

New and Little Known Species of Subfamily Drepanosiphinae from Korea (Drepanosiphidae: Aphidoidea: Homoptera)

Hee Cheon Park and Hyun Sook Ahn

Dept. of Biology, College of Natural Science, Kyungpook National Univ., Taegu 702-701, Republic of Korea

A new species belonging to the unrecorded genus *Sinishivaphis* Zhang, 1982, *Sinishivaphis korean* n. sp. is described and two unrecorded species of Drepanosiphinae, *Pterocallis (Recticallis) alnijaponicae* (Matsumura), and *Tinocallis takachihoensis* (Higuchi) are reported from Korea.

KEY WORDS: taxonomy, new species, Drepanosiphidae, Homoptera, Korea.

The taxonomic study of Drepanosiphinae (Aphidoidea) from Korean peninsula was nearly untouched since Paik's monographic work from southern part (1972) and Quednau's paper from northern part (1979) with the materials, which were collected by the North Korean expedition of Institute of Zoology, Polish Academy of Science, Warszawa, September to October 1966. Also, we do not have any important knowledges about the aphid fauna of Northeastern China, although this area is essential for the faunistic consideration of Korean aphid.

Recently, the authors collected a few interesting aphid specimens biogeographically related to the aphid fauna of Northeastern China.

Zhang had erected the genus *Sinishivaphis* with monotypic species in their work (Zhang and Zhong, 1982) of the Callaphididae and Chaitophoridae from China. In 1990, they added a new species from Northeastern China, which faced with Korean peninsula over the Yellow sea. The author compared Korean specimens with the paratypic specimens borrowed from the Institute of Zoology, Academia Sinica, China and the

Institute of Entomology, Hokkaido University, Japan.

Here, the authors describe a new species of genus *Sinishivaphis* and report two unrecorded species of Drepanosiphinae from Korea.

All specimens treated here are deposited in the collection of the Department of Biology, Kyungpook National University.

Systematics

Superfamily Aphidoidea

Family Drepanosiphidae

Subfamily Drepanosiphinae

Genus *Pterocallis* Passerini, 1860 난티잎개
암나무진딧물속 (신칭)

Glidi Afidi, Parma, 18.

Type species: *Aphisalni* De Geer, 1773.

This have four subgenera in the genus (Smith, 1972) and this genus is newly recorded from Korea.

1. *Pterocallis (Recticallis) alnijaponicae* (Matsumura, 1919) 오리외줄낙타진딧물 (신칭) (Fig. 1)

Recticallis alnijaponicae Matsumura, 1919,

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106; Higuchi, 1972:32-33.

Pterocallis (Recticallis) alnijaponicae:
Pashchenko, 1988:611.

Material examined: 4 alate viviparous females,
Mt. Palgong, 20 V 1991, ex. *Alnus japonica*

Steud.

Host Plants: *Alnus japonica* Steud.

