

Taxonomic Notes on the Anthomyiidae from North Korea (Diptera: Calyptratae)

北韓産 꽃파리과의 분류
(파리목: 유관류)

Sang Jae Suh¹, Yong Jung Kwon¹, and Milan Kozánek²

서 상 재¹ · 권 용 정¹ · Milan Kozánek²

ABSTRACT Sixteen North Korean anthomyiid flies are identified here. Among them, one species is new to science, and six species and one genus are new to Korean fauna.

KEY WORDS Classification, Diptera, Cyclorrhapha, Calyptratae, Anthomyiidae, Korea

초 록 北韓山 꽃파리과는 지금까지 3屬 4種이 알려지고 있을 따름이다. 본인들은 최근 체코슬로바키아 과학원의 북한곤충채집 원정대(1989년 7월~8월)에 의해 수집된 표본을 근거로 조사한 결과, 새로 1 신종, 1 한국미기록속, 6 한국미기록종, 8 북한미기록속 및 9 북한미기록종을 포함, 총 10속 16종을 분류 동정하였다. 따라서 北韓山 꽃파리과는 12속 20종이 되며, 全韓國産 꽃파리과는 모두 26속 106종이 된다.

검 색 어 분류, 파리목, 가락지갑침파리아목, 유관류, 꽃파리과

The Anthomyiidae from North Korea have been little known taxonomically. As far as we know, only the following four species belonging to three genera were recorded from this area as serious pests on vegetables or forest (Table 1).

Recently the third author, M. Kozánek, collected some anthomyiid flies in North Korea during July to August, 1989. Detailed examination of the material revealed that it contained sixteen anthomyiid species, of which one species is new to science, and five species and the genus *Hylemya* Robineau-Desvoidy, 1830 are new to Korean fauna.

The examined specimens including the holotype

and most of paratypes will be deposited in the Institute of Experimental Phytopathology and Entomology, Slovak Academy of Sciences, Czechoslovakia. Some duplicate specimens are deposited in the collection of Systematic Entomology Laboratory, College of Agriculture, Kyungpook National University, Taegu, Korea.

SYSTEMATICS

1. *Emmesomyia oriens* Suwa, 1974

동양우리꽃파리

Ins. Mats. n. s. 4 : 187~189.

Material examined 1 ♂ & 5 ♀♀, 10 Km NW of P'yongsong, HH, 1, VIII, 1989; 1 ♀, Tökkol Valley, Myohyangsan, PB, 3, VIII, 1989; 1 ♀, 5 Km SW of

1 Dept. of Agricultural Biology, Coll. of Agriculture, Kyungpook National University, Taegu 702-701, Korea (경북대학교 농과대학 농생물학과)

2 Institute of Experimental Phytopathology and Entomology, Slovak Academy of Sciences, Ivanka pri Dunaji, Czechoslovakia

Hyangsan, Myohyangsan, PB, 4, VIII, 1989.

Distribution Korea (North, South, Chejudo), Japan (Hokkaido, Honshu), China (Hainan Dao, Taiwan, Zhejiang), India.

2. *Alliopsis silvatica* (Suwa, 1974) comb. n.

극동밭꽃파리 (신칭)
(Fig. 1-1)

Ins. Mats. n. s. 4 : 62-64 (*Paraprosalpia*).

Material examined 6♀♀, Paektusan, HB, 16, VIII, 1989; 1♀, Sobaeksan, HB, 17, VIII, 1989.

Distribution Korea (new record: North), Japan (Hokkaido), China (Jilin, Liaoning).

3. *Alliopsis silvestris* (Fallén, 1824)

북쪽밭꽃파리 (신칭)
(Fig. 1-2)

Mon. Musc. Suec. 7: 70 (*Musca*).

Anthomyza murina + *A. argyrocephala* Zetterstedt, 1838, Ins. Lapp. : 682-672.

Aricia argyrata + *A. decrepita* Zetterstedt, 1845, Dipt. Scand. 4: 1443-1454.

Anthomyia alpina + *A. donuca* + *Eriphia grisea* Walker, 1849, List Dipt. Brit. Mus. 4: 927-962.

Paraprosalpia hydrophorinae Pokorny, 1893, Wien. Ent. Zeitg. 12: 59.

