

# A review of the genus *Calycomyza* Hendel in China

## (Diptera: Agromyzidae)

CHEN Xiao-Lin, WANG Xing-Jian\*

(Institute of Zoology, Chinese Academy of Sciences, Beijing 100080, China)

**Abstract:** Five Chinese species of the genus *Calycomyza* Hendel are recognized, of which one new species, *C. chinensis* sp. nov. is described and illustrated; *C. solidaginis* (Kaltenbach) is newly recorded from this country. A key to the species is provided.

**Key words:** Diptera; Agromyzidae; *Calycomyza* Hendel; new species; new record; China

*Calycomyza* was erected by Hendel (1931) as a subgenus of *Dizygomyza* Hendel. Lately, Nowakowski (1962) gave *Calycomyza* full generic status. This genus belongs to the subfamily Phytomyzinae (Diptera: Agromyzidae) and is largely restricted to North and South America. It has colonized a variety of host families from the Urticaceae, Malvaceae, Leguminosae, Polygalaceae, Sapindaceae and Umbelliferae to the Convolvulaceae, Boraginaceae, Labiatae, Valerianaceae and Compositae. The main radiation has been on the Compositae (Spencer, 1990).

In this paper, five Chinese species of the genus are recognized, including one species that is described as new. Morphological terminology generally follows Spencer (1973), Spencer and Steyskal (1986). Wing length is measured in millimeters. Type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences (IZCAS).

### *Calycomyza* Hendel, 1931

*Dizygomyza* (*Calycomyza*) Hendel, 1931: 65. Type species:  
*Agromyza artemisiae* Kaltenbach, 1856, by original designation.

*Phytobia* (*Calycomyza*) Frick, 1952: 394.

*Calycomyza* Nowakowski, 1962: 97.

**Diagnosis:** This genus is characterized by having the frons and notopleural area yellow, the scutellum entirely black, concolorous with scutum; mesopleura and femora largely black; halteres yellow; orbital setulae erect, reclinate or absent; without presutural dorsocentral bristles, fore tibia never with lateral bristles; wing with costa extending to apex of vein  $M_{1+2}$ . A consistent generic character in the male terminalia is the presence of a patch of strong bristles on the inner hind-corner of the epandrium, aedeagus with the distiphallus normally short and compact, more rarely with extended tubules.

**Remarks:** This is a relatively small genus with a total of about 60 species worldwide, 56 of which occur predominantly in the Nearctic and Neotropical Regions. Only 3 species are known in Europe and a single species in Africa (Spencer and Steyskal, 1986). Five species from China have recently been recognized as follows: *C. artemisiae* (Kaltenbach), *C. bicolor* Sasakawa, *C. chinensis* sp. nov., *C. humeralis* (von Roser) and *C. solidaginis* (Kaltenbach).

### Key to Chinese species of *Calycomyza* Hendel

1. Squamal fringe white; 3rd antennal segment angulate at upper corner ..... 2  
Squamal fringe dark, brown or black; 3rd antennal segment round

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作者简介: 陈小琳, 女, 1969年生, 博士, 助理研究员, 从事双翅目昆虫的系统分类与进化研究, E-mail: xlchen@panda.ioz.ac.cn

\* 通讯作者 Author for correspondence, E-mail: wangxj@panda.ioz.ac.cn

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- ..... 3
- 2. Face largely black ..... *C. humeralis* (Roser)  
Face largely yellow ..... *C. solidaginis* (Kaltenbach)
- 3. 2nd and 3rd antennal segments black, 1st antennal segment slightly yellow or brown; legs entirely black ..... 4  
3rd antennal segment black, 1st and 2nd antennal segments brownish black; legs black with fore knee slightly yellow .....  
..... *C. chinensis* sp. nov.
- 4. Wing with last section of  $M_{3+4}$  slightly longer than penultimate ..... *C. artemisiae* (Kaltenbach)  
Wing with last section of  $M_{3+4}$  about two and one-fifth times length of penultimate ..... *C. bicolor* Sasakawa

***Calycomyza artemisiae* (Kaltenbach, 1856)**

*Agromyza artemisiae* Kaltenbach, 1856: 236.  
*Agromyza atripes* Zetterstedt, 1860: 6 461; Brischke, 1881: 259, 262.  
*Calycomyza artemisiae* (Kaltenbach): Hendel, 1931: 66.

