

SIX NEW SPECIES OF THE GENUS COLEOPHORA HÜBNER FROM CHINA  
(LEPIDOPTERA, COLEOPHORIDAE)LI Hou-Hun<sup>1,2</sup>

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**Abstract** Six new species of *Coleophora* are described in this paper. They are: *C. acanthabortiva* sp. nov., *C. dangchuanica* sp. nov., *C. gemmiformis* sp. nov., *C. gongliuensis* sp. nov., *C. ochroptera* sp. nov., and *C. rectimarginalis* sp. nov.

**Key words** Lepidoptera, Coleophoridae, *Coleophora*, new species, China.

The *Coleophora sternipennella* group (= 30th group, section 2 in Toll's system) is one of the largest groups in the genus *Coleophora* Hübner. The present paper describes six new species, which is the primary study result of the group in China. The type specimens are deposited in the Department of Biology, Nankai University, Tianjin, China.

# 1 *Coleophora acanthabortiva* sp. nov. (Figs. 1, 7-8)

Wing expanse. Female 14.5-15.5 mm. Head yellowish brown, lateral sides of vertex white. Postocular scales ochreous brown. Labial palpus porrect, outer surface light brown, inner surface grayish white; second segment slightly shorter than twice diameter of compound eye, apex with ventral tuft; third segment short, about 2/3 of second in length, apex acute. Scales of haustellum white. Antenna: scape white; flagellum white and pale ochreous alternately. Thorax grayish brown, with posterior margin grayish white. Tegula grayish white, with brown scales at base. Forewing: costa nearly straight; upper surface ochreous brown, mixed with dark brown scales, streaked with white along costal margin and main veins; ventral surface brown; cilia gray. Hindwing grayish brown, cilia gray. Legs brown, suffused with white scales; hind tibia white, outer surface longitudinally with ochreous brown line. Abdomen (Fig. 7): each first setal patch with 25-27 spiniform setae; setal patches of third tergum irregularly rectangular, twice as long as width, each with 43-46 spiniform setae.

Female genitalia (Fig. 8). Papillae anales very

small. Apophysis posterior twice longer than apophysis anterior. Apophysis anterior slightly shorter than length of sterigma. Sterigma long trapezoid, caudal margin with haired lateral prominence, concave deeply at middle; anterior margin protrudent, with middle portion deeply concave. Ostium bursae positioned in center of sterigma, short-funneled or V-shaped, sclerotized. Colliculum sturdy, sclerotized, cylindrical, somewhat curved in anterior 1/2, slightly dilated medially, about 2/5 width of sterigma at middle, with sclerotized lateral lines. Ductus bursae longer than twice of colliculum, membranous, without spinulate section. Corpus bursae rounded, somewhat small, with rasp-like signum about same length as thorn-like signum; thorn-like signum stout, strongly sclerotized.

Male. Unknown.

Type material. Holotype, Chifeng (Ulanhad) (42.2°N, 118.9°E), Inner Mongolia, alt. 590 m, 3 Aug. 1997, leg. LI Hou-Hun, genitalia slide No. L97428. Paratype: 1, Beitun (47.3°N, 87.8°E), Xinjiang Uygur Autonomous Region, alt. 530 m, 20 July 1994, leg. LI Hou-Hun and QIN Hong-Yan.

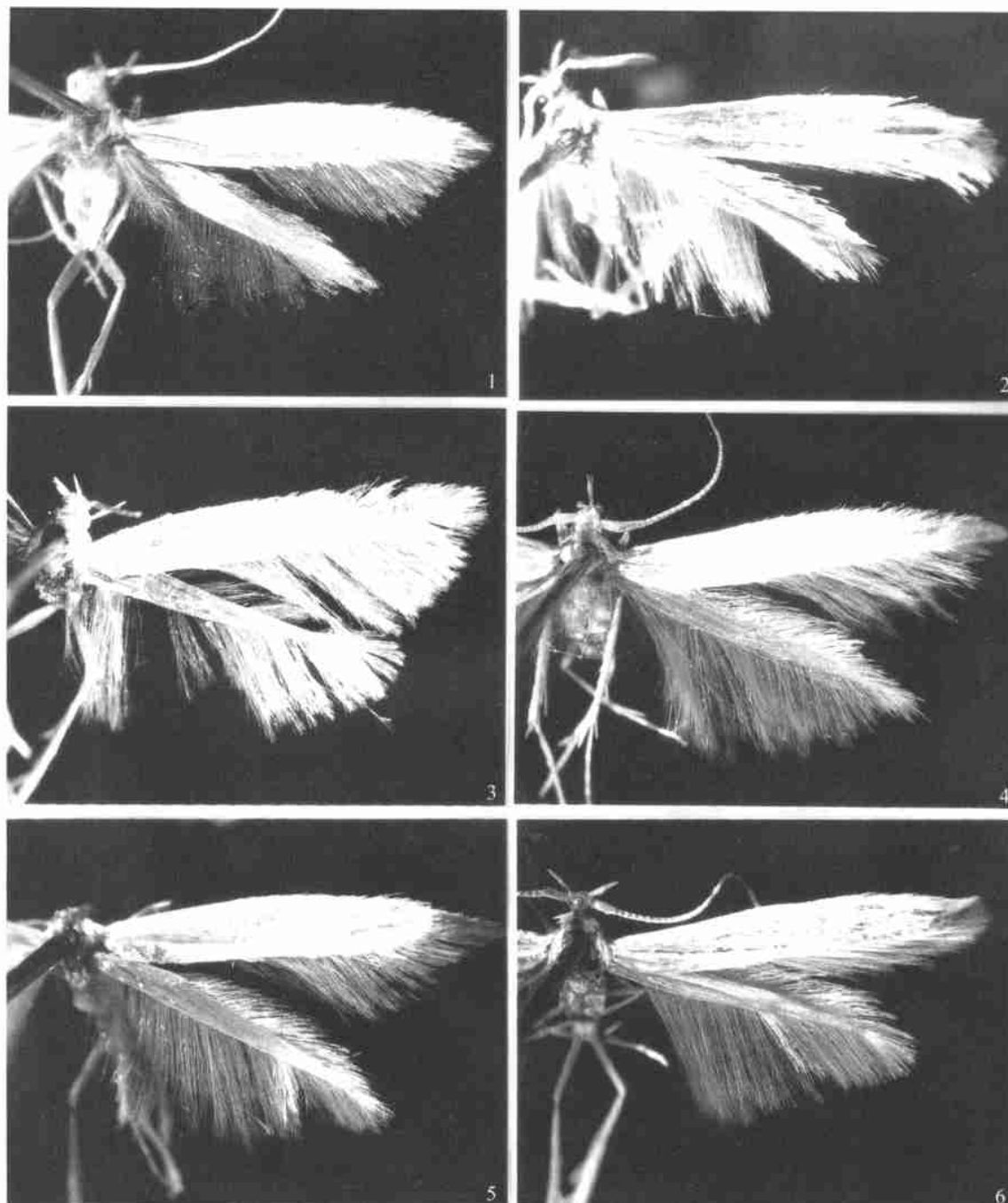
**Diagnosis.** This new species can be easily separated from other known species of this group by the sterigma with caudal margin deeply concave at middle, anterior margin protrudent, with middle portion deeply concave; ductus bursae without spinulate section; ostium bursae set in the center of the sterigma.