Material examined 3♀♀, Paektusan, HB, 16, VIII, 1989; 1♀, Samjiyon, HB, 17, VIII, 1989.

Distribution Korea (new record: North), Japan (Hokkaido, Honshu), China (Heilongjiang, Jilin, Liaoning), USSR (Kamchatka, Ural), Europe, N. America.

4. *Calythea paektusana* sp. n.

백두산등무늬꽃파리 (신칭)
(Fig. 2)

Male Black in ground color, with thin greyish pollen. Head about 1.4-1.6 times as high as long in profile. Frons at narrowest part nearly as wide as distance between posterior ocelli. Interfrontalia and parafrontalia dull, with a pair of proclinate cruciate interfrontal setae, 6-9 strong frontal setae, and 1-2 fine fronto-orbital setae. Parafacialia and cheek black, with brownish grey pollen; parafrontal width about 0.7-0.9 times as wide as width of 3rd antennal segment; parafacialia narrowing slightly toward level of lower margin of eye; cheek at narrowest part about 1.3-1.7 times as high as width of 3rd antennal segment. Antenna black; 3rd segment about 2.0-2.4 times as long as wide; arista shortly pubescent, the longest hairs as long as basal diameter of arista. Mentum of haustellum faintly greyish pollinose, about 2.6-3.0 times as long as wide. Palpus black with sparsely grey pollen, long and slender.

Mesonotum and scutellum black in ground color, with greenish grey pollen, and patches of brown pollen, especially on dorsum; mesonotum with a paler grayish median vitta presuturally in anterior view; 3 pairs of *pre acr*, the third pair longest; *pre acr* rows slightly closer together than to *dc* rows, with several fine irregular hairs between rows; *post acr* slender, becoming longer in front of scutellum. Scutellum without ventral setulae. *Pra* strong, as long as or slightly shorter than posterior *ntpl*. Posterior *ntpl* rather longer than anterior *ntpl*.

Table 1. A synopsis of first reports of North Korean Anthomyiidae (all valid species are printed in bold)

Year	Author	Species
1928	Seedl. Stat. Hamg.	<i>Hylemyia floralis</i> (= <i>Delia floralis</i>) <i>Hylemyia antiqua</i> (= <i>Delia antiqua</i>)
1940	Yokoo	<i>Pegomyia hyoscyami</i> (= <i>Pegomya hyoscyami</i>)
1943	Hosoya	<i>Hylemyia laricicola</i> (= <i>Strobilomyia laricicola</i>)

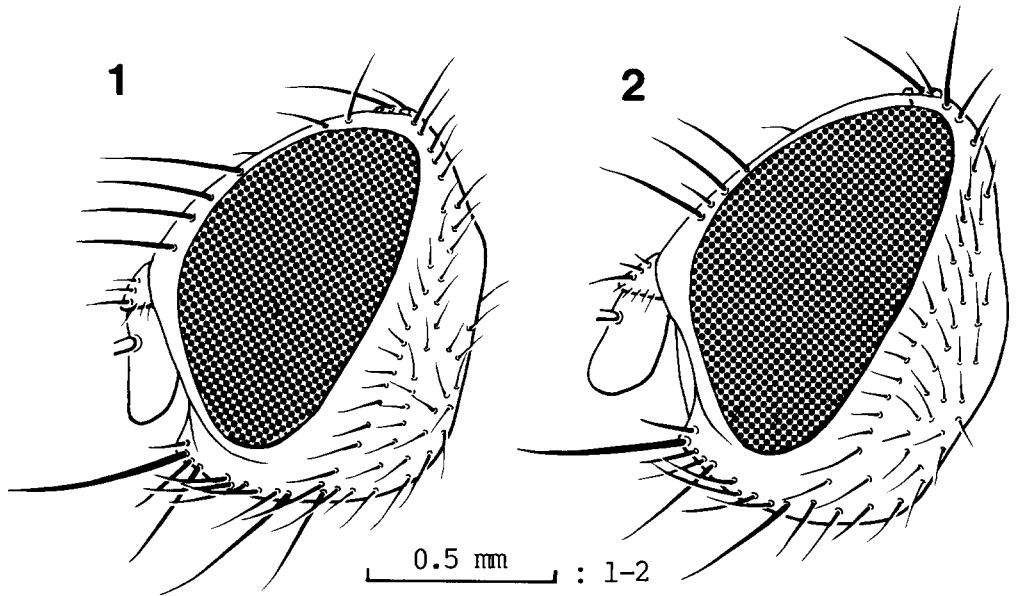


Fig. 1. Female head of *Alliopsis* spp. 1: *A. silvatica*, 2: *A. silvestris*.