Distribution: Korea (new record), Japan,
Formosa, USSR

Description: Alate viviparous females, body

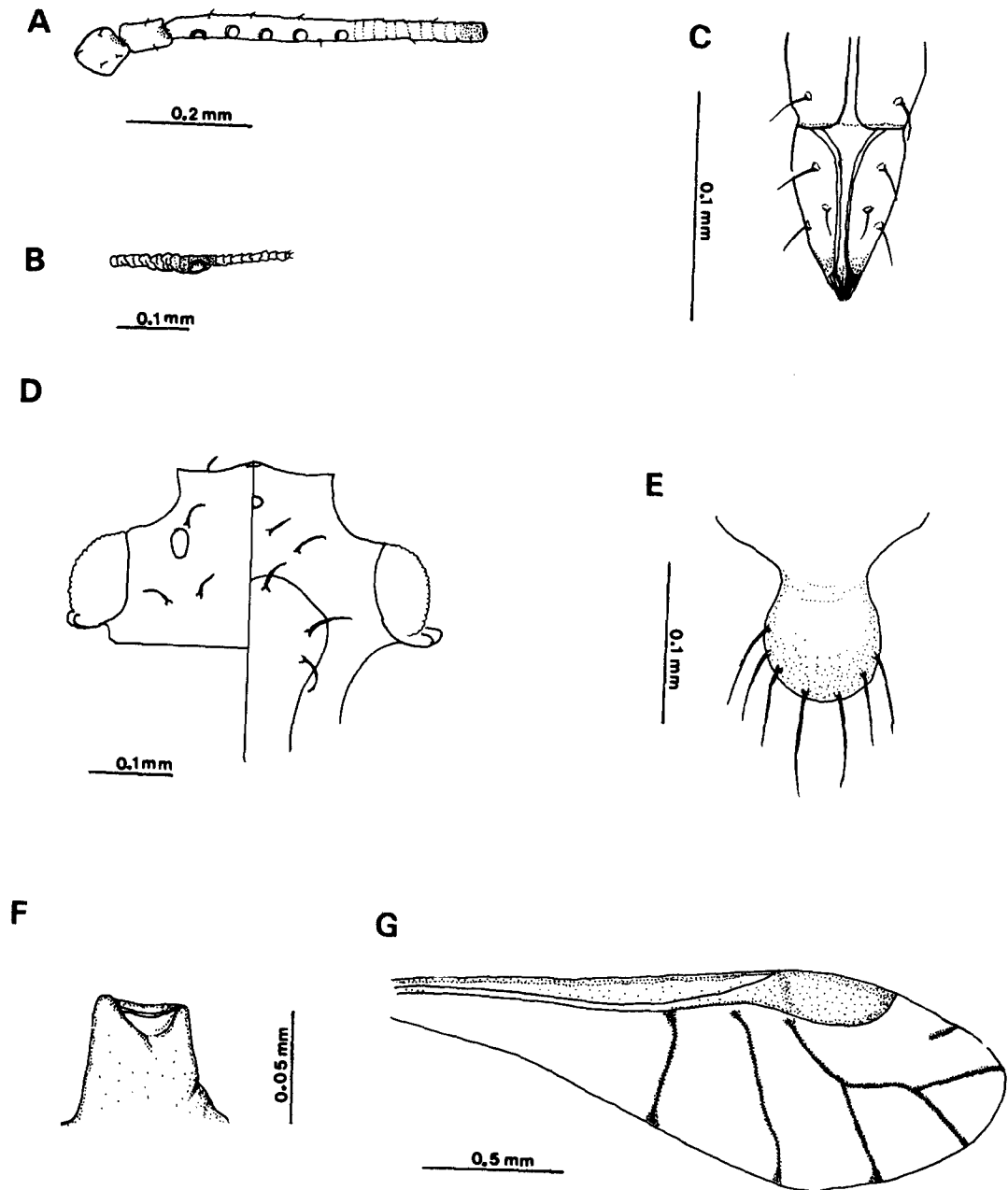


Fig. 1. *Pterocallis (Recticallis) alnijaponicae* (Mats., 1919) : a: Antennal segments I-III, b: Antennal segment VI, c: Ultimate rostrum, d: Head, e: Cornicle, f: Cauda, g: Fore wing.

colour yellow in life. Third antennal segment colourless except for apical part. Fourth median tubercle and marginal tubercles of 2nd-4th tergites black. Head with frontal tubercles (fig. 1- d). Third antennal segment with 5 secondary sensoria (fig. 1. a-b). Body length about 1.91-2.01mm. Length of 3rd-6th antennal (basal + apical) segments : 0.45, 0.32, 0.26, 0.13 + 0.1mm. Rostrum short, length of ultimate segment about 0.08-0.09mm, with 6 setae (fig. 1-c). Cornicle's length about 0.06mm (fig. 1-f). Cauda knobbed with 7 setae (fig. 1-e).