**Distribution.** China (Inner Mongolia, Xinjiang).

**Etymology.** The specific name is derived from the Latin *acanthus* (= spined), *abortivus* (= vestigial), indicating that the ductus bursae lacks spinulate section

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Figs. 1-6. Adults of *Coleophora* spp. 1. *Coleophora acanthabortiva* sp. nov. 2. *Coleophora dangchuanica* sp. nov. 3. *Coleophora gemmiformis* sp. nov. 4. *Coleophora gongliuensis* sp. nov. 5. *Coleophora ochroptera* sp. nov. 6. *Coleophora rectimarginalis* sp. nov.

in the female genitalia.

**2** *Coleophora dangchuanica* sp. nov. (Figs. 2, 11-14)

Wing expanse. Male 12.5 mm. Head grayish white, tinged brown. Postocular scales white. Labial palpus straight; second segment longer than diameter of compound eye, inner surface grayish white, mixed

with brown scales, outer surface brown, apex with ventral tuft; third segment about half length of second, grayish white, ventral surface brown, apex acute. Scales of haustellum white. Antenna grayish white. Thorax grayish white, mixed with brown laterally. Tegula grayish white, basally scattered with grayish brown scales. Forewing: more or less narrow, upper surface whitish gray, distal half gradually with

brown stripes along main veins; ventral surface brown; cilia gray. Hindwing grayish brown, cilia gray. Fore and mid legs brown, mixed with grayish white scales; hind leg grayish white, outer surface of tibia with longitudinal brown streak, haired dorsally,

tarsus brown with white rings except first segment.

Abdomen (Fig. 14): each first setal patch with 20-23 spiniform setae; setal patches of third tergum irregular rhombus, each with 29 spiniform setae.

Figs. 7-10. Female abdomen and genitalia of *Coleophora* spp. 7-8. *Coleophora acanthabortiva* sp. nov.  
9-10. *Coleophora rectimarginalis* sp. nov.

Male genitalia (Figs. 11-13). Gnathos oval; basal arms broad, shorter than gnathos, with four bristles at base. Tegumen subtrapezoid, narrow, with margins gently concave; pedunculi longer than tegumen, broad, inner margin straight, outer margin protruded. Transtilla short and broad, with apex acutely narrowed. Valva relatively narrow, with rounded apex; costa nearly straight, a littler incurved at distal 1/3. Valvula rounded, weakly sclerotized, wider than 1/2 width of costa, with sparse setae. Sacculus broad, almost as long as costa; ventral margin gently arched, inner edge sclerotized, end with a triangular process; outer margin straight, armed with fine denticles; dorsal process furcated, heavily sclerotized, upward, not reaching middle of valva. Juxtal rods heavily sclero-

tized, clubbed, left and right rods about same length and shape, apex of left rod with larger triangular process than right one; juxta narrow, sclerotized, nearly as long as 1/3 length of juxtal rod; annulus narrow; cornuti 26, short, grouped into a slender bundle, longer than juxta; lamina large and broad, sclerotized; appendix of outer sheath longer than juxtal rods, without coil.