Propleuron with 4 propleural setae. Mesopleuron with a distinct upper anterior seta, having 2 strong and 8-10 accessory *Pstg. Stpl* 1: 2.

Leg black; fore tibia with strong *pv*; mid femur with an extensive series of weak *av* and longer slender *pv*; mid tibia with 2 *pd* and 1 *pv*; hind femur with a full series of longish *av* and *pv*; hind tibia with 3 *ad*, 1 *pd*, 3 *av*, and 2-3 *pv*.

Wing faintly brownish tinged, denser basally; costal spine indistinguishable from anterior setulae; *m-m* nearly straight. Calyptate deep yellow to brownish; the lower calypter being much protruded beyond the upper one. Knob of halter yellow.

Abdomen with greenish grey pollen, and a black narrow median vitta.

Length Body 5.0-5.5 mm, wing 4.5-4.7 mm.

Female Unknown.

Type-material Holotype ♂, Paektusan, HB, N. Korea, 16, VIII, 1989; paratypes: 3 ♂♂, same data as holotype.

Remarks In the genitalic structure, the present

new species resembles *C. praticola*. But this species is different from the latter in the following characters: Body larger, 5.0-5.5 mm in length; interfrontalia with a pair of distinct cruciate interfrontal setae; *pra* strong, as long as or slightly shorter than posterior *ntpl*; cercal plate with rectangular apex; gonocoxal lobe much slender, with 1 fine seta.

5. *Pegoplata virginea* (Meigen, 1803)

애넙적꽃파리

Syst. Besch. 5: 96 (*Anthomyia*).

Material examined 1 ♂ & 1 ♀, 10 Km NW of Haeju, Suyangsan, HH, 29, VIII, 1989; 2 ♀♀, Tökkol Valley, Myohyangsan, PB, 3, VIII, 1989; 1 ♀, Sobaeksan, HB, 17, VIII, 1989.

Distribution Korea (North, Central, South), Japan (Hokkaido, Honshu, Shikoku, Kyushu), China (Heilongjiang, Shanghai), USSR (Ural), Europe.