Remarks: Compared Korean specimen with Japanese specimen (15 V 1959, Osaka, Japan, *Alnus* sp., R. takahashi, det. by H. Higuchi), there was not so significant differences between them, except a slight difference in the length of 4th antennal segment.

Genus *Sinishivaphis* Zhang, 1982 흑알락진딧물속(신칭)

Sinishivaphis Zhang, 1982 (in Zhang and Zhong 1982), Acta Ent. Sinica, 68-69.

Sinoshivaphis; Zhang and Zhong, 1983: 168, (Misspelling).

Type species: *Sinishivaphis hangzouensis* Zhang and Zhong, 1982: 68-69.

Sinoshivaphis hangzouensis Zhang and Zhong, 1983:168-169, (Misspelling).

This interesting genus of Chinese origin with only two species is newly reported from Korea. The genus has not radial sector vein in the wing venation, truncated cornicle and the ratio of sixth antennal segment between apical and basal parts in about 0.53 times. All the species of this genus are distributed in the northeastern part of China and Korea.

2. *Sinishivaphis koreana* n. sp. 흑팽나무알락진딧물 (신칭) (Fig. 2)

Description: Alate viviparous females, body colour pale green in life. Eye red, head and prothorax dark brown (fig. 2-d), mesothorax and metathorax black.

Antenna dark brown on apical of 3rd to 6th segments. First to 8th tergites of the abdomen pale brown and marginal tubercles of 1st to 5th

tergites of the abdomen with dark brown. Spinal tubercles of 1st to 3rd tergites of it with dark brown. Legs generally pale brown with dark brown area on apical one third portion of hind femora. Second segment of tarsus and cornicles dark brown. Claws with black. Anal plate with pale yellow.

All veins of fore wing bordered with dark brown bands (fig. 2-g), and a dark brown maculation area between Cu_1 and M vein. Radial sector vein absent.

Body rather small with length of about 1.68-2.55mm. Antennal length about 0.9-1.25 times as long as body length. Third antennal segment with 10-14 elliptical secondary rhinaria arranged in a row (fig. 2-a,b). Length of 3rd to 6th (basal + apical part)antennal segments : 0.67; 0.43; 0.44; 0.26 + 0.14mm. Processus terminalis of 6th antennal segment with 0.53 times as long as length of the basal part of the segment.

Last segment of rostrum with about 0.07-0.09mm in length, 0.64-0.90 times as long as second segment of hind tarsus (fig. 2-c). Second segment of hind tarsi about 0.1-0.2mm long. Cornicles about 0.05-0.07mm long.

Rostrum not reaching middle coxae. Femorae and tarsi with many small wax pores. Each abdominal tergites with 2 pairs of wax plate, specially wax plate protruded on the middle of first and second segments (fig. 2-h). The median region of eighth abdominal tergites with two hairs on the spinal tubercle.

Cornicles truncated, with wax plate and one hair (fig. 2-e). Cauda knobbed with 7-8 setae (fig. 2-f). Anal plate bilobed and indented on median region, with many setae.

Holotype: 1 alate viviparous female, Mt. Apsan, Taegu City, 15 V 1991, ex. *Celtis sinensis* Pers.

Paratype: 5 alate viviparous females, Mt. Gaya, 24 VI 1991, ex. *Celtis sinensis* Pers.; 3 alate viviparous females, Mt. Chuwang, 13 IV 1991, ex. *Celtis sinensis* Pers.; 1 alate viviparous female, Youngchun County, Kyungpook Province, 23 X 1991, ex. *Celtis sinensis* Pers.

Host Plants: *Celtis sinensis* Pers.

Distribution: Korea.