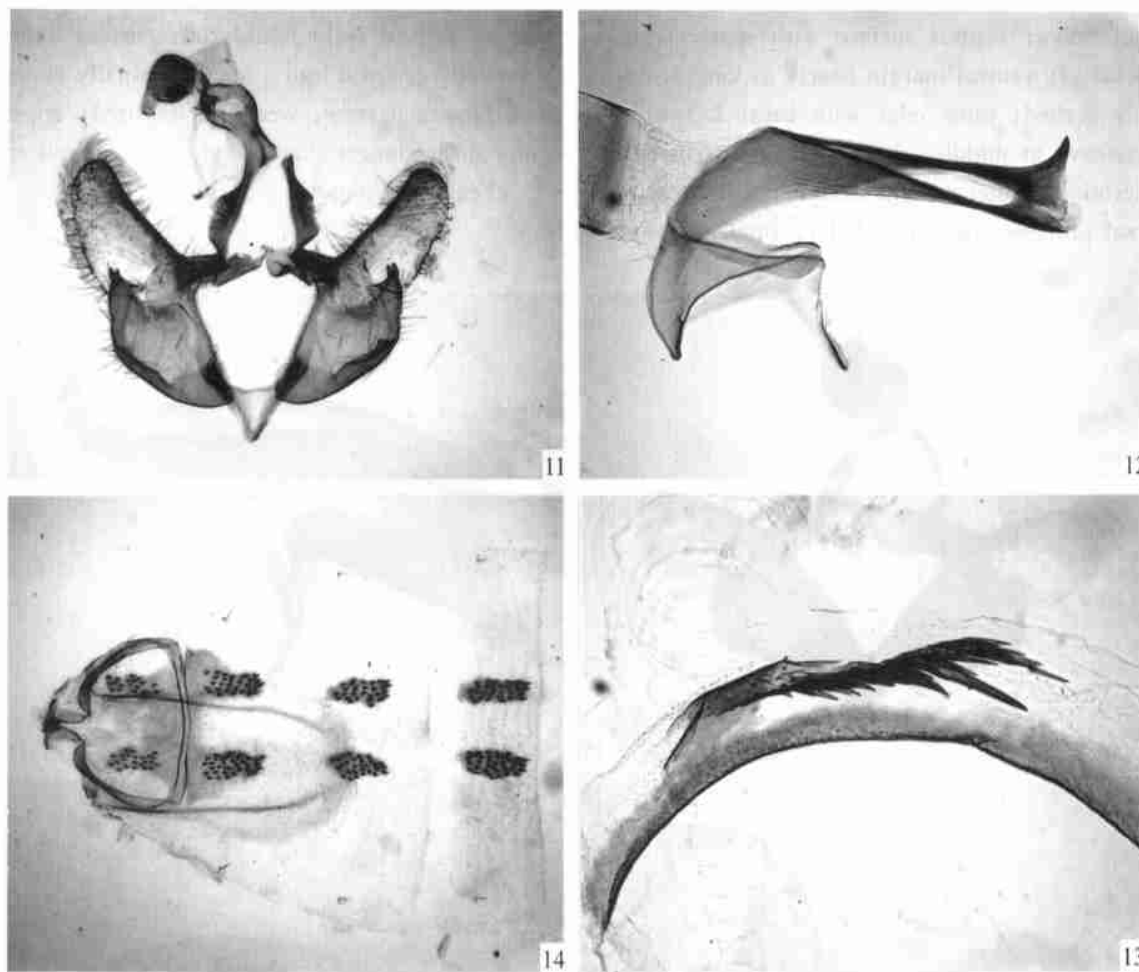
Female. Unknown.

Type material. Holotype, Dangchuan (34.3°N, 106.1°E), Tianshui, Gansu Province, 13 Aug. 1988, leg. WU Xing-Yu, genitalia slide No. L96108.

Diagnosis. The new species resembles *Coleophora obscenella* Herrich-Schäffer, but can be distinguished

from the latter by the following characters: valva aforenamed about  $45^\circ$ ; sacculus armed with fine denticles in outer margin, but without large sawtooth; apex

of juxtal rods with nearly symmetrical triangular processes; cornuti consisting of 26 short spines which are grouped into a slender bundle.



Figs. 11-14. *Coleophora dangchuanica* sp. nov. 11. Male genitalia. 12. Juxtal rods. 13. Cornuti. 14. Abdomen.

Distribution. China (Gansu).

Etymology. The specific name of this new species is from the type locality Dangchuan, Gansu Province.

### 3 *Coleophora gemmiformis* sp. nov. (Figs. 3, 15-18)

Wing expanse. Male 14.0 mm. Head shining brown, lateral sides of vertex grayish white. Postocular scales light brown. Labial palpus porrect; second segment longer than diameter of compound eye, grayish white, outer surface with a longitudinal ochreous-fuscous streak oblique to apical-ventral tuft; third segment about half length of second, grayish white, ventral surface light brown, apex acute. Scales of haustellum white. Antenna: dorsal surface of scape white, ventral surface grayish brown; flagellum with white and dark brown alternately. Thorax grayish brown.