Material examined: 1 ♂, Xinyuan, Xinjiang, China, 23. VIII. 1957; 1 ♂, Mt. Emei, Sichuan, China, 5. IV. 1957; 1 ♀, Baihuashan, Beijing,

China, 1. VI. 1973; 1 ♀, Xiaowutaishan, Hebei, China, 4. VII. 1964 (IZCAS).

Host: Larvae mine the leaf of *Artemisia*, *Eupatorium*.

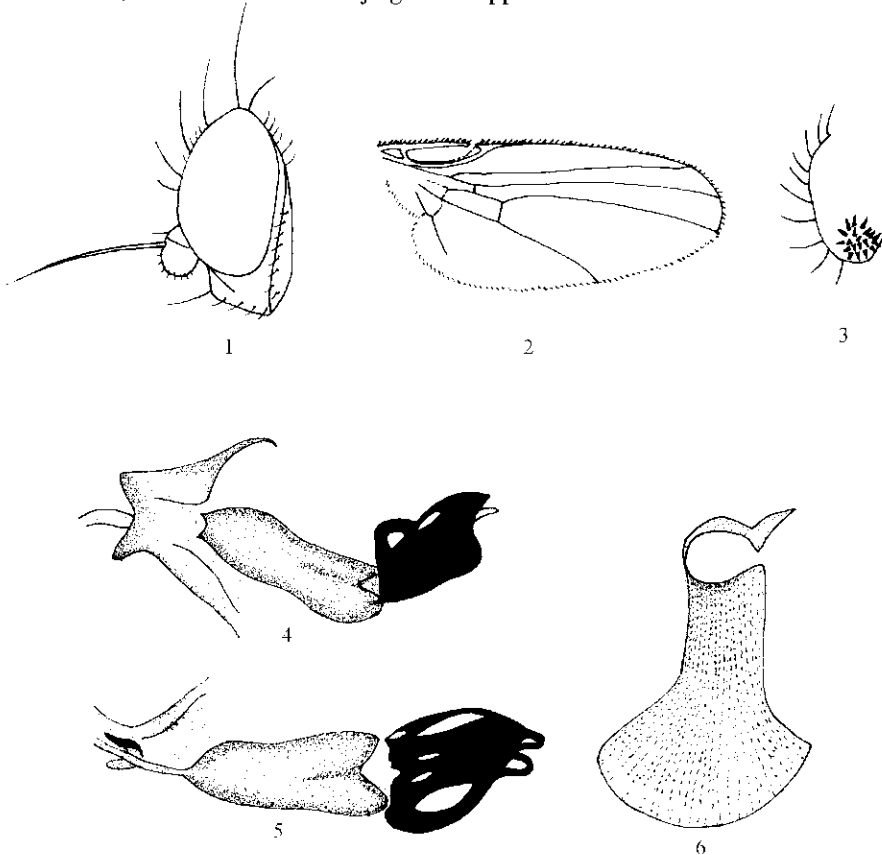
Distribution: China (Beijing, Xinjiang, Fujian, Guangdong, Sichuan, Taiwan); Japan, India, Nepal, Europe, North America.

***Calycomyza bicolor* Sasakawa, 1996**

*Calycomyza bicolor* Sasakawa, 1996: 33.  
Host: Unknown.  
Distribution: China (Taiwan).

***Calycomyza chinensis* sp. nov. (Figs. 1 – 6)**

Head: Predominantly yellow with 3rd antennal segment, ocellar triangle and occiput black, 1st and 2nd antennal segments brownish black, orbit with darkened area (brown to black) not extending to level of upper orbital bristles. Frons narrow, about 1.6 times



Figs. 1 – 6 *Calycomyza chinensis* sp. nov.