Remarks: This new species with very thick wax

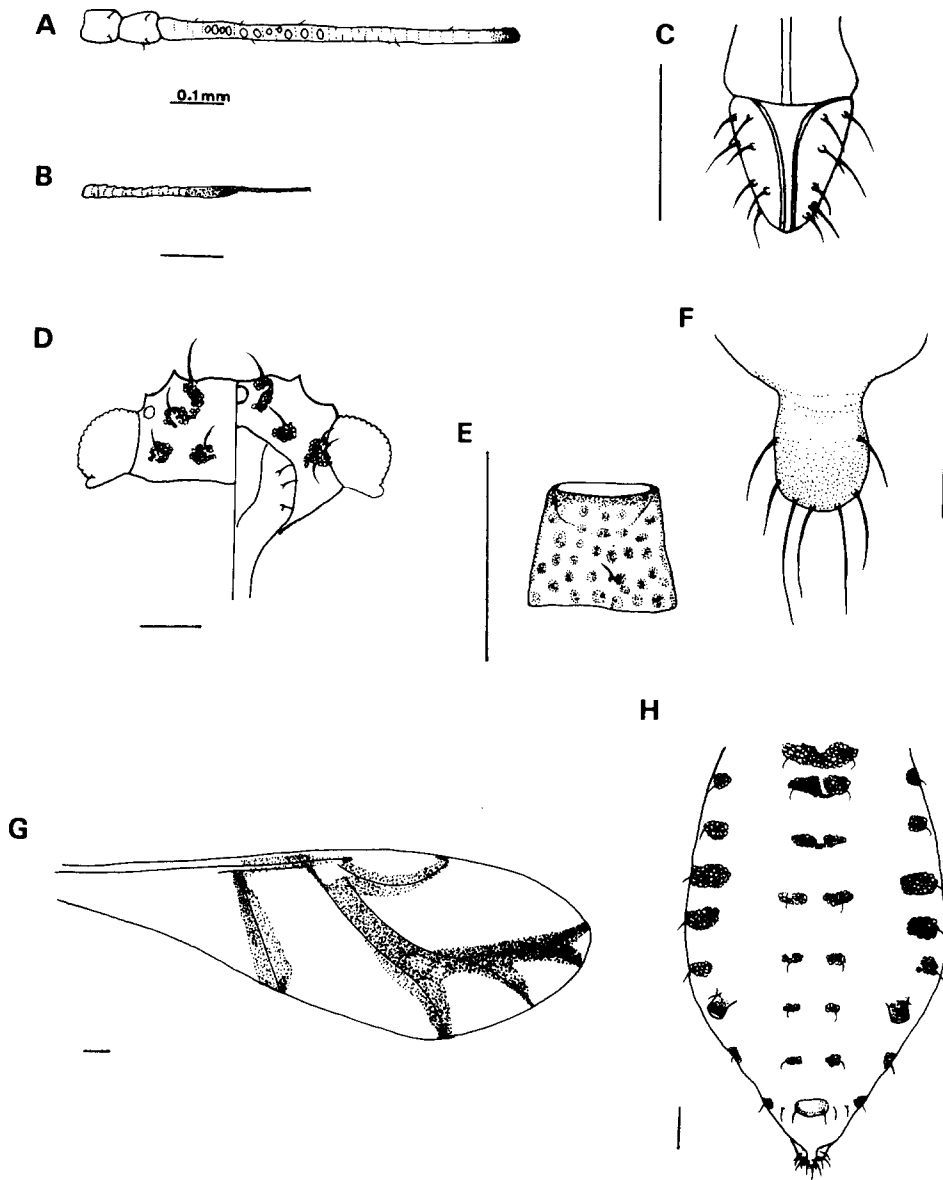


Fig. 2. *Sinishivaphis koreana* n. sp.: a: Antennal segments I-III, b: Antennal segments VI, c: Ultimate rostrum, d: Head, e: Cornicle, f: Cauda, g: Fore wing, h: Abdomen.

powder on its body lives on *Celtis sinensis* Pers and shares a host plant with *Shivaphis celti* Das.

This species, being similar to the latter species in the external shape, these two species have been

confused until present as the same species in Korea. The metric data of the sixth antennal segment of *Shivaphis celti* Das from Japan (Moritsu, 1983) and China (Zhang and Zhong,

1983) showed a stable ratio value, but the data of earlier Korean work (Paik, 1972) about the *Shivaphis celti* seemed to be mixed with materials of this new species (Table 1).