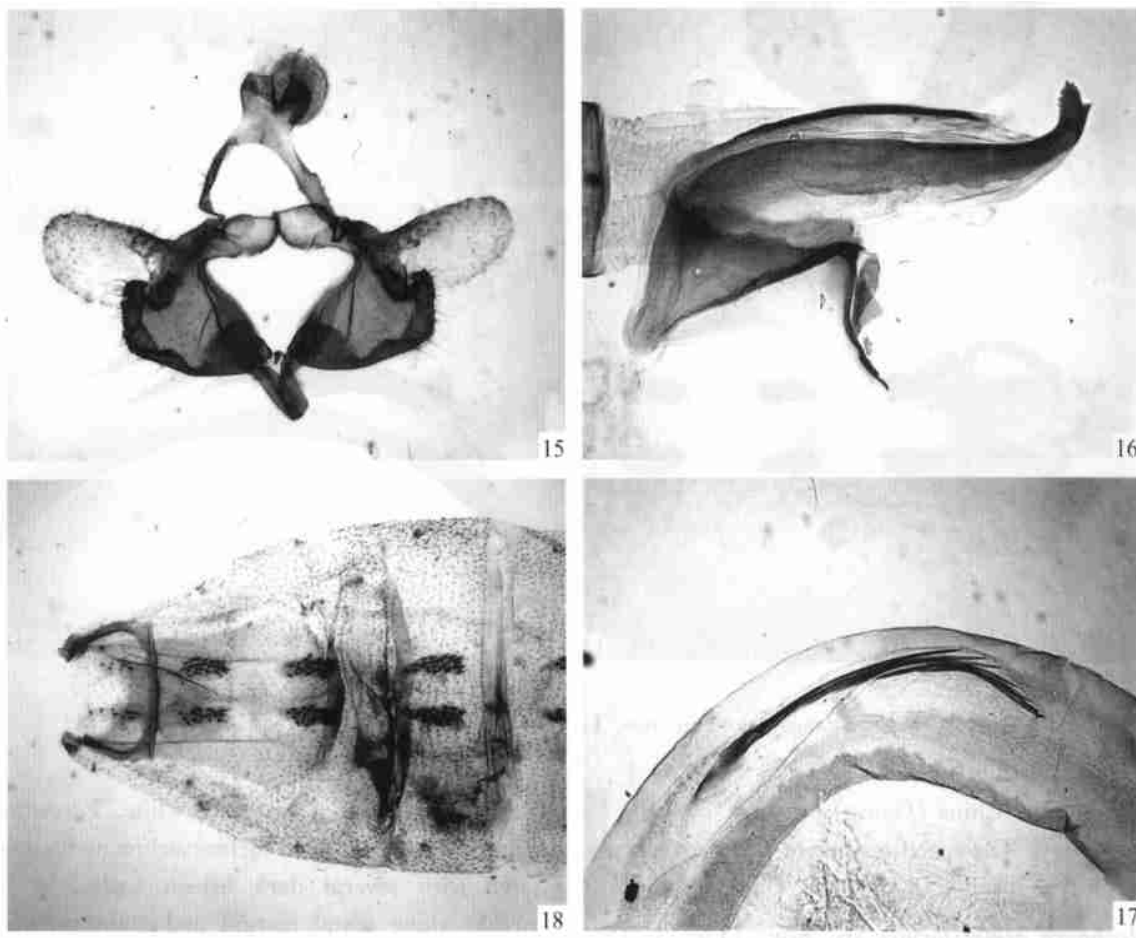
Tegula brown, with inner side white. Forewing: costa slightly arched; upper surface ochreous-fuscous, scattered with several dark brown scales, with white streaks along costal margin and main veins; ventral surface brown, slightly tinged ochreous; cilia grayish white, tinged ochreous. Hindwing light brown, cilia gray. Fore leg fuscous; mid and hind legs grayish white, outer surface of hind tibia medially with longitudinal ochreous-fuscous streak. Abdomen (Fig. 18): each first setal patch with 6-8 spiniform setae; setal patches of third tergum elongate, irregularly rectangular, about twice as long as width, each with 26 spiniform setae.

Male genitalia (Figs. 15-17). Gnathos oval, basal arms broad. Tegumen short and broad, nearly square, margins gently concave; pedunculi narrow,

almost twice as long as tegumen. Transtilla broad, somewhat rhombus. Valva wide, with rounded apex; costal and ventral margins gently convex. Valvula narrow and long, subtriangular, base extending to  $2/5$  of costa; apex rounded, sclerotized, reaching ventral margin of valva; ventral surface with sparse setae. Sacculus broad; ventral margin nearly as long as costa, gently arched; inner edge with basal  $2/3$  wide, deeply concave at middle, distal portion narrow and more sclerotized; outer margin straight, with short setae; dorsal processes two, triangular, small, strongly

sclerotized. Juxtal rods cestiform; left rod underdeveloped, shorter than right one, membranous except for dorsal edge; right rod more or less S-shaped, sclerotized, with a large bud-like process set at apex upwardly, margined with denticles; juxta subtriangular, as long as  $2/5$  of right juxtal rod; cornuti 6, slender, compactly grouped into a long, gradually curved bundle; lamina narrow, weakly sclerotized; appendix of outer sheath longer than juxtal rods, without coil.

Female. Unknown.



Figs. 15-18. *Coleophora gemmiformis* sp. nov. 15. Male genitalia. 16. Juxtal rods. 17. Cornuti. 18. Abdomen.

Type material. Holotype, Nyingchi (Pula) (29.5°N, 94.3°E), Xizang (Tibet) Autonomous Region, alt. 2 900 m, 11 July 1983, leg. LI Hou-Hun, genitalia slide No. L97006.

Diagnosis. *Coleophora gemmiformis* sp. nov. is allied to *Coleophora versurella* Zeller, but can be separated from the latter by the special characters of wider transtilla and valva.

Distribution. China (Tibet).

Etymology. The specific name is derived from the Latin *gemm*- (= bud) and *-formis* (= shape), in reference to the bud-like process at the apex of the right juxtal rod.