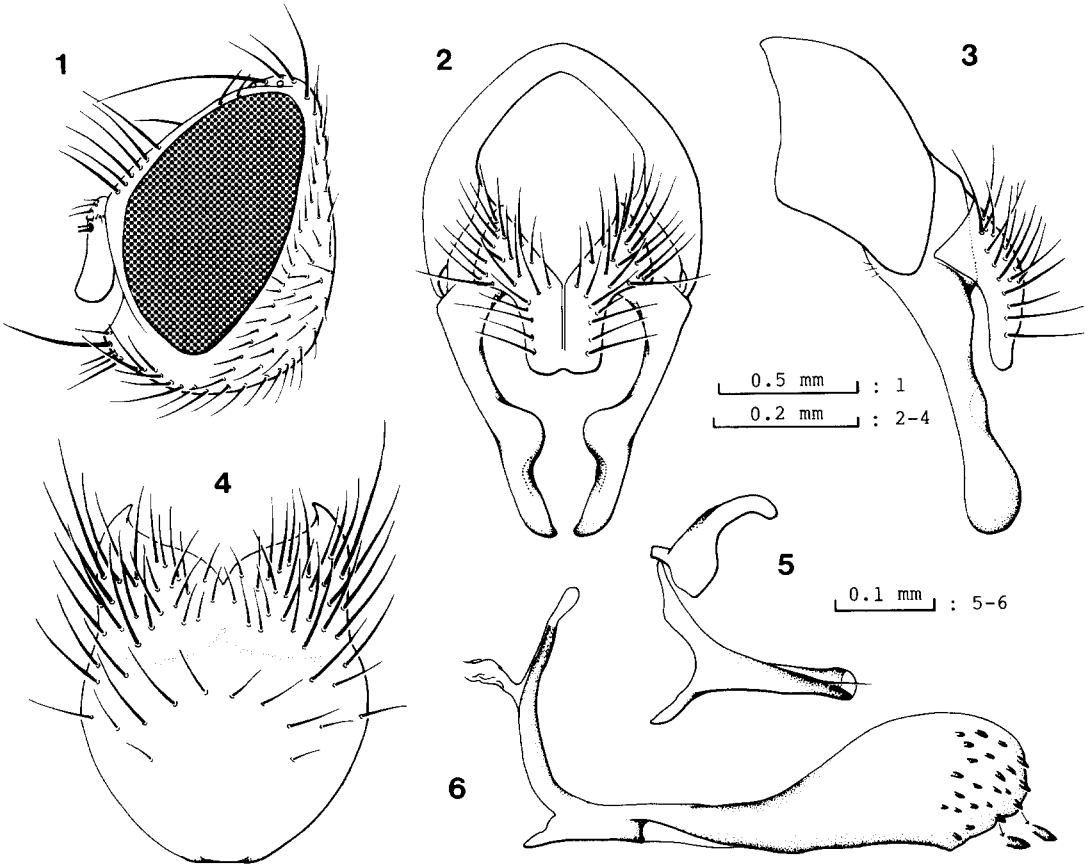


Fig. 2. *Calythea paektusana* sp. n., male. 1: head, lateral view; 2: hypopygium, dorsal view; 3: ditto, lateral view; 4: 5th sternite, ventral view; 5: gonocoxal lobe & gonostylus, lateral view; 6: basiphallus, epiphallus & distiphallus, lateral view.

6. *Hylemya latifrons* Schnable, 1911

등근꽃파리 (신칭)
(Fig. 3)

Nova Acta, Abh. Leop.-Carl. Akad. Nat. 95: 242.
Hylemya variabilis Stein, 1916, Arch. Nat. 81A 10 : 155.

Material examined 1♂, Mupo, 30 Km N of Samjiyön, HB, 18, VIII, 1989.

Distribution Korea (new record: North), Japan (Hokkaido, Honshu), China (Heilongjiang, Liaoning, Taiwan, Xinjiang), USSR (Kamchatka), Europe, N. America.

7. *Botanophila nigrigenis* (Suwa, 1974) comb. n.

가지뿔참꽃파리 (신칭)
(Fig. 4)

Ins. Mats. n. s. 4: 140-142 (*Pegohylemyia*).

Material examined 1♂, Paektusan, HB, 16 VIII, 1989.

Distribution Korea (new record: North), Japan (Honshu), China (Jilin, Liaoning).

8. *Botanophila profuga* (Stein, 1916)

몽특뿔참꽃파리 (신칭)
(Fig. 4)

