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Myeong-Lyeol Lee

National Institute of Agricultural Science and Technology, 249 Seodun-dong Gwonseon-gu, Suwon, Korea

Soo-Jung Suh

Manan-gu, Anyang, Korea

Greg Hodges

Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Gainesville, FL

Mary Carver

Commonwealth Scientific and Industrial Research Organization Entomology, Canberra, ACT 2601 Australia

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Eight species of whiteflies (Homoptera: Aleyrodidae) newly recorded from Korea

Myeong-Lyeol Lee

National Institute of Agricultural Science and Technology
249 Seodun-dong Gwonseon-gu, Suwon, Korea

Soo-Jung Suh

National Plant Quarantine Service
433-1 Anyang 6-dong
Manan-gu, Anyang, Korea

Greg Hodges

Florida State Collection of Arthropods
Florida Department of Agriculture and Consumer Services
P.O. Box 147100
Gainesville, Florida, USA

Mary Carver

Commonwealth Scientific and Industrial Research Organization Entomology
GPO Box 1700
Canberra, ACT 2601 Australia

Abstract: *Aleuroclava magnoliae* (Takahashi), *Aleurotrachelus ishigakiensis* (Takahashi), *Aleyrodes lonicerae* Walker, *Asterobemisia carpini* (Koch), *Bemisia afer* (Priesner and Hosny), *Dialeurolobus pulcher* Danzig, *Pealius polygoni* Takahashi, and *Pealius rubi* Takahashi are newly recorded from Korea.

Key words: Homoptera, Aleyrodidae, *Aleuroclava*, *Aleurotrachelus*, *Aleyrodes*, *Asterobemisia*, *Bemisia*, *Dialeurolobus*, *Pealius*, New record, Korea

Introduction

Whiteflies (Homoptera: Aleyrodidae) are one of the most economically important groups of insects found on food crops and ornamentals plants. Due to globalization and subsequent increase in the exportation of ornamental plants, the movement of exotic pests between countries is likely to occur. To facilitate the recognition of potential exotic insects, many countries have a working list of species of insects known to occur in the country. Only seven species of whiteflies have been recorded from Korea (Kwon 1994, Lee et al. 2000). Based upon studies conducted in nearby or neighboring areas by Danzig (former USSR), David (India) and Takahashi (Japan-Taiwan), it can be hypothesized that more than seven species of whiteflies are likely to occur in the Republic of Korea. In this paper, we add eight whiteflies species, *Aleuroclava magnoliae* (Takahashi), *Aleurotrachelus ishigakiensis* (Takahashi), *Aleyrodes lonicerae* Walker, *Asterobemisia carpini*

(Koch), *Bemisia afer* (Priesner and Hosny), *Dialeurolobus pulcher* Danzig, *Pealius polygoni* Takahashi, and *Pealius rubi* Takahashi to the Korean fauna, and provide illustrations and information on distribution and host plants for each of these species. An asterisk (*) is used to indicate new host or distribution records.

1. *Aleuroclava magnoliae* (Takahashi) (Figs. 1-2)

Aleurotuberculatus magnoliae Takahashi, 1952.
Aleuroclava magnoliae (Takahashi) Martin, 1999.

Specimens examined. Korea. Gyeonggido: Seoul, 5 puparia, on *Cornus alba*, 10. VIII. 2003 (S.J. Suh); Suwon, 1 puparium, on *Magnolia kobus*, 25. VIII. 1998 (G.M. Kwon).

Distribution. Japan and *Korea.