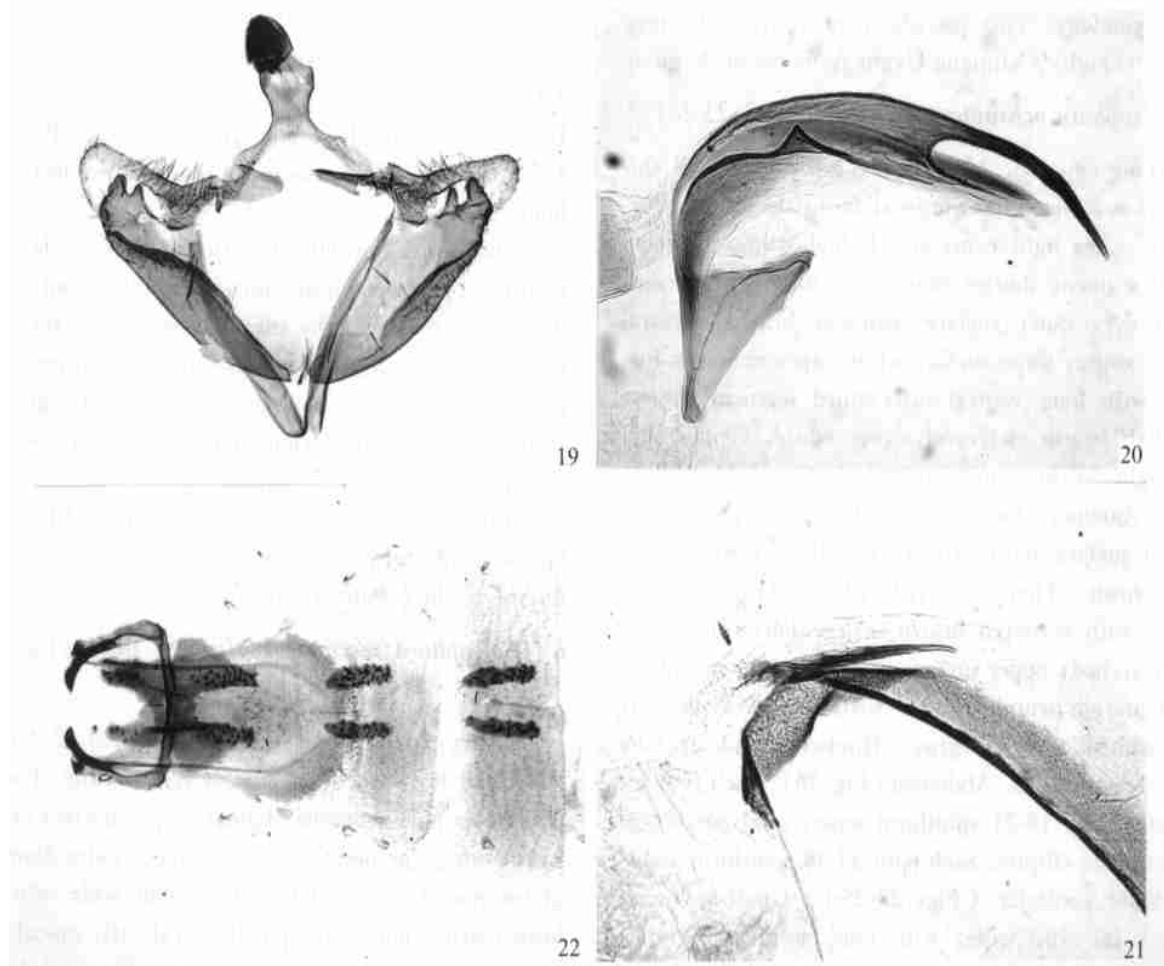
#### 4 *Coleophora gongliuensis* sp. nov. (Figs. 19-22)

Wing expanse. Male 14.0-16.0 mm. Head shining brown, lateral sides of vertex white. Postocular scales ochreous brown. Labial palpus correct; second segment twice as long as diameter of compound eye,

outer surface ochreous brown, white dorsally, inner surface grayish white, apex with long ventral tuft, fuscous; third segment acute, shorter than half length of second, grayish white, ventral surface brown. Scales of haustellum white, dorsal surface medially with a longitudinal ochreous-fuscous streak. Antenna: dorsal surface of scape white, ventral surface ochreous-fuscous; flagellum white or white and light brown alternately. Thorax white to light brown. Tegula white, basal half sometimes scattered with light brown scales or entirely ochreous brown. Forewing: costa nearly straight; upper surface light brown to ochreous brown, costal margin and main veins with white streaks; ventral surface brown; cilia gray to pale brown tinged ochreous. Hindwing grayish brown, cilia gray to grayish brown. Legs ochreous brown, dorsal and ventral margins of femora and tibiae grayish white, tarsi gray or pale brown. Abdomen (Fig. 22): each first setal patch with 7-10 spiniform setae; setal patches of third

tergum elongate, about three times as long as width, each with 22-27 spiniform setae.

Male genitalia (Figs. 19-21). Gnathos rounded; basal arms narrow, shorter than tegumen, ventral surfaces with four bristles. Tegumen rectangular, lateral margins concave; pedunculi narrow, about as long as tegumen inner margin straight, outer margin slightly protruded. Transtilla broad, dorsal margin with a triangular process, apex rounded. Valva short and broad, costa nearly straight, apex rounded, sparsely with setae. Valvula triangular, base expanding to 1/3 of costa, apex rounded, ventral surface densely with short setae. Saccus much developed, subtriangular; ventral margin gently arched, sclerotized, about twice as long as costa; inner side with narrow sclerotized margin, setose; outer margin with denticles dorsally; dorsal margin short and straight, with two large strongly sclerotized processes. Juxtal rods strongly sclerotized; left rod longer than right one, arched, bi-



Figs. 19-22. *Coleophora gongliuensis* sp. nov. 19. Male genitalia. 20. Juxtal rods. 21. Cornuti. 22. Abdomen.

forked at 2/5, forming a large slender thorn dorsally and a short one ventrally; right rod about 5/6 length of left one, ventrally with strongly sclerotized triangular process at 1/3, apical portion gradually narrowed, somewhat weakly sclerotized; juxta broad, subtriangular; cornuti four, slender, compactly grouped into a slender, straight bundle; outer sheath slightly shorter than juxtal rods, lamina wide; appendix of outer sheath with many coils.

