KURISAKIA AND AICEONA OF JAPAN
(HOMOPTERA, APHIDIDAE)

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Genus *Kurisakia* Takahashi

Philippine Jl. Sc., XXIV, p. 715 (1924); Proc. Ent. Soc. Washington, XXXII, p. 2 (1930); Tenthredo, II, p. 13 (1938).

Tuberocorpus Shinji, Lansania, I, p. 48 (1929).

Genotype: *Anoecia onigurumi* Shinji.

Closely related to *Glyphina* Koch, but differs from that genus as follows:

Apterous viviparous female: Dorsum faintly sclerotized, never pigmented, with long fine flagellate setae, wanting spine-like setae. Cornicles on hairy cones. Legs with numerous spinules in rows, fore or middle, or both, tibiae with a few small much protuberant sensoria.

Alate viviparous female: Secondary sensoria transversely elliptical or oval. Abdomen with small or rudimentary marginal sclerites, without intersegmental sclerites. Anal and cubitus more closely placed basally. Legs as in aptera.

Two species and a subspecies are now known in Japan, and one of the species is found in China too.

Key to Japanese species

(Apterous viviparous female)

(1) Ultimate segment of rostrum nearly as long as 2nd segment of hind tarsus, 3rd antennal segment with about 28 setae . . . . . *K. ailanthi* n. sp.
- Ultimate segment of rostrum 1.1 or 1.2 times as long as 2nd segment of hind tarsus, 3rd antennal segment with less than 20 setae. . . . . (2)

(2) Tarsi with 5 or 6 setae on 1st segment, dorsal sclerites of anterior abdominal segments sometimes divided into a pair of spinal and 2 marginal sclerites, about 8–10 dorsal setae present on anterior 5 abdominal segments besides marginal ones . . . . . *K. onigurumi* (Shinji).
- Tarsi with 7 or 8 setae on 1st segment, dorsal sclerites of abdomen not divided, usually over 15 dorsal setae present on anterior 5 abdominal segments

[Insecta Matsumurana, Vol. 23, No. 1, January, 1960]

besides marginal ones . . . . . *K. onigurumi querciphila* n. subsp.

(Alate viviparous female)

(1) Subcosta of fore wing with some fine setae arranged almost in a single row; spinal sclerites of 2nd-4th abdominal segments very small, much smaller than marginal sclerites; marginal sclerite of 6th abdominal segment small, fused with cone of cornicle, with 2-5 setae . . . . . *K. ailanthi* n. sp.

– Subcosta of fore wing with numerous fine setae scattered; dorsal sclerites of 2nd-4th abdominal segments as large as, or larger than, marginal sclerites; marginal sclerite of 6th abdominal segment wanting or rudimentary, represented by one or 2 setae . . . . . (2)

(2) Dorsal setae 2 between cornicles, about 12 on 8th abdominal segment . . . . . *K. onigurumi* (Shinji).

– Dorsal setae 3-6 between cornicles, 12-18 on 8th abdominal segment . . . . . *K. onigurumi querciphila* n. subsp.

Kurisakia onigurumi (Shinji).

Anoecia onigurumi Shinji, Zool. Mag. Tokyo, XXXV, p. 304 (1923).

Glyphina onigurumi Shinji, Zool. Mag. Tokyo, XXXVI, p. 344 (1924); Monogr. Japan. Aphid., p. 285 (1941).

Tuberocorpus onigurumi Shinji, Lansania, I, p. 48 (1929).

Glyphina pterocaryae Monzen, Morioka Imp. College of Agr. and For., Alumni Soc., Sc. Bull., IV, p. 18 (1927).

Kurisakia juglandicola Takahashi, Philippine Jl. Sc., XXIV, p. 715 (1924).

Glyphina juglandicola Takahashi, Proc. Ent. Soc. Washington, XXXII, p. 2 (1930); Lingnan Sc. Jl., Canton, XVI, p. 58 (1937).

Host plants: *Pterocarya rhoifolia, Juglans* sp.