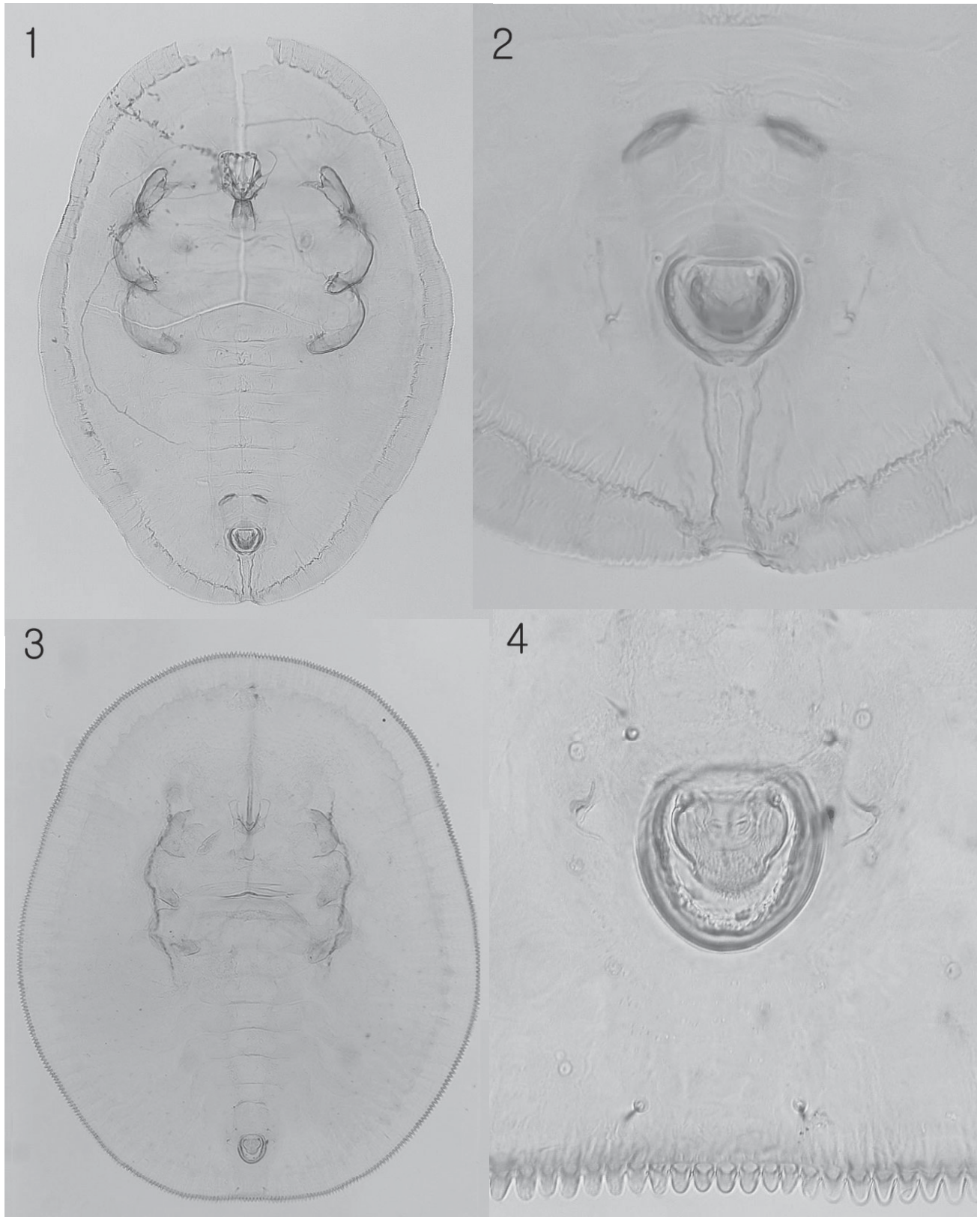


Figure 1-4. 1) *Aleuroclava magnoliae*, puparium; 2) *A. magnoliae*, vasiform orifice; 3) *Aleurotrachelus ishigakiensis*, puparium; 4) *A. ishigakiensis*, vasiform orifice.

Host plants. **Cornus alba* L. (Cornaceae). In addition, fourteen different plant families were listed as hosts in Japan (Takahashi 1952).

**2. *Aleurotrachelus ishigakiensis*
(Takahashi)
(Figs. 3-4)**

Trialeurodes ishigakiensis Takahashi, 1933.
Aleurotrachelus ishigakiensis (Takahashi) Takahashi, 1951.