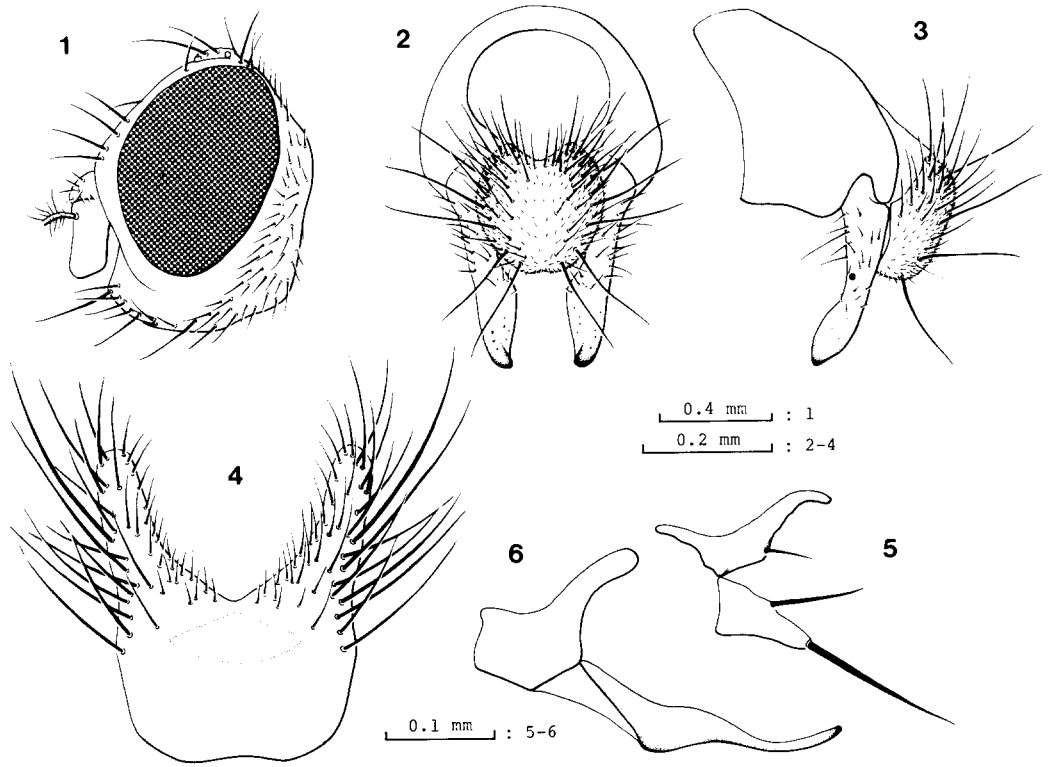


Fig. 3. *Hylemya latifrons*, male. For caption, see Fig. 2.

Arch. Nat. 81A 10: 141 (*Hylemyia*).

Hylemyia acrostichalis Malloch, 1919, Rep. Can. Arct. Exp.: 1913-1918.

Hylemyia tridens Malloch, 1920, Ohio Journ. Sci. 20: 284.

Material examined 1♂, Sobaeksan, HB, 17, VIII, 1989.

Distribution Korea (new record: North), Japan (Hokkaido, Honshu), China (Liaoning, Qinghai), Europe, N. America.

Remarks The adult is commonly found on the flowers of *Archalica* spp. and *Geranium* spp. (Hennig 1970).

9. *Botanophila shirozui* (Suwa, 1981)

제주뿔창꽃파리

Kontyu 49: 104-107 (*Pegohylemyia*).

Material examined 1♂ & 2♀♀, Paektusan, HB, 16, VIII, 1989; 3♂♂ & 3♀♀, Sobaeksan, HB, 17, VIII, 1989; 1♂ & 1♀, Samjiyön, HB, 18, VIII, 1989; 1♀, Onsüpchöng, HB, 19, VIII, 1989.

Distribution Korea (North, Chejudo).

Remarks This species was originally described on the basis of only male specimens from Chejudo. Previously the female was unknown.

10. *Paregle audacula* (Harris, 1780)

긴털보꽃파리 (신칭)

(Fig. 6)

Exp. Engl. Ins.: 121 (*Musca*).

Anthomyza canescens Zetterstedt, 1838, Ins. Lapp.: 676.