Female. Unknown.

Type material. Holotype, Gongliu (43.4°N, 82.2°E), Xinjiang Uygur Autonomous Region, alt. 1 500 m, 27 July 1994, leg. LI Hou-Hun and QIN Hong-Yan, genitalia slide No. L96353. Paratype 1, alt. 1 100 m, 21 June 1994, leg. AN Xin-Cheng, same locality as holotype.

Diagnosis. This species is superficially similar to *Coleophora therinella* Tengström, but can be differentiated from it by the special juxtal rods which are quite differently shaped from those of the latter species.

Distribution. China (Xinjiang).

Etymology. This specific name is from the type locality Gongliu, Xinjiang Uygur Autonomous Region.

##### 5 *Coleophora ochroptera* sp. nov. (Figs. 23-26)

Wing expanse. Male 11.5-12.0 mm. Head shining white, tinged light brown; face pale yellow. Postocular scales light ochreous. Labial palpus porrect; second segment shorter than twice diameter of compound eye, outer surface ochreous brown, ventral margin white, inner surface white, apex ochreous fuscous, with long ventral tuft; third segment shorter than half length of second, ivory white, ventral surface light brown, apex acute. Scales of haustellum white. Antenna: dorsal surface of scape grayish white, ventral surface light brown; flagellum white ringed with brown. Thorax grayish white. Tegula white, basally with scattered brown scales. Forewing: costa gently arched; upper surface pale ochreous, except for costal margin white; ventral surface grayish brown; cilia whitish gray or gray. Hindwing and its cilia gray. Legs fuscous. Abdomen (Fig. 26): each first setal patch with 18-21 spiniform setae; setal patches of third tergum elliptic, each with 33-40 spiniform setae.

Male genitalia (Figs. 23-25). Gnathos broad oval; basal arms wide, with four bristles. Tegumen subtrapezoid, lateral margin concave at 2/3; pedunculi longer than tegumen, both edges gently protruded. Transtilla broad, rhombus. Valva relatively broad, with round apex; costal and ventral margins gently

convex. Valvula broad and short, elliptic, with hairy carina medially, outer edge sclerotized. Sacculus as wide as valva; ventral margin sclerotized, basal 1/4 arched, medial portion almost straight; inner edge strongly sclerotized, with a large process medially, and a series of dentiform processes margined to apex; two stout dorsal processes present, inner one short, thumb-like, outer one large, falcate, incurved, its dorsal margin reaching costa, apex bluntly rounded. Juxtal rods strongly sclerotized; left rod shorter and thinner than right one, arched, dorsally with large, long subtriangular process at 1/2 and 3/4 respectively, apex acute; right rod stout, strongly arched, ventrally with a large triangular process near apex, apex somewhat blunt; juxta large and broad, almost semilunar, weakly sclerotized; cornuti three, dispersed, one large and two small, about 1.5 times as long as juxtal rods, all apices acute; annulus relatively narrow, distinct; lamina narrow and dim; appendix of outer sheath longer than juxtal rods.

Female. Unknown.

Type material. Holotype, Beitun (47.3°N, 87.8°E), Xinjiang Uygur Autonomous Region, alt. 530 m, 21 July 1994, leg. LI Hou-Hun and QIN Hong-Yan, genitalia slide No. L96402. Paratype 1, 22 July 1994, same locality and collectors as holotype.

Diagnosis. Superficially, this new species is closely allied to *Coleophora aestuariella* Bradley, but can be distinguished from it by the male genitalia: transtilla broad, rhombus; juxtal rods strongly sclerotized, left rod dorsally with two large processes and right rod ventrally with a large triangular process near apex.

Distribution. China (Xinjiang).

Etymology. The specific name is derived from the Greek *ochro*- (= ochreous), *pter*- (= wing), referring to the colour of forewing.

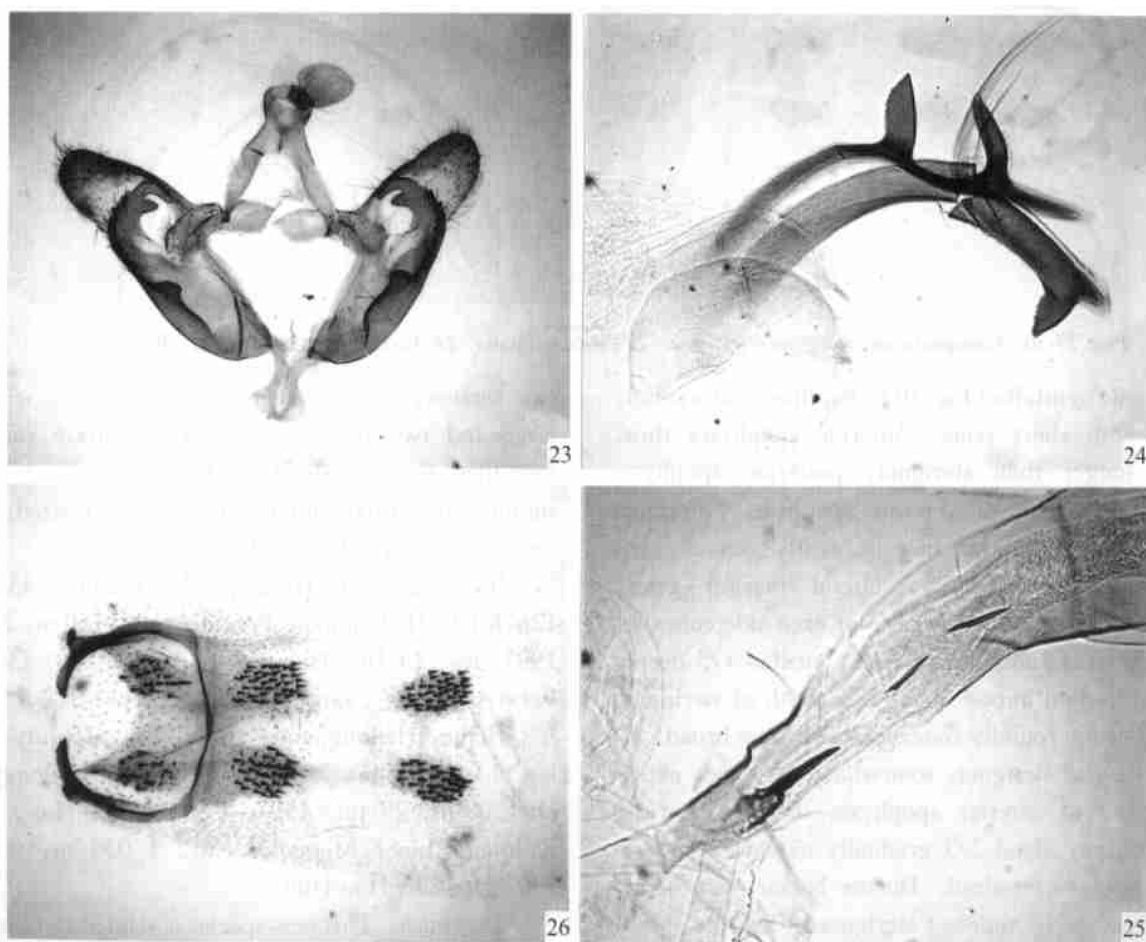
##### 6 *Coleophora rectimarginalis* sp. nov. (Figs. 27-30)