Specimens examined. Korea. Jejudo: Namjeju, 40 puparia, on *Pittosporum tobira*, 17. IV. 1998 (M.L. Lee); Hallimgongwon, 2 puparia, on *Morus bombycis*, 4. X. 2003 (S.J. Suh).

Distribution. Japan and *Korea.

Host plants. Eleven different plant families were listed as hosts in Japan (Takahashi 1933, Takahashi 1951, Miyatake 1980).

**3. *Aleyrodes lonicerae* Walker
(Figs. 5-6)**

Aleyrodes fragariae Walker, 1852.
Aleyrodes lonicerae Walker, 1852.
Aleurodes lonicerae Koch, 1857.
Aleurodes rubi Signoret, 1868.
Aleurodes spiraeae Douglas, 1894.
Aleurodes menthae Haupt, 1934.
Aleyrodes borchsenii Danzig, 1966.
Conantulus lacombiensis Goux, 1988.

Specimens examined. Korea. Gyeonggido: An-yang, 2 puparia, on *Dicentra spectabilis*, 18. IX. 1998 (M.L. Lee); Gangwha, 3 puparia, on *Dicentra spectabilis*, 13. X. 1998 (M.L. Lee); Goyang, 20 puparia, on *Chelidonium majus* var. *asiaticum*, 3. VII. 1998 (M.L. Lee). Gyeongsangbukdo: Bonghwa, 2 puparia, on *Platycodon grandiflorum*, 21. X. 1999 (G.M. Kwon).

Distribution. *Korea, Europe and Mediterranean countries (Austria, Channel Islands, Corsica, Former Czechoslovakia, Denmark, England, Finland, France, Germany, Hungary, Isle of Man, Israel, Italy, Netherlands, Norway, Poland, Romania, Russia, Sicily, Sweden, Switzerland, Turkey, Wales, Yugoslavia).

Host plants. **Dicentra spectabilis* (L.) Lem. (Papaveraceae) and **Platycodon grandiflorum* (Jacq.) A.DC. (Campanulaceae). More than 18 different plant families are listed as hosts of this species in Europe (Mound and Halsey 1978, Martin et al. 2000).

**4. *Asterobemisia carpini* (Koch)
(Figs. 7-9)**

Aleurodes carpini Koch, 1857.
Aleurodes avellanae Signoret, 1868.
Aleyrodes vaccinii Künöw, 1880.
Aleurodes ribium Douglas, 1888.
Aleurodes rubicola Douglas, 1891.
Aleurochiton avellanae (Signoret) Harrison, 1920a.
Asterochiton carpini (Koch) Harrison, 1920b.
Aleurochiton vaccinii (Künöw) Ryberg, 1938.
Asterobemisia carpini (Koch) Trehan, 1940.
Bemisia (*Neobemisia*) *avellanae* (Signoret) Visnya, 1941.
Bemisia (*Neobemisia*) *ribium* (Douglas) Visnya, 1941.
Asterobemisia avellanae (Signoret) Zahradnik, 1956.

