe (μm)	1000
Mesopleural setae	32		Ti	1010
Mesepimeral setae	22		T ₁	110
Flagellomere 3 ds* (μm)	15	Mid leg	Fe	950
be	108		Ti	910
w	43		T ₁	100
Flagellomere 5 ds	18	Hind leg	Fe	1090
be	113		Ti	1040
w	43		T ₁	110

*ds: distal stem, be: basal enlargement, w: maximum width of basal enlargement.

**tarsomeres 2 to 5 could not be measured.

papillae normal; sternal papillae without seta on all thoracic segments; inner pleural papillae without seta on prothorax, each with a seta on meso- and metathorax; usually 4 anterior ventral papillae without seta; 2 posterior ventral papillae each with a seta; 4 ventral papillae of eighth abdominal segment without seta; 4 anal papillae visible, each without seta.

Pupa: Unknown.

Host plant: *Patrinia villosa* (Thunb.) Juss. "Otokoeshi" [Valerianaceae].

Gall: Fruit transformed into a globular, succulent swelling with an apical protuberance; maximum diameter 6.7 to 17.2 mm, height 5.2 to 12.1 mm; surface smooth, pale yellow; monothalamus; each gall containing 1 to 60 larvae. Japanese name of the gall: "Otokoeshi-mi-fukure-fushi" Sunose¹¹⁾ (= "Otokoeshi-mi-fushi" Monzen⁵⁾; Shinji¹⁰⁾; Yano¹³⁾; Yukawa¹⁶⁾).

Biological notes: This species may be normally univoltine. Newly produced galls containing young larvae are commonly observed throughout the summer season. According to Shinji^{7,10)}, larvae mature in fall and hibernate (probably in the soil), and adults emerge in May or June of the following year.

Slide-mounted specimens examined: Neotype ♂, gall collected from Iōzan, Kanazawa city, Ishikawa pref., 17. X. 1978, J. Yukawa leg., host: *Patrinia villosa*, emerged on 22.IV.1979, reared by J. Yukawa, Cecid. No. C3201. (The emergence datum is earlier than normal one, because the larva was incubated at room temperature during the hibernation). 6 mature larvae, galls collected from Maruyama, Ojiya city, Niigata pref., 12.X.1981, K. Yamagishi leg., host: *ibid.*, Cecid. Nos. C3202-C3207.

Miscellaneous data of collection: 3 first ins. larvae (in alcohol), galls collected from Tomakomai city, Hokkaido, 5.IX.1977, J. Yukawa & S. Yamauchi leg., host: *Patrinia villosa*; several galls collected from Okushiri Is., Hokkaido, 6.X.1981, T. Sunose leg.¹¹⁾, host: *ibid.*

Distribution: Japan (Hokkaido, Honshu, Shikoku).

Remarks

The three species previously placed in the genus *Asphondylia* are newly combined with the genus *Asteralobia* in the present paper, because male genitalia and flagellomeres, and other morphological features of both mature and immature stages well coincide with the generic diagnosis of the genus *Asteralobia*⁴⁾. As a result, the number of species belonging to the genus in Japan now stands at five, including the two previously known species, *Asteralobia sasaki* (Monzen)⁶⁾ and *Asteralobia soyogo* (Kikuti)³⁾ which produce bud galls on *Ilex*.

The humulus leaf gall midge, *A. humuli* is the smallest species among them and is characterized by the numbers of fronto-clypeal and thoracic setae (Table 1). This species is also distinguishable from *A. sasaki* and *A. soyogo* by the different arrangement of papillae on the larval and pupal surface: sternal papillae without seta on all thoracic segments and anterior ventral papillae without seta in *A. humuli*. (See Yukawa¹⁴⁾ for the descriptions of immature stages of *A. sasaki* and *A. soyogo*).

The styrax vein gall midge, *A. styraci* is the largest species and presents a striking contrast to *A. humuli* and to *A. patriniae* in the fronto-clypeal and thoracic setal counts (Tables 1 & 4).

The patrinia fruit gall midge, *A. patriniae* is easily separable from the four other Japanese species by having a distinct peak on post vertical portion and two to four rows of microtrichea on the distal stem of flagellomeres. In addition, this species is distinguished from *A. humuli*, *A. sasaki* and *A. soyogo* by the absence of two dorsal papillae between spiracles on the eighth abdominal segment of the mature larva.

A Russian species, *Asteralobia patriniae* Kovalev⁴⁾ has been known to produce fruit galls on *Patrinia scabiosifolia* and *Patrinia rupestris* in the Soviet Far East Region. The Russian species is morphologically quite similar to the Japanese *A. patriniae* and may possibly be synonymized with the latter. However, a detailed study must await the collection of further materials from Japan.

Summary

The three gall midges species previously placed in the genus *Asphondylia* are newly combined with the genus *Asteralobia*. These species, *A. humuli*, *A. styraci* and *A. patriniae* are redescribed together with the collecting data and some brief notes on their host plants, galls, biology and distribution.

Acknowledgements

The author would like to express his hearty thanks to Prof. A. Nagatomi (Kagoshima Univ.) for his critical reading of the draft. His thanks are also due to the following persons for their kindness in offering materials: Messrs. S. Hashimoto, K. Miyamoto, K. Nakagawa, Dr. T. Sunose, Messrs. S. Usuba, K. Yamagishi and S. Yamauchi.

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