Wing expanse. Male and female 10.5-12.5 mm. Head pale brown, lateral sides of vertex white. Postocular scales pale ochreous. Labial palpus porrect or upward, white; second segment as long as twice diameter of compound eye, outer surface with wide ochreous brown stripe oblique to apical ventral tuft, apical half of inner surface with ochreous brown line; third segment about half length of second, ventral surface light brown. Scales of haustellum white. Antenna: dorsal surface of scape grayish white, ventral surface light

brown; flagellum white, sometimes dorsal surface white and brown alternately. Thorax grayish white, with or without brown scales. Tegula white, base with pale brown scales, more or less ochreous. Forewing: costa straight, distal 1/3 gently arched; upper surface ochreous brown, with scattered dark brown scales, streaked with white along costal margin and main veins; ventral surface brown, costal 1/2 to 3/4 white; cilia gray or grayish white. Hindwing brown, cilia gray. Legs grayish white, outer surface of femora and tibiae medially with longitudinal ochreous fuscous streak. Abdomen (Fig. 9, 30): dorsal surface pale brown, last segment yellowish white, ventral surface white; each first setal patch with 25-27 spiniform setae in male and 10-11 in female; setal patches of third tergum elongate rectangular, about twice as long as width, with 24-26 spiniform setae in male and 25 in female.

Male genitalia (Figs. 27-29). Gnathos large, broad oval; basal arms narrow, longer than gnathos,

distal 1/3 expanded, each side with three bristles. Tegumen long and narrow about 1.5 times as long as gnathos, ventrally with sclerotized arrowheaded zone, lateral side concave medially; pedunculi nearly twice length of tegumen, basal 3/5 with both margins straight and parallel, distal 2/5 gradually narrowed, outer margin curved and with sclerotized edge. Transtilla wide, irregularly rhombus. Valva broad, basal half somewhat narrow, widest at 2/3, with rounded apex; basal portion of costa concave, then straight. Valvula subtriangular, sclerotized, apex blunt, extending beyond ventral margin of valva, setose. Sacculus obviously wider than valva, nearly lozenged; ventral margin as long as valva, gently arched, with narrow sclerotized edge, apex triangularly protruded, acute; outer side wide, nearly straight, with two large round-tipped and several small processes distally, strongly sclerotized. Juxtal rods slender, strongly sclerotized; left rod gently arched, near apex with small process upwardly; right rod a little shorter