- 1. head in lateral view; 2. wing; 3. epandrium with surstylus; 4. aedeagus in lateral view;
- 5. aedeagus in ventral view; 6. ejaculatory apodeme

width, equal to width of eye, not projecting above eye in profile (Fig. 1); 2 pairs of strong reclinate upper orbital bristles, 2 pairs of weak incurved and reclinate lower orbital bristles; orbital setulae weak and sparse, reclinate. Gena narrow, extended at rear, 0.2 times height of eye, cheeks forming ring below eye. Third antennal segment round, longer than width, pubescence on upper and front margin.

Thorax: Scutum and scutellum black. Pleura largely black, notopleura, the base of wing and the upper and hind margins of mesopleura yellow. Halteres entirely yellow. Mesonotum with 3 pairs of presutural dorsocentral bristles, 2 pairs of scutellar bristles and acrostichals in 5-6 rows. Wing length in male 2.4 mm; costa extending to vein  $M_{1+2}$ , last section of  $M_{3+4}$  1.9 times length of penultimate; first crossvein at midpoint of discal cell; second costal section unusually long, about 5.3 times length of the fourth section (Fig. 2). Legs black with fore knee slightly yellow.

Abdomen: Almost entirely black except that lateral and hind margins of tergites narrowly yellow. Aedeagus shown as in Figs. 4 and 5, epandrium with surstylus as in Fig. 3 and ejaculatory apodeme as in Fig. 6.

Female: Unknown.

Material examined: Holotype ♂, Xiaowutaishan, Hebei, China, 2. VII. 1964, HAN Yin-Heng; Paratypes: 1 ♂, Xinyuan, Xinjiang, China, 23. VIII. 1957, HONG Chun-Pei; 1 ♂, Xishui, Guizhou, China, 26. IX. 2000, CHEN Xiao-Lin (IZCAS).

Host: Larvae mine the leaf of *Artemisia* spp.

Distribution: China (Hebei, Xinjiang, Guizhou).

Remarks: This species appears to be related to *C. artemisiae* (Kaltenbach), differing mainly from the latter by the darkened area of the orbit not extending to the level of the upper orbital bristles; 3rd antennal segment black, 1st and 2nd antennal segments brownish black; legs black with fore knee slightly yellow; and by the detailed structure of the male terminalia.

### *Calycomyza humeralis* (von Roser, 1840)

*Agromyza humeralis* von Roser, 1840: 63.

*Agromyza bellidis* Kaltenbach, 1869: 336.

*Calycomyza humeralis* (von Roser): Hendel, 1931: 68.

Material examined: 1 ♂, Hejing, Xinjiang, China, 31. VII. 1958 (IZCAS).

Host: Larvae mine the leaves of *Aster*, *Bellis*, *Callistephus*, *Conyza*, *Erigeron*, *Heterotheca*, *Madia*, *Solidago*, *Tithonia*, *Zinnia*.

Distribution: China (Xinjiang, Shanghai); Japan, India, Indonesia, Europe, North America, Australia, Africa.

### *Calycomyza solidaginis* (Kaltenbach, 1869)

*Agromyza solidaginis* Kaltenbach, 1869: 196.

*Calycomyza solidaginis* (Kaltenbach): Hendel, 1931: 69.

This species is recorded for the first time from China.

Material examined: 1 ♀, Turpan, Xinjiang, China, 30. VI. 1958 (IZCAS).

Host: Larvae mine the leaves of *Solidago* spp.

Distribution: China (Xinjiang); Europe, North America.

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# 中国萼潜蝇属研究

## (双翅目: 潜蝇科)

陈小琳, 汪兴鉴

(中国科学院动物研究所, 北京 100080)

**摘要:** 对中国萼潜蝇属 *Calycomyza* Hendel 进行了系统研究。该属在我国现知 5 种, 其中包括一新种, 中华萼潜蝇 *C. chinensis* sp. nov., 及一中国新记录种, 一枝黄花萼潜蝇 *C. solidaginis* (Kaltenbach)。除新种描述并附特征图外, 还提供中国已知种类分种检索表。

**关键词:** 双翅目; 潜蝇科; 萼潜蝇属; 新种; 新记录种; 中国

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