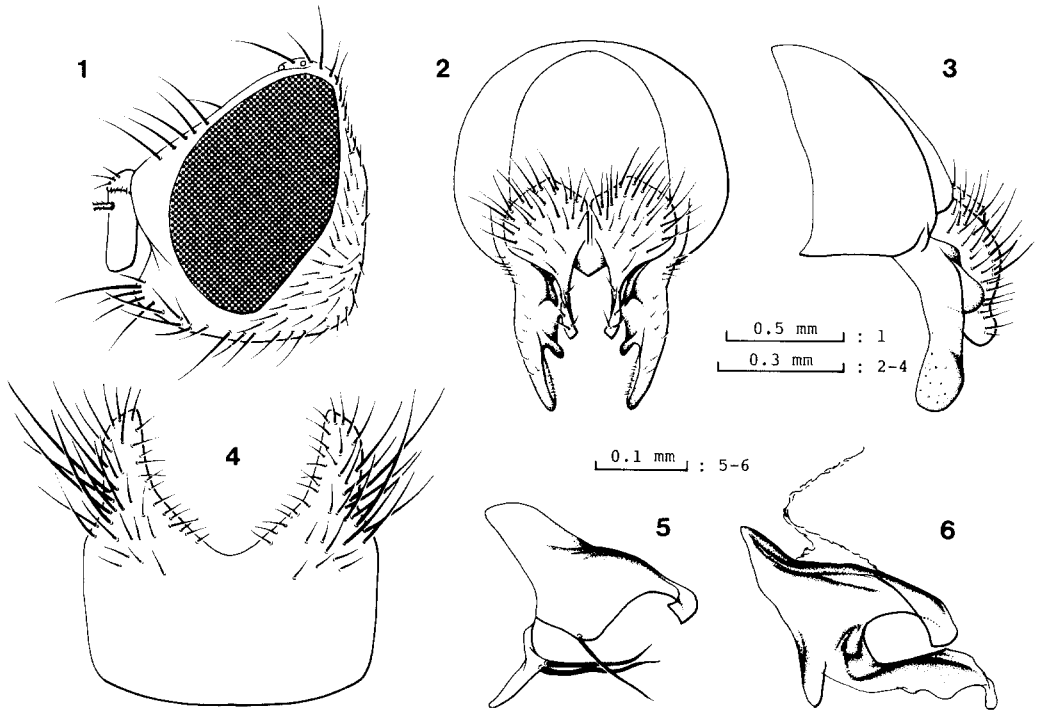


Fig. 4. *Botanophila nigrigenis*, male. For caption, see Fig. 2.

Material examined 1♂ & 1♀, Samjiyön, HB, 15-17, VIII, 1989; 4♂♂ & 9♀♀, Paektusan, HB, 16, VIII, 1989; 4♂♂ & 2♀♀, Sobaeksan, HB, 17, VIII, 1989; 1♀, Mupo, 30 km N of Samjiyön, HB, 18, VIII, 1989; 1♂ & 2♀♀, Onsüpchöng, HB, 19, VIII, 1989.

Distribution Korea (new record: North), Japan (Hokkaido), China (Gansu, Heilongjiang, Jilin, Liaoning, Qinghai, Shanxi, Sichuan), USSR (European part, Kamchatka, Kirgiz, Siberia, Tadzhik), Europe, N. Africa, N. America.

Remarks The larva lives on the excrements of men or plant roots such as cruciferous plants, wheat, and sprouts of coniferous trees (Hennig 1967).

11. *Adia cinerella* (Fallen, 1825)

썩이꽃파리

Mon. Musc. Suec. 8: 77 (*Musca*).

Material examined 3♂♂, 10 Km NW of Haeju, Suyangsan, HH, 29, VII, 1989; 5♂♂, 10 Km NW of P'yöngsöng, HH, 1, VIII, 1989.

Distribution Korea (North, Central, South, Chejudo), Holarctic region.

12. *Hydrophoria montana* Suwa, 1970

산장수꽃파리

Kontyu 38: 248-251.

Material examined 3♀♀, 10 km NW of Haeju, Suyangsan, HH, 29, VII, 1989; 1♀, Sobaeksan, HB, 17, VIII, 1989; 2♂♂ & 5♀♀, Onsüpchöng, HB, 19, VIII, 1989.

Distribution Korea (North, Central, South), Japan (Honshu, Shikoku), China (Heilongjiang, Li-