Specimens examined: many apterae and some alatae taken on *Pterocarya* at Osaka (31. V. and 21. VI. 1959, R. Takahashi).

Kurisakia onigurumi querciphila n. subsp.

Apterous viviparous female: Yellow, usually with a pair of longitudinal green streaks on dorsum in life; antennae, legs, cornicles and cauda pale. Body broadly ovate, very faintly sclerotized on dorsum, marginal sclerites not separated. Head and prothorax fused, somewhat corrugated and with some granules on dorsum; head broadly rounded at front, with 10 dorsal setae, a pair of frontal setae, and 3 or 4 setae on each side of venter; these setae very long, fine, dorsal ones about 2.5-3 times as long as middle width of 3rd antennal segment. Eyes of 3 facets. Antennae 5-segmented, about half length of body, twice as long as width of head across eyes, with minute spinules in many rows; segment I wider than long, with 3 or 4 setae; II a little longer than wide, with 2 setae;

III slightly narrower than fore tibia, not narrowed basally, with about 18 setae which are similar to dorsal ones of head; processus terminalis not narrowed basally, about 1.5–1.8 times as long as wide; auxiliary sensoria small, not protuberant, 2–6, not much isolated from rather small primary sensorium which is not surrounded by setae; proportion of lengths of segments: III–23, IV–9, V–10 (8+2). Clypeus with a pair of anterior setae, mandibular laminae with a seta; rostrum reaching hind coxae, without spinules; ultimate segment much longer than penultimate, narrow, tapering, pale, about 1.1 or 1.2 times as long as 2nd segment of hind tarsus, with a pair of long secondary setae; a pair of primary setae much removed anteriorly; distal part black, about thrice as long as wide, about one-third length of remaining part of ultimate segment. Pronotum with about 16 setae. Legs with spinules in many rows and many long fine setae; trochanters fused with femora; femora rather stout, longest seta longer than maximum width of femur; fore femur and trochanter together slightly shorter than 3rd antennal segment; fore tibiae nearly as long as width of head across eyes, with or without a sensorium; middle tibiae with 2 or 3 sensoria scattered on distal part; these sensoria much protuberant, constricted basally, nearly as large as in diameter as bases of setae; hind tibiae shorter than antenna, with one or 2 small circular translucent parts on distal part, with a pair of a little stouter slender setae near tip, longest tibial seta about 1.8 times as long as middle width of hind tibia; hind tarsi shorter than 4th antennal segment; 1st tarsal segment with 7 or 8 setae including a slender sensory one; 2nd tarsal segment with 2 middle upper and 3 middle lower setae besides 3 pairs of simple apical ones; empodial setae long, simple. Cornicles longer in diameter at apex than middle width of hind tibia, on cones which are smooth, not defined basally, not extending beyond transverse margins of 6th abdominal segment, and with 5–7 setae near base; these setae much longer than apical diameter of cornicle. Cauda short, rounded, with 9–11 setae. Anal plate with about 23 setae. Genital plate with about 25 setae. Gonochaetae in 2 clusters. Anterior 5 abdominal segments with about 15–20 dorsal setae not in a row besides 6 or more marginal ones of each side; 3–5 setae in a row between cornicles; 8th segment with 9–19 longer setae which are over thrice as long as middle width of 3rd antennal segment. Sternites with 5 or 6 setae. Basal 2 abdominal spiracles much apart, spiracular apertures subcircular, spiracular sclerites short, wide. Mesosternal apodemes absent. Body 2 mm. in length.

Described from cotypes taken on *Quercus acutissima* near Osaka (5. VI. 1958, R. Takahashi).