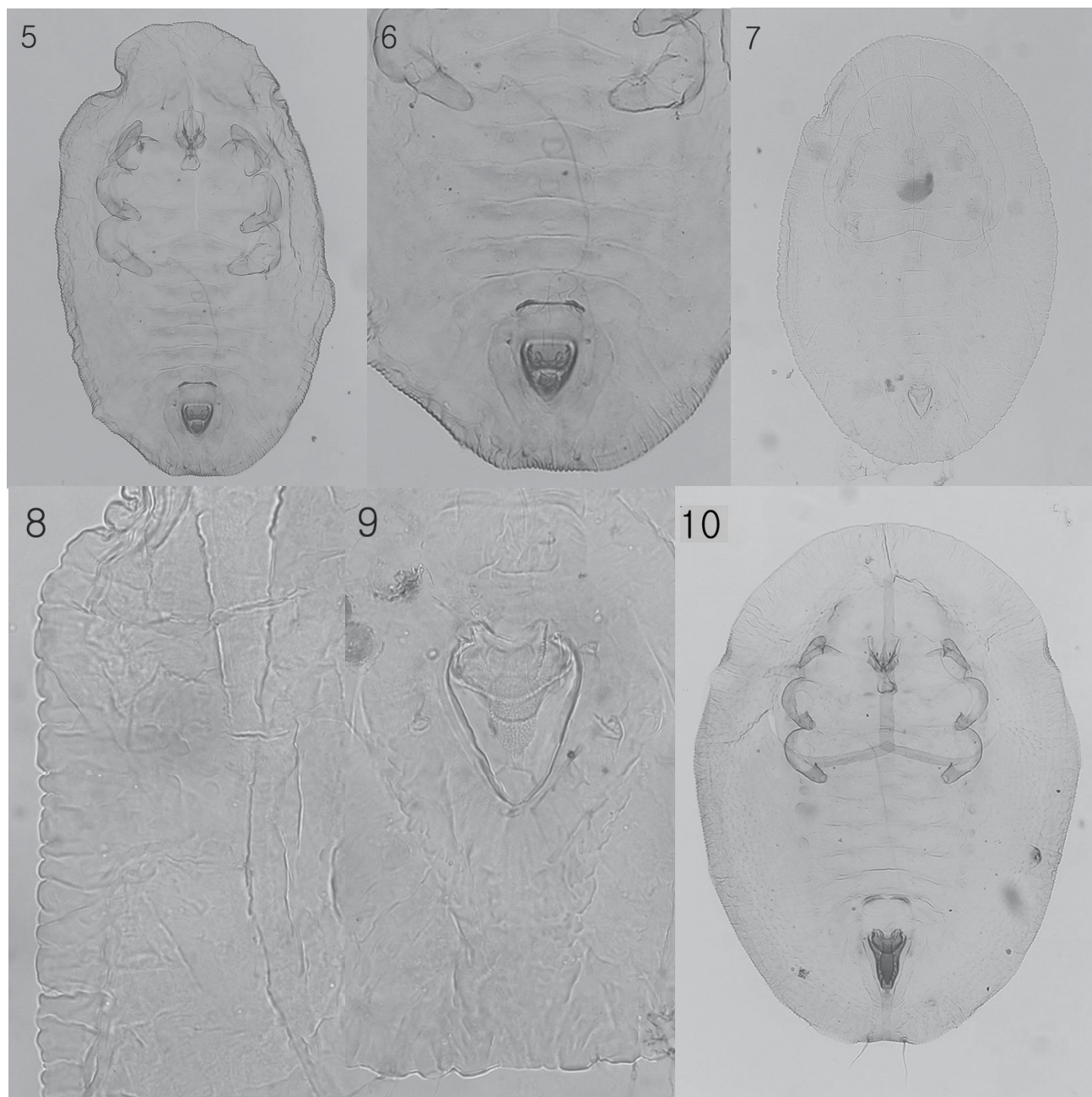
Specimens examined. Korea. Gyeonggido: Gangwha, 2 puparia, on *Artemisia princeps* var. *orientalis*, 12. X. 1998 (M.L. Lee); Same locality, 2 puparia, on *Lespedeza bicolor*, 13. X. 1998 (M.L. Lee).

Distribution. Japan, *Korea, Europe and Mediterranean countries (Austria, Bulgaria, Former Czechoslovakia, Denmark, England, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Poland, Romania, Russia, Spain, Sweden, Yugoslavia).

Host plants. **Artemisia princeps* var. *orientalis* (Pampan.) Hara (Compositae) and **Lespedeza bicolor* Turcz. (Leguminosae). In addition, fifteen plant families are reported as hosts of this species in Europe (Mound and Halsey 1978, Martin et al. 2000).

**5. *Bemisia afer* (Priesner and Hosny)
(Figs. 10-11)**

Dialeurodoides afer Priesner and Hosny, 1934.
Bemisia hancocki Corbett, 1936.
Bemisia (*Neobemisia*) *hancocki* Corbett; Visnya, 1941.
Bemisia (*Neobemisia*) *afra* (sic) (Priesner and Hosny) Visnya, 1941.
Bemisia citricola Gomez-Menor, 1945.
Bemisia afer (Priesner and Hosny) Habib and Farag, 1970.