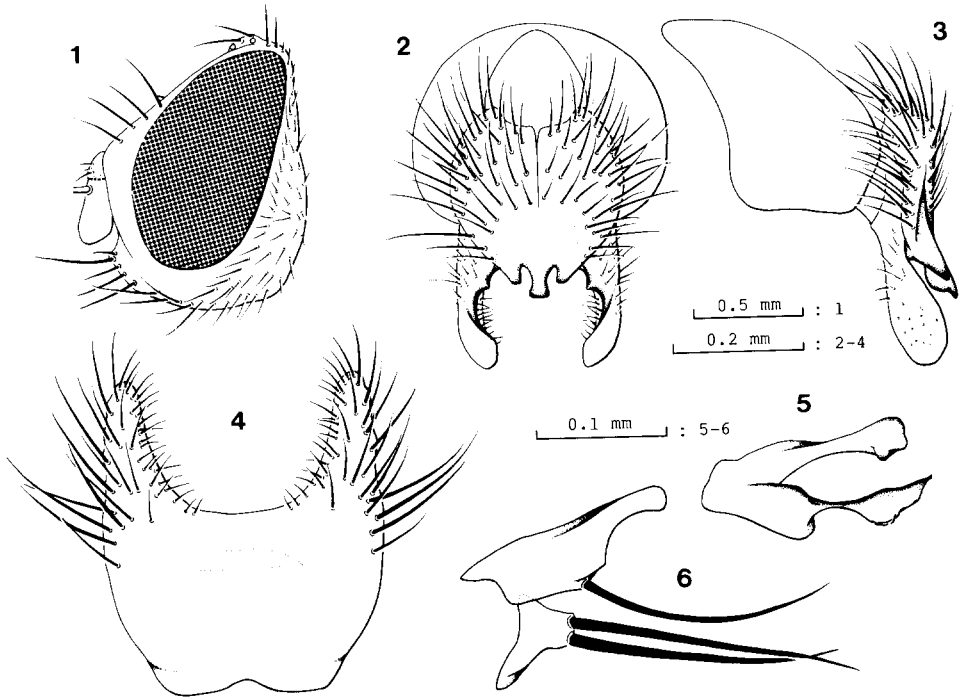


Fig. 5. *Botanophila profuga*, male. For caption, see Fig. 2.

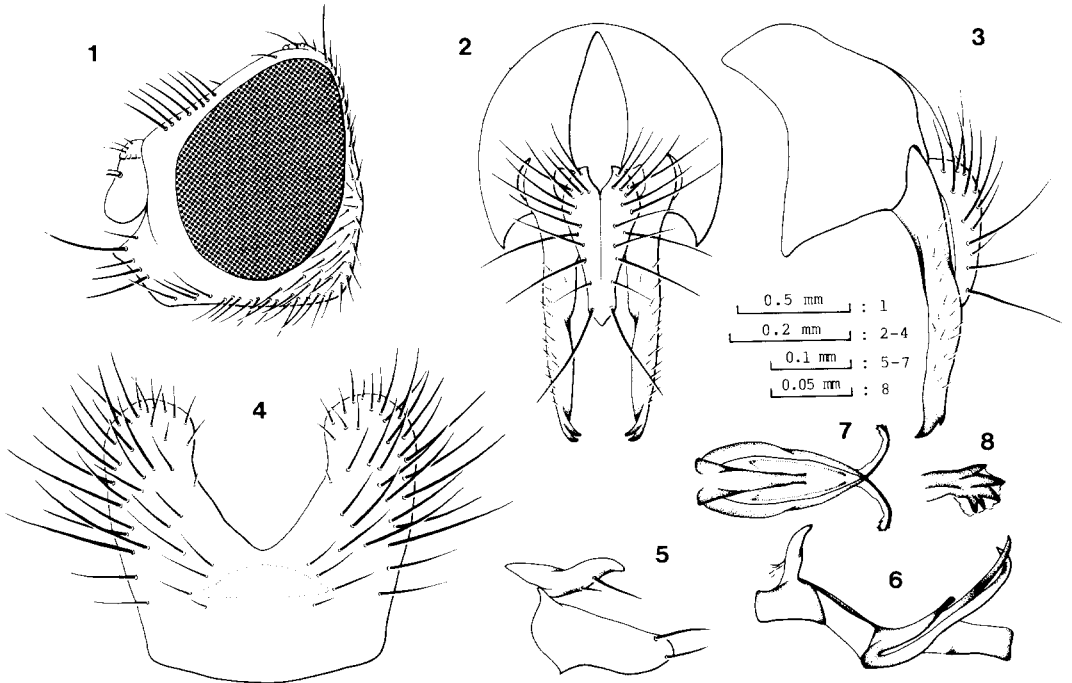


Fig. 6. *Paregle audacula*, male. For caption, see Fig. 2, except for, 7: distiphallus, dorsal view, 8: ditto, tip.

aoning, Sichuan).

13. *Hydrophoria ruralis* (Meigen, 1826)

장수꽃파리

Syst. Besch. 5: 101 (*Anthomyia*).

Material examined 1♂, Onsŭpchŏng, HB, 19, VIII, 1989.