It differs from the coexisting species in the length of the basal part of sixth antennal segment and the number of secondary rhinaria in third segment. It resembles *Sinishivaphis hangzhouensis* Zhang et Zhong, 1982 and *S. tilisueta* (Zhang et Zhong, 1990) from China, but differs from Chinese species in the wing shape, and the third antennal segment with the number of secondary rhinaria.

The author compared this species with the paratype specimen of *S. hangzhouensis* Zhang and Zhong, 1982 collected on *Celtis sinensis* (Type No. 5572-1-1, May 4 1975, determined by Zhang). This Chinese specimen also seems to be the new species.

Genus *Tinocallis* Matsumura, 1919 느티나무알락진딧물속

3. *Tinocallis takachihoensis* Higuch, 1972 돌기알락진딧물 (신칭) (Fig. 3)

Tinocallis takachihoensis Higuch, 1972, 44-45; Pashtshenko, 1988: 605-606.

Description: Alate viviparous females- Head and thorax with dark brown. First and second antennal segments wholly black and apical part of third to sixth antennal segments with dark brown (fig. 3-a,b).

Fore wing with circular black mark on the Cu 2 vein and M and Cu 1 vein borders with narrow maculations (fig. 3-i). Head with 8 setae on dorsum (fig. 3-e). Third antennal segment with 17-25 secondary sensoria. Rostrum extending to

Table 1. The comparison of ratio between basal and apical part on the sixth antennal segment of *Shivaphis celti* Das from Korea, Japan and China.

Area	Alate	Apterous	References
Korea	0.0357	*0.636	Paik (1972)
Japan	0.166	0.18	Moritsu (1983)
China	0.158	0.222	Zhang et Zhong (1983)

*mark indicates a data, which does not belong to *S. celti*.

midway between fore and middle coxae (fig. 3-c). Mesonotum with a pair of large spinal tubercles (fig. 3-f). Abdomen with each segments bearing a pair of spinal tubercles, those on 1st and 2nd segments are especially large (fig. 3-g).

Cornicle with short-cylindrical form, 0.04 times as long as second segment of hind tarsi. Cauda knobbed with 7 setae (fig. 3-f).

Body length about 1.78-2.02mm, Length of 3rd-6th segments : 0.57, 0.32, 0.29, 0.16 + 0.15mm. Length of ultimate segment of rostrum about 0.1mm. Length of cornicles about 0.04-0.05mm.

Material examined: 1 alate viviparous female, Mt. Jiri, 6. XI. 1991, ex *Zelkova serrata* Makino ; 4 alate viviparous females, Taegu City, 15 V 1991, ex *Hemiptelea davidii* Planch.