Figures 5-10. 5) *Aleyrodes loniceræ*, puparium; 6) *A. loniceræ*, abdominal segments and vasiform orifice; 7) *Asterobemisia carpini*, puparium; 8. *A. carpini*, thoracic tracheal margin; 9) *A. carpini*, vasiform orifice; 10) *Bemisia afer*, puparium.

Specimens examined. Korea. Gyeonggido: Suwon, 3 puparia, on *Rosa hybrida*, 30. VI. 1998 (S.H. Lee); Same locality, 4 puparia, *Rosa hybrida*, 6. VII. 1998 (S.H. Lee).

Distributions. Australia, China (Shaanxi, Fujian), India, *Korea, Pakistan, Europe and Mediterranean countries (Corsica, Egypt, England, France,

Greece, Israel, Italy, Malta, Rhodes, Sicily, Spain, Turkey).

Host plants. **Rosa hybrida* L. (Rosaceae). In addition, twenty plant families are reported as hosts in Europe and Mediterranean countries (Mound and Halsey 1978, Martin et al. 2000).

6. *Dialeurolobus pulcher* Danzig

(Figs. 12-13)

Dialeurolobus pulcher Danzig, 1964.

Specimens examined. Korea. Chungcheongnam-do: Gongju, 4 puparia, on *Poncirus trifoliata*, 25. VIII. 1999 (M.L. Lee). Gyeongsangbukdo: Andong, 2 puparia, on *Lagerstroemia indica*, 26. VIII. 1999 (M.L. Lee).

Distributions. *Korea and Russia (Caucasus).

Host plants. **Lagerstroemia indica* L. (Lythraceae) and **Poncirus trifoliata* Rafin. (Rutaceae). In addition, *Crataegus* sp. (Rosaceae) and *Pyracantha coccinea* are listed as hosts of this species in Russia (Danzig 1964).

7. *Pealius polygoni* Takahashi

(Figs. 14-16)

Pealius polygoni Takahashi, 1934.

Specimens examined. Korea. Gangwondo: Hwacheon, 3 puparia, on *Persicaria hydropiper*, 1. IX. 1998 (M.L. Lee).

Distributions. Japan, *Korea and Taiwan.

Host plants. **Persicaria hydropiper* (L.) Spach (Polygonaceae). In addition, *Polygonum longisetum*, *P. perfoliatum*, and *P. thunbergii* are listed as hosts of this species in Japan (Takahashi and Mamet 1957, Miyatake 1980) and *Polygonum* sp. is listed as a host of this species in Taiwan (Takahashi 1934).

8. *Pealius rubi* Takahashi

(Figs. 17-18)

Pealius rubi Takahashi, 1936.

Specimens examined. Korea. Jejudo: Sanbangsa, 4 puparia, on *Cornus kousa*, 15. IV. 1998 (M.L. Lee).

Distributions. Japan, *Korea and Taiwan.

