

Systematic study on the genus *Dinica* Gozmány (Lepidoptera: Tineidae) from China

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Li, H. & Xiao, Y. 2007: Systematic study on the genus *Dinica* Gozmány (Lepidoptera: Tineidae) from China. — Entomol. Fennica 18: 184–192.

Five species of the genus *Dinica* Gozmány are recorded from China. Among them, four new species (*D. sulciformis* Li & Xiao, sp. n., *D. rotunda* Li & Xiao, sp. n., *D. uncata* Li & Xiao, sp. n. and *D. ruihensis* Li & Xiao, sp. n.) are described. The adult and genitalia photographs of the new species are provided. A catalogue and a key to the world species are given.

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Received 30 October 2006, accepted 26 January 2007

1. Introduction

Gozmány (1965) established the genus *Dinica*, with *Homalopsyche hyacinthopa* Meyrick, 1932 collected from Uganda as the type species. In the same paper, he transferred to *Dinica* the species *Tinea aspirans* Meyrick, 1920 described from Kenya and *T. orphnospila* Meyrick, 1934 recorded from Uganda. Subsequently he described one species *D. diana* Gozmány, 1966 from Uganda and another species *D. vulcanica* Gozmány, 2004 from Namibia. Petersen (1983) reported two Asian species, *D. endochrysa* (Meyrick, 1935) from Japan and *D. dierli* Petersen, 1983 from Nepal. Huang *et al.* (2006) first recorded one Chinese species *D. rhombata* Huang, Wang & Hirowatari, 2006 from Guangdong Province. To date, the genus includes eight species distributed in Africa and Asia. In this paper, we review the genus and describe four new species from China.

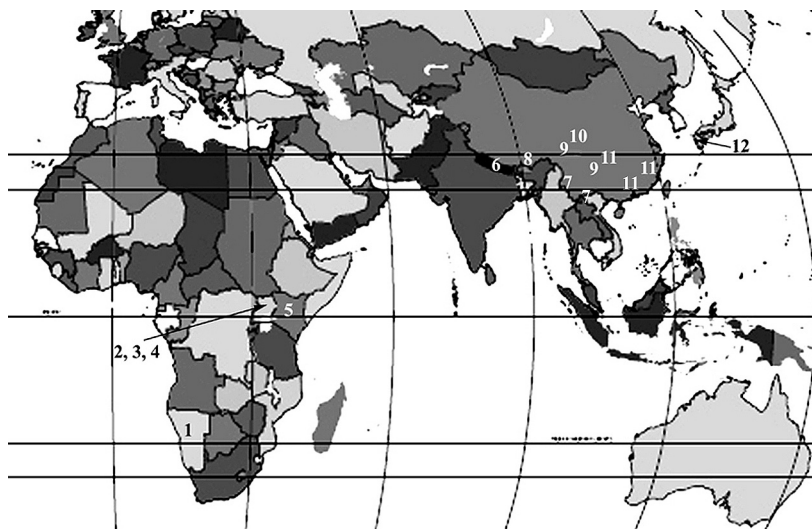
Gozmány and Vári (1973) placed the genus *Dinica* in the subfamily Nemapogoninae when treating the African species of Tineidae. Petersen (1983) revised *Dinica* and regarded it as not belonging to the subfamily Nemapogoninae. He

thought that the systematic position of the genus could not be ascertained because its male genital structures were too peculiar. Robinson (1980) doubted whether *Dinica*, *Strophalinga* Gozmány & Vári and *Janseana* Gozmány & Vári should be assigned to Nemapogoninae. Later, he (Robinson 1984) put *Dinica* and *Janseana* to the Haplotineini Zagulajev in the subfamily Myrmecozelinae when studying the systematic position of the genus *Haplotinea* Diakonoff & Hinton. Robinson and Tuck (1996) also retained the genus *Dinica* in the Haplotineini when they revised the checklist of the Tineidae of the Oriental Region. This placement is accepted in the present paper.

2. Material and Methods

The twenty specimens examined in this study were collected using light traps in mountains, botanical gardens and nature reserves in China (Fujian, Gansu, Guizhou, Hunan, Sichuan, Tibet, Yunnan and Zhejiang); six specimens collected from Thailand (Chiang Mai) are also included. Genitalia dissections follow the improved methods and techniques outlined by Li and Zheng

Fig. 1. Distribution of *Dinica* spp. 1. *D. vulcanica* Gozmány; 2. *D. diana* Gozmány; 3. *D. orphnospila* (Meyrick); 4. *D. hyacinthopa* (Meyrick); 5. *D. aspi-rans* (Meyrick); 6. *D. rui-liensis* sp. n.; 7. *D. dierli* Petersen; 8. *D. rotunda* sp. n.; 9. *D. sulciformis* sp. n.; 10. *D. un-cata* sp. n.; 11. *D. rhombata* Huang, Wang & Hirowatari; 12. *D. endochrysa* (Meyrick).



(1996). Photographs of the adults and genitalia were taken with a Nikon Coolpix 4500 digital camera.

All the studied specimens from China are deposited in the Insect Collection, Nankai University, Tianjin, China; six specimens from Thailand as paratypes of *D. rui-liensis* sp. n. are deposited in the Natural History Museum, London, UK (BMNH) and Osaka Prefecture University, Sakai, Osaka, Japan (OPU) respectively.

3. Results

3.1. *Dinica* Gozmány, 1965

Dinica Gozmány, 1965: 5.

Type species: *Homalopsycha hyacinthopa* Meyrick, 1932.

Wingspan 10.0–27.0 mm. Head, thorax, and forewings white to purple fuscous; if white, forewings with dark brown blotch running from base to about