Alate viviparous female: Head, thorax and antennae black; legs, cornicles, cauda and anal plate dusky. Head smooth, divided, pale on lateral part adjacent

to posterior half of eye, with setae similar to aptera. Antennae a little shorter than half length of body, twice as long as width of head across eyes; segment I without spinules, with 3 setae; III as stout as fore tibiae, abruptly constricted at base, with over 26 setae mostly along anterior side, which are as long as those of head, and with 11–15 rather large or moderate sensoria in a row along whole length; IV sometimes with a secondary sensorium; these sensoria transversely elliptical, not occupying half circumference of segment; proportion of lengths of segments: III–27, IV–11, V–13 (10 + 3). Rostrum not reaching hind coxae, ultimate segment as long as 2nd segment of hind tarsus. Fore tibiae distinctly longer than 3rd antennal segment, with 1–3 sensoria scattered, middle tibiae with 2 sensoria, these sensoria as in aptera; hind tibiae with 2–4 small pale parts scattered; setae of hind tibiae 1.8 times—twice as long as middle width of hind tibia; tarsi with 7–9 setae on 1st segment. Cones of cornicles with 6–8 setae. Abdomen with a pair of rather large distinct spinal sclerites on basal 6 segments, these sclerites united on 1st segment and sometimes also on 4th–6th, each with one or 2 setae; dorsal setae about 8–10 on 2nd–5th, 3–6 between cornicles; 7th with a slender sclerite on dorsum, with about 3 dorsal setae; 8th sclerotic on dorsum, with 12–18 setae which are about or over thrice as long as middle width of 3rd antennal segment; marginal sclerites small, with 5–7 setae on anterior segments, absent on 6th. Fore wings narrowly infuscated along veins, subcosta with many fine setae scattered; anal and cubitus not united basally; media more slender than other veins, once branched; radial sector slightly curved near base; pterostigma dusky brown, rather large, posterior and distal margins forming almost a straight line; hind wings with an oblique only. Body 2.1 mm. in length.

Described from specimens taken on *Quercus acutissima* at Kawachi-Nagano, Osaka Prefecture (3. V. 1959, R. Takahashi).

Host plants: *Quercus acutissima, Q. serrata, Q. glauca.*

Rather common on the young leaves of *Quercus acutissima* in May and June in the vicinity of Osaka, at times occurring in abundance, but very rare on the other hosts. Collected also at Tokyo (17. V. 1949, R. Takahashi) and in Mt. Rokko near Kobe (2. VI. 1956, R. Takahashi).

Kurisakia ailanthi n. sp.

Different from *K. onigurumi querciphila* Takahashi as follows:

Apterous viviparous female: Body larger, measuring 2.7 mm. in length. Antennae much shorter than half length of body, but longer than one-third length of body; segment III with about 28 setae. Rostrum not reaching hind coxae, ultimate segment as long as 2nd segment of hind tarsus, distal part shorter

than one-third of remaining part of the segment. Pronotum with about 12 setae. Middle tibiae without sensoria; longest seta of hind tibia about twice as long as middle width of it; tarsi with 3 middle upper setae. Marginal sclerites of abdomen separated from dorsal ones, large, with many granules; 8th abdominal segment with over 20 dorsal setae including marginal setae; other dorsal setae and sclerites of abdomen not examined due to condition of material.

Described from holotype collected at Hanamaki, Iwate Prefecture (4. VI. 1953, Kaku Sato).

Alate viviparous female: Antennal segment III with 14–17 transversely oval or elliptical sensoria and 25–30 setae; IV with none, or one or 2 sensoria. Middle tibiae with a sensorium, tarsi with 7 setae on 1st segment, and 2 or 3 middle upper setae on 2nd. Cornicles with 7–9 setae on cones. Spinal sclerites of anterior 4 abdominal segments very small, much smaller than marginal sclerites, with one or 2 setae; a large transverse median sclerite present on 5th–7th segments, which is smaller on 7th, with 2 setae; about 12–15 dorsal setae on anterior segments, 4 between cornicles, 14–18 on 8th segment which is narrowly sclerotized on dorsum; marginal sclerites small, but distinct, irregular in shape, mostly with 5–7 setae; that on 6th segment fused with lateral margin of cone of cornicle, with 2–5 setae; all these sclerites not black in cleared specimens. Subcosta of fore wing with much fewer long fine setae almost in a single row, which are about 10 between base of wing and anal.

Described from some specimens taken at Fukushima (6. VI. 1953, Kaku Sato).