Distribution Korea (North, Central, South), Holarctic region.

14. *Delia coronariae* (Hendel, 1925)

대륙고자리꽃파리

Konowia 4: 305 (*Chortophila*).

Material examined 1♂, Sobaeksan, HB, 17, VIII, 1989.

Distribution Korea (North, South), China (Heilongjiang), Europe.

15. *Delia planture* (Meigen, 1826)

씨고자리꽃파리

Syst. Besch. 5: 171 (*Anthomyia*).

Material examined 2♀♀, 10 Km NW of Haeju, Suyangsan, HH, 29, VII, 1989; 1♀, 10 Km NW of P'yŏngsŏng, HH, 1, VIII, 1989; 1♂ & 3♀♀, Paektusan, HB, 16, VIII, 1989; 5♂♂, Sobaeksan, HB, 17, VIII, 1989; 1♀, Samjiyŏn, HB, 17, VIII, 1989; 4♂♂ & 1♀, Mupo, 30 Km N of Samjiyŏn, HB, 18, VIII, 1989.

Distribution Korea (North, Central, South, Chejudo), Cosmopolitan.

16. *Delia tenuiventris* (Zetterstedt, 1860)

길쭉고자리꽃파리

Dipt. Scand. 14: 6205 (*Aricia*).

Material examined 3a♀♀, & 2♀♀, Paektusan, HB, 15-16, VIII, 1989; 18♀ & 8♀♀,

Sobaeksan, HB, 17, VIII, 1989; 9♂♂ & 4♀♀, Samjiyŏn, HB, 17-18, VIII, 1989; 3♂♂ & 3♀♀, Mup, 30 Km N of Samjiyŏn, HB, 18, VIII, 1989; 2♀♀, Onsŭpchŏng, HB, 19, VIII, 1989.

Distribution Korea (North, South), Japan (Hokkaido, Honshu), USSR (Kamchatka), Scandinavia.

REFERENCES CITED

- Ackland, D. M. 1971. Anthomyiidae from the U. S. S. R. Stuttg. Beitr. Nat. Nr. 231 : 1~8.
 ———. 1986. Anthomyiidae (Diptera) from Sri Lanka. Ent. Scand. Suppl. 30 : 37~53.
 Fan, Z. et al. 1988. Diptera Anthomyiidae. Econ. Ins. Fauna China Fasc. 37 : 1~396, 10pls.
 Hennig, W. 1966-1976. Anthomyiidae. Flieg. Pal. Reg. 63a : 1~974.
 Hosoya, T. 1943. Notes on three pest-insects injurious to the cones of *Larix koreana*. Nipp. Ring. Shi. 25 : 181~196 (In Japanese).
 Kato, S. 1939. Taxonomic notes on some *Hylemyia* species (Dipt., Muscidae) injurious to agricultural plants in Nippon and Manchoukuo. Bot. & Zoo. 7 : 1367~1376, 1529~1538 (In Japanese).
 ———. 1941. Taxonomic notes on *Pegomyia hyoscyami* Panzer (Dipt., Muscidae) and its allied species in Nippon. Kontyu 15 : 55~68 (In Japanese).
 Kye, Y. 1929. Notes on the radish maggot. Ann. Unit. Soc. Agr. (In Korean).
 Michelsen, V. 1985. A revision of the Anthomyiidae (Diptera) described by J. W. Zetterstedt. Steenstrupia 11 : 37~65.
 Seedl. Stat. Hamg. 1928. Cultural methods of vegetables. Seedl. Stat. Hamg. (In Korean).
 Suh, S. J. & Y. J. Kwon. 1985. Taxonomic revision of the family Anthomyiidae from Korea. Ins. Kor. 5 : 143~221.
 Suh, S. J. 1989. Taxonomic studies on the family Anthomyiidae from Korea (Dipt.: Calyptratae). Ph. D. Thesis, Kyungpook Nat. Univ., 310pp.
 Suwa, M. 1974. Anthomyiidae of Japan (Diptera). Ins. Mats. n. s. 4 : 1~247.
 ———. 1981. Notes on Anthomyiidae (Diptera) from Korea, with description of a new species. Kontyū 49 : 102~108.

(1990년 10월 27일 접수)