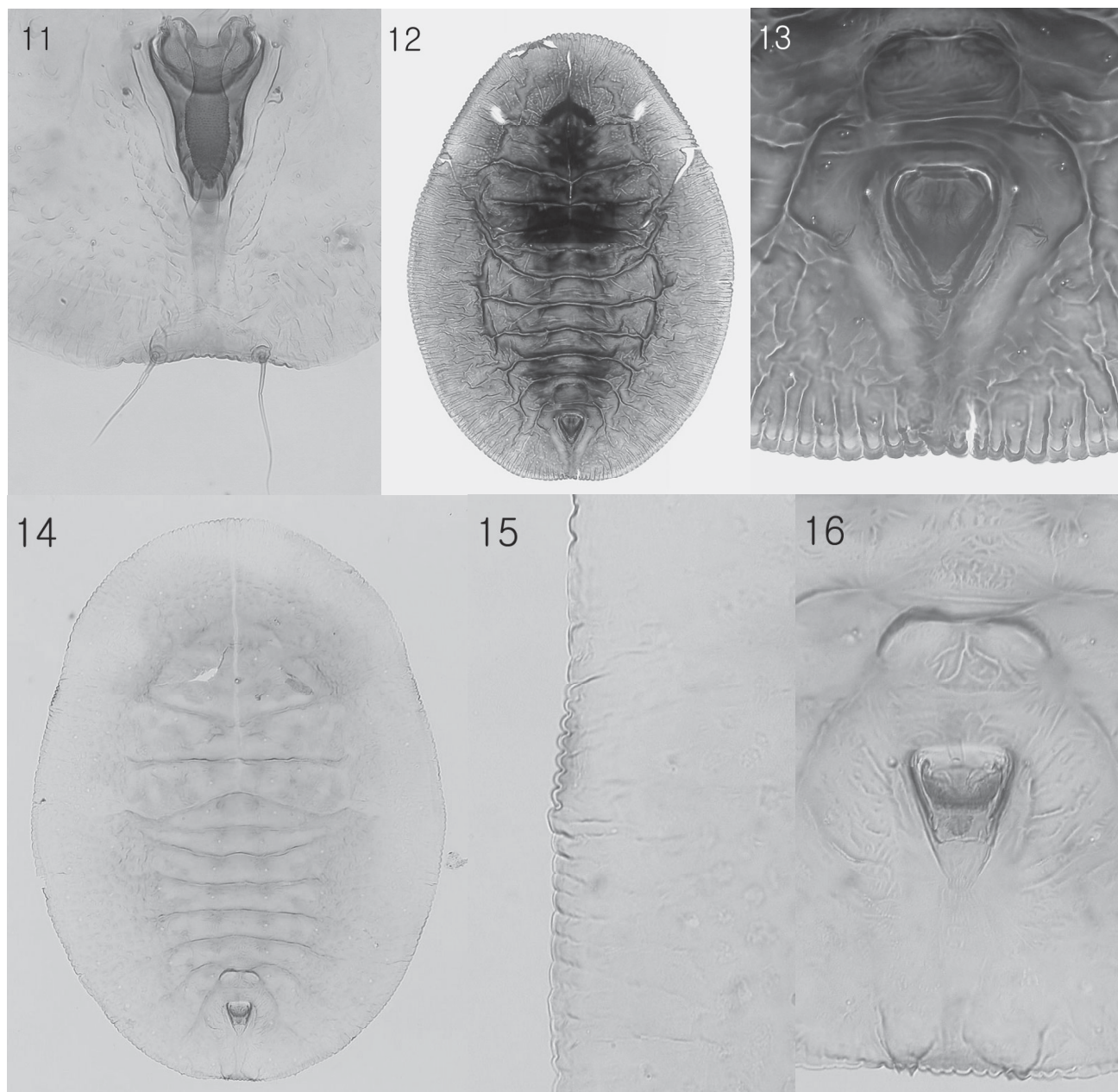
Host plants. **Cornus kousa* Buerg. (Cornaceae). In addition, nine plant families are listed as hosts of this species in Japan (Takahashi 1936, Takahashi 1955) and *Rubus* sp. is listed as a host of this species in Taiwan (Takahashi 1936).

Discussion

Previously, only the following seven species of whiteflies had been reported as occurring in the Republic of Korea: *Aleurocanthus spiniferus* (Quaintance), *Aleuroclava hikosanensis* (Takahashi), *Bemisia tabaci* (Gennadius), *Dialeurodes citri* (Ashmead), *Pealius azaleae* (Baker and Moles), *Trialeurodes packardi* (Morrill), and *Trialeurodes vaporariorum* (Westwood). The majority of these species are considered economically important and widely distributed. In this paper, eight additional species are added to the number of whitefly species known to occur in Korea. This information can and will act as an additional tool for the identification of whitefly species in Korea. Additional collecting trips and taxonomic studies will likely result in additional species being added to our knowledge of the Korean whitefly fauna.