Host Plants: *Hemiptelea davidii* Planch., *Zelkova serrata* Makino

Distribution: Korea (New record), Japan, USSR

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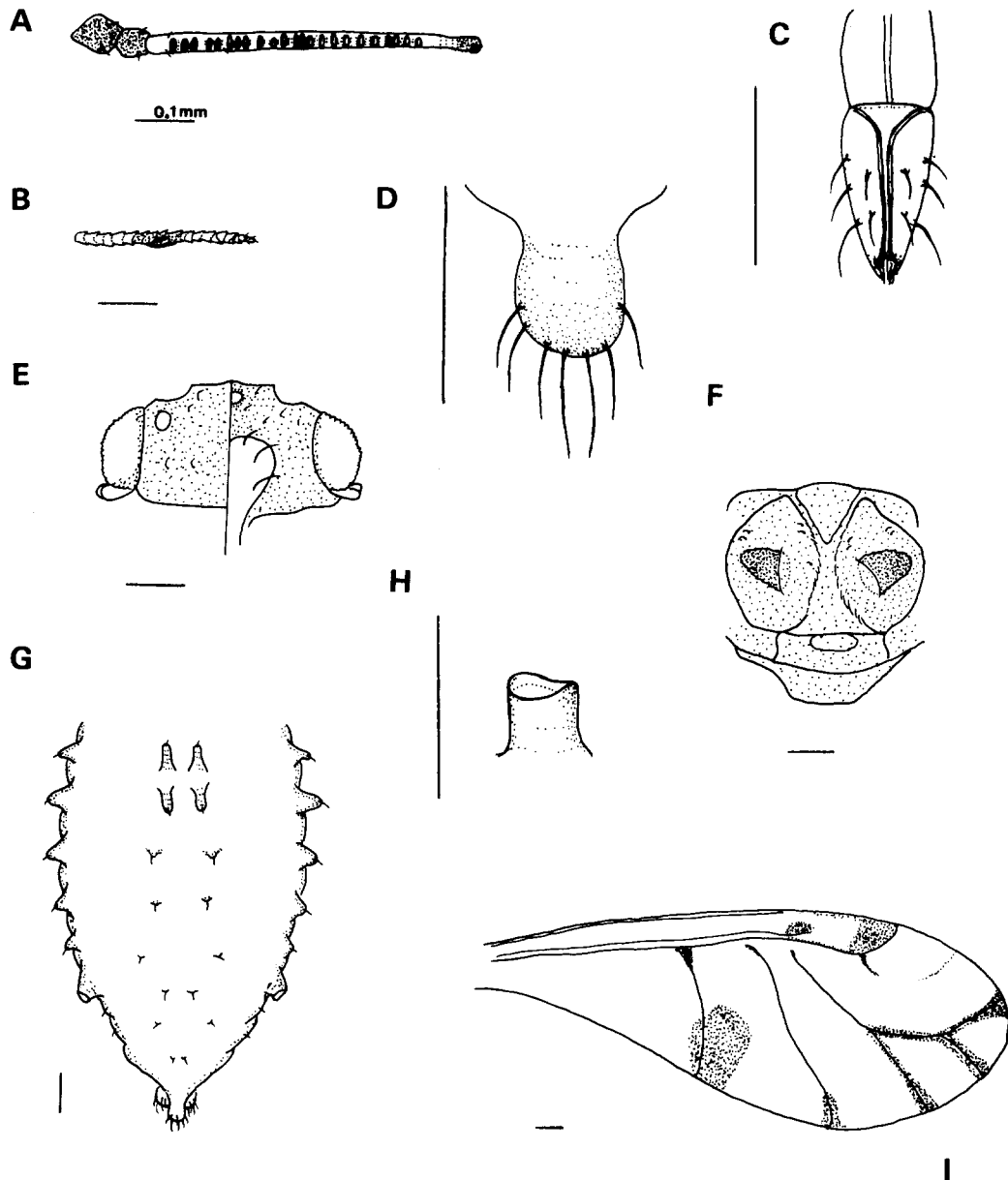


Fig. 3. *Tinocallis takachihoensis* Higuchi, 1972: a: Antennal segments I-III, b: Antennal segment VI, c: Ultimate rostrum, d: Cauda, e: Head, f: Mesothoracic lobe, g: Abdomen, h: Cornicle, i: Fore wing.

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한국산 알락진딧물아과의 1신종과 2미기록종(진딧물상과: 동시목)
박희천 · 안현숙(경북대학교 자연과학대학 생물학과)

한국산 알락진딧물아과의 한국미기록속인 흑알락진딧물속(신칭)(Genus *Sinishivaphis*)의 1신종, 흑팽나무알락진딧물(신칭)(*S. koreana* n. sp.)을 기재하고, 돌기알락진딧물(신칭)(*Tinocallis takachihoensis*)과 한국미기록속인 난티잎개암나무진딧물속(신칭)(genus *Pterocallis*)의 오리외줄낙타진딧물(신칭)(*P. (Recticallis) alnijaponicae*) 등 2종의 한국 미기록종을 보고한다.