Host plant: *Ailanthus altissima.*

Genus ***Aiceona*** Takahashi

Aphididae of Formosa, 1, Pub. Agr. Expt. St. Formosa, p. 85 (1921); Proc. Ent. Soc. Washington, XXXII, p. 1 (1930); Aphididae of Formosa, 6, Dept. Agr. Govt. Res. Inst. Formosa, Rept. 53, p. 26 (1931).

Differs from *Anoecia* Koch as follows: Body without marginal tubercles. Genital plate not defined. In aptera body not sclerotized over dorsum, eyes rudimentary; mesosternal apodemes far apart, not connected basally. In alata abdomen without large sclerite reaching margin, wanting marginal sclerites; secondary sensoria circular, scattered; pterostigma not so broad, media of fore wing twice branched.

Genotype: *Aiceona actinodaphnis* Takahashi.

In this genus 5 species are now known, viz. *A. actinodaphnis* Takahashi from Formosa (Taiwan) and Okinawa, *A. osugii* Takahashi from Formosa,

A. siamensis Takahashi form Thailand, *A. malayana* n. sp. from Malaya, and a new Japanese species here described, all feeding on the trees of Lauraceae.

A. malayana n. sp. was recorded by me under the name of *A. osugii* Takahashi (Ann. Ent. Soc. America, XLIII, p. 591, fig. 3, 1950), but is different from the latter in the much shorter setae on the antennae, and a new name is here given to it.

The sexual forms of this genus have not been recorded. In the Japanese species sexual females and males, both alate unlike most other aphids, appear as early as in May, and as in *Stomaphis* cornicles are entirely wanting in the males, though well developed in the females.

Aiceona japonica n. sp.

Apterous viviparous female: Blackish brown, covered with a powder. Body oval, convex dorsally, with many long fine flagellate setae variable in length. Head separated from prothorax, dark brown when cleared, not rounded at front, divided by a pale line, smooth, with numerous setae, which are absent on lateral part behind antenna on both surfaces, longer setae about thrice or more times as long as middle width of 3rd antennal segment. Eyes of 3 facets. Antennae about half as long as body, about 2.2 times as long as width of head across eyes; segment I as long as wide, smooth, with 4–6 setae, pale brown when cleared; II distinctly longer than wide, as long as I, with 5 or 6 setae; III–VI distinctly imbricated, without spinules, with many setae which are about twice as long as middle width of III; III not constricted basally, shorter than width of head across eyes, a little shorter and much narrower than fore tibia; IV with over 20 setae; VI narrowed towards base and with about 11 setae on basal part; processus terminalis about half length of basal part, about thrice as long as wide, almost parallel-sided, with a much protuberant auxiliary sensorium near base, which is distinctly apart from primary sensorium; a similar much isolated auxiliary sensorium also present near midlength of VI; other auxiliary sensoria close to primary one which is protuberant, circular and not surrounded by setae; secondary sensoria absent; proportion of lengths of segments: III–30, IV–14, V–14, VI–13 (9+4). Clypeus with a pair of anterior setae, mandibular laminae with many setae; rostrum reaching middle coxae, without granules; ultimate segment pale brownish, longer than penultimate segment, tapering, about 4 times as long as wide at midlength, about four-fifths as long as 2nd segment of hind tarsus, with 2 pairs of long secondary setae; primary setae short; distal part black, distinct, normally slightly longer than wide. Legs long, pale brownish on apices of femora, and apices and bases of tibiae, with many long setae; trochanters distinct; femora smooth, setae shorter than width of femora; tibiae