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Figures 11-16. 11) *Bemisia afer*, vasiform orifice; 12) *Dialeurolobus pulcher*, puparium; 13) *D. pulcher*, vasiform orifice; 14) *Pealius polygoni*, puparium; 15) *P. polygoni*, thoracic tracheal margin; 16) *P. polygoni*, vasiform orifice.

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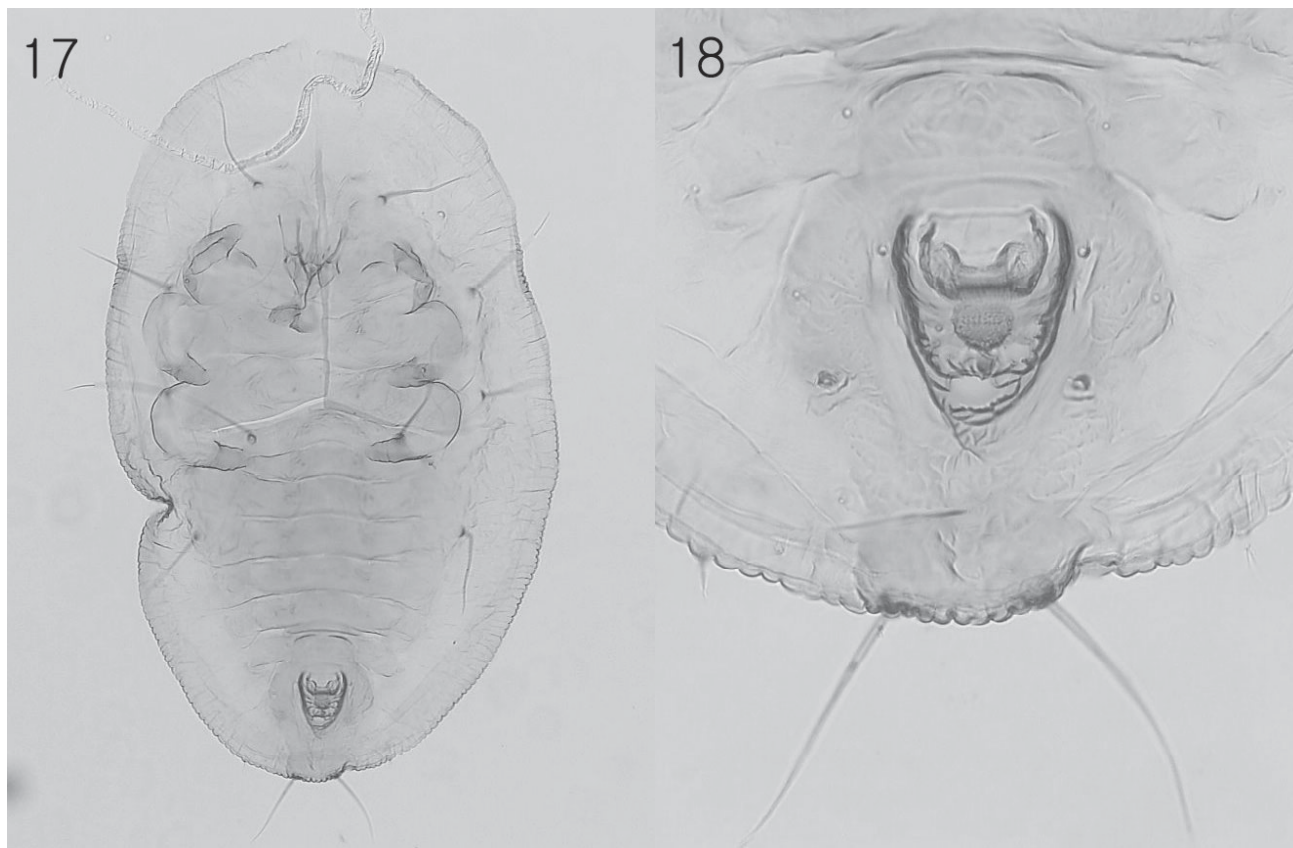


Fig. 17-18. 17) *Pealius rubi*, puparium; 18) *P. rubi*, vasiform orifice.

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