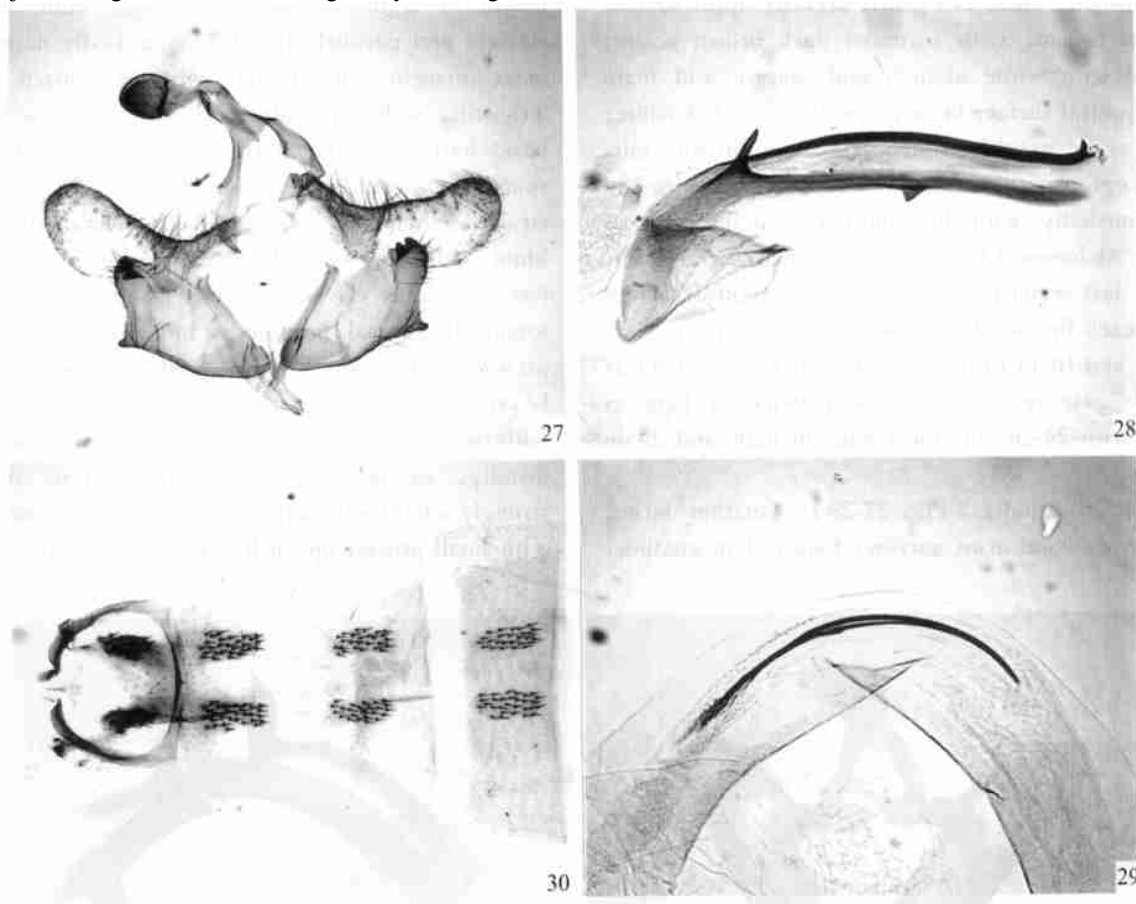


Figs. 23-26. *Coleophora ochroptera* sp. nov. 23. Male genitalia. 24. Juxtal rods. 25. Cornuti. 26. Abdomen.



and thicker than left one, dorsal margin with long thorn-like process at basal 1/5, distal 4/5 nearly straight, ventral margin with short thorn-like process at 3/5; juxta large and broad, irregularly rectangular,

weakly sclerotized; cornutus acicular, arched, about twice length of juxta; annulus relatively wide; lamina indistinct; appendix of outer sheath with several loose coils.



Figs. 27-30. *Coleophora rectimarginalis* sp. nov. 27. Male genitalia. 28. Juxta rods. 29. Cornuti. 30. Abdomen.

Female genitalia (Fig. 10). Papillae anales small, densely with short setae. Anterior apophyses thin, slightly longer than sterigma, posterior apophyses about twice length of anterior apophyses. Sterigma nearly square, anterior margin gently convex, but slightly concave medially; lateral margin gently arched; caudal margin with 1/3 of each side concave, each corner protruded, with setae, median 1/3 deeply concave. Ostium bursae about 1/3 width of sterigma, median portion roundly concave; colliculum broad, almost as long as sterigma, somewhat bent, apex extending to 1/2 of anterior apophyses, basal 1/3 wider than sterigma, distal 2/3 gradually narrowed, lateral sides strongly sclerotized. Ductus bursae very long, nearly equal to 10 times of sterigma in length; spinulate section as long as 2.5 times of sterigma, spinules small, densely arranged; median lamina longer than twice spinulate section, distal half extending into ante-

rior section; anterior section membranous, with one large and two small coils. Corpus bursae rounded; rasp-like signum slender, longer than thorn-like signum; thorn-like signum strongly sclerotized, spine somewhat incurved, apex blunt.

Type material. Holotype, Harbin (45.7°N, 126.6°E), Heilongjiang Province, alt. 150 m, 23 July 1997, leg. LI Hou-Hun, genitalia slide No. L97331. Paratypes: 1, same data as holotype; 3, Heihe, Heilongjiang, alt. 120 m, 25 July 1997, leg. LI Hou-Hun; 7, Nenjiang, Heilongjiang, alt. 300 m, 29 July 1997, leg. LI Hou-Hun; 1, Xilinhot, Inner Mongolia, alt. 1 030 m, 9 Aug. 1997, leg. LI Hou-Hun.

Diagnosis. This new species is related to *Coleophora sittella* Baldizzone, but differs from the latter in the following characters: sacculus lozenge-shaped, apex of ventral margin triangularly protruded, acute, outer side

with two large processes set on the end; cornutus one, large.

Distribution. China (Inner Mongolia, Heilongjiang).

Etymology. The specific name is derived from the Latin rect (= straight) and marginalis (= marginal), referring to the outside shape of sacculus.

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## 鞘蛾属六新种记述 (鳞翅目, 鞘蛾科)

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**摘要** 报道鞘蛾属壮鞘蛾组 *Coleophora sternipennella* group 6 新种: 无棘壮鞘蛾 *C. acanthabortiva* sp. nov., 党川壮鞘蛾 *C. dangchuanica* sp. nov., 芽壮鞘蛾 *C. gemmiformis* sp.

**关键词** 鳞翅目, 鞘蛾科, 鞘蛾属, 新种, 中国.

**中图分类号** Q969.42

nov., 巩留壮鞘蛾 *C. gongliuensis* sp. nov., 赭翅壮鞘蛾 *C. ochroptera* sp. nov. 和直缘壮鞘蛾 *C. rectimarginalis* sp. nov.。研究标本及模式标本保存在南开大学生物系。