smooth, hind tibiae somewhat or scarcely broadened towards base, longest seta about twice as long as middle width of tibia; tarsi a little imbricated, with 6 or 7 setae including a sensory seta on 1st segment, 2 or 3 long upper setae and 8–10 lower ones on 2nd segment; 3 pairs of apical setae fine, simple; empodial setae long, pointed; hind tarsi nearly as long as 6th antennal segment, 2nd segment 5.5–6 times as long as wide at middle. Cornicles on dark brown cones which are almost smooth, with about 17–20 long fine setae; basal diameter of cone about thrice as long as diameter of apex of cornicle, a little shorter than 6th antennal segment, distinctly shorter than distance between 5th and 6th abdominal spiracles. Cauda very short, broadly rounded, pale brownish, with about 10 setae. Anal plate pale brownish, with 27–32 setae. Gonochaetae in 3 clusters. Pronotum pale brown, meso- and metanota with a large brown marginal sclerite. Abdomen membranous, with some small submarginal intersegmental sclerites; 8th segment a little sclerotic on dorsum, with 8–12 setae almost in a row, which are about 5 times as long as middle width of 3rd antennal segment; some small scleroites present on 7th tergite, basal part of abdomen and on median area of thorax; dorsal setae on basal part of abdomen about 3 or 4 times as long as middle width or 3rd antennal segment. Marginal setae absent between abdominal spiracles except on 7th segment. Spiracular apertures circular, spiracular sclerites short, wide; basal 2 abdominal spiracles much apart. Mesosternal apodemes distinctly separated from each other, not so long. Body 3 mm. in length.

Apterous viviparous female with 5-segmented antennae: Body broadly oval. Antennae about one-third as long as body, about 1.5 times as long as width of head across eyes; processus terminalis about one-third length of basal part. Ultimate rostral segment slightly shorter than 2nd segment of hind tarsus. All tarsi with 2 long fine setae on 1st segment and on upper and lower sides of 2nd segment. Legs shorter than in aptera with 6-segmented antennae. Dorsum dark brown on prothorax and most of mesothorax, with numerous small scleroites at bases of setae on thorax and abdomen; larger scleroites nearly as large as submarginal intersegmental sclerites and spiracular sclerites; a distinctly longer marginal seta present on each segment. Body 2.7 mm. in length. Other characters as in aptera with 6-segmented antennae.

Alate viviparous female: Head, thorax, antennae, legs and cornicles dark brown when cleared; wings dusky, pterostigma gray. Body with many long fine seta. Head straight at front, not divided, with about 16–20 dorsal setae which are about 3–3.5 times as long as middle width of 3rd antennal segment; ventral setae about 25 on each side; setae absent posterior to median ocellus on both surfaces. Eyes with distinct lateral ocular tubercles. Antennae longer

than half length of body, about 2.4 times as long as width of head across eyes; segments I and II as in aptera, but II with about or over 10 setae; III–VI imbricated, with setae similar to aptera; III gradually narrowed at base, nearly as stout as fore tibia, with 35–50 circular protuberant sensoria scattered over whole length on lower side; IV with 13–17 similar sensoria, V with 9–11; VI without secondary sensoria; processus terminalis shorter than half length of basal part, sometimes over thrice as long as wide, parallel-sided; primary and auxiliary sensoria as in aptera; proportion of lengths of segments: III–29, IV–16, V–15, VI–13 (9.5+3.5). Rostrum not reaching middle coxae, ultimate segment about four-fifths as long as 2nd segment of hind tarsus, distal part wider than long; clypeus with one or 2 pairs of anterior setae. Femoral setae as long as width of femora; tibiae with many slender setae crowded at apical part on lower side especially in hind legs, longest seta of hind tibia over twice as long as middle width of it; tarsi distinctly imbricated, hind tarsi with 9–11 setae on 1st segment, and 3 upper and 15–18 lower setae on 2nd segment; fore and middle tarsi with 6 setae on 1st segment and 4 or 5 lower setae on 2nd. Cornicles with 11–14 setae on cone, basal diameter of cone a little longer than half length of 6th antennal segment, less than thrice as long as apical diameter of cornicle. Cauda, anal plate and gonochaetae as in aptera. Mesonotum with many setae on scutum and postnotum. Abdomen without marginal and intersegmental sclerites, with a rather large faint median sclerite on each segment, which is reduced on 6th segment; 8th segment with 9–11 setae which are about 4.5 or 5 times as long as middle width of 3rd antennal segment; 7th with 11 or 12 dorsal and 4 or 5 marginal setae; anterior dorsal setae about 3.5 or 4 times as long as middle width of 3rd antennal segment. Wings imbricated, pterostigma rather short; subcosta with many long fine setae, anal and cubitus much apart; media nearly as stout as other veins, slightly or scarcely obsolete at base, twice branched, sometimes with a few setae; radial sector a little curved; hind wings with divergent obliques. Body 2.6 mm. in length.

Alate sexual female: Hind tibiae not broadened, without sensoria. Different from alate viviparous female in the anal plate with a pair of short thickenings arising from median part of anterior margin of venter, which are divergent anteriorly and much shorter than distance between them. Median gonochaetae arranged in 2 longitudinal rows in a specimen.

Alate male: Different from alate female as follows: Body yellowish brown in life, smaller and narrower, without sclerites on abdomen, about 2 mm. in length. Antennae longer, about two thirds of body length; segment III as long as width of head across eyes, with 27–30 smaller sensoria except on small distal part, setae shorter, longest one about 1.5 times as long as middle width

of III; IV with none or one or 2 sensoria, V with one or no secondary sensorium; proportion of segments: III-30, IV-17, V-17, V-13 (9+4). Setae not crowded at apices of tibiae. Subcosta of fore with fewer setae in a row. Cornicles entirely wanting. Claspers with numerous setae except on median part; produced parts rather slender, distinctly apart, distinctly longer than basal part, parallel, without setae.

Described from cotypes collected at Nara (10. V. 1959, R. Takahashi).

Host plant: A tree of Lauraceae. Rarely found on *Cinnamomum camphora*.

Related to *A. actinodaphnis* Takahashi from Formosa, but differs from that species as follows:

Alate viviparous female: Body larger. Antennae with shorter setae and more numerous sensoria; segment II as long as I, VI distinctly shorter than V; processus terminalis shorter, with an isolated auxiliary sensorium on basal part, which is distinctly apart from primary sensorium. Ultimate segment of rostrum shorter than 2nd segment of hind tarsus. Tarsi longer, distinctly imbricated, with more setae; setae on legs and subcosta shorter. Cones of cornicles smaller, with fewer setae. Abdomen with more numerous setae, dorsal sclerites faint.

Through the courtesy of Mr. C. C. Tao I have been able to examine some alate viviparous females of ***A. actinodaphnis*** Takahashi collected on *Actinodaphne* at Shinten, Formosa (1. XI. 1936, R. Takahashi), and supplementary description of that species is given below.

Alate viviparous female: Antennal segment II a little longer than I, setae on III about 2.5 times as long as middle width of that segment, VI longer than V; processus terminalis usually a little longer than half length of basal part, over 4 times to about 5 times as long as wide; auxiliary sensoria not much apart from primary sensorium. Rostrum reaching hind coxae, ultimate segment as long as 5th antennal segment, about 1.2 times as long as distal segment of hind tarsus. Legs with longer setae, those on hind tibiae about thrice as long as middle width of hind tibia; tarsi slightly striate, almost smooth; 2nd segment of hind tarsus shorter than ultimate rostral segment, with 6 or 7 setae on lower side. Cones of cornicles large, high, with over 30 setae, pale and membranous at posterior end, basal diameter nearly as long as, or longer than, 6th antennal segment, distinctly longer than distance between 5th and 6th abdominal spiracles. Setae on subcosta of fore wing longer, as long as those on 8th abdominal tergite. Abdomen without scleroites at bases of setae and marginal sclerites, with a pale dusky, but distinct, median sclerite on each segment, which is large, broad and a little broken on 7th and 8th segments,

and smaller and partly broken on anterior 4 segments; 8th segment with 4 or 5 setae on dorsum, and none or one or 2 marginal setae, dorsal ones about 3 or 3.5 times as long as middle width of 3rd antennal segment; 7th with 5 dorsal setae and one–3 marginal ones; 6th with about 10 setae between cornicles, anterior segments with 3–5 setae on dorsal sclerite.

The cotypes are preserved in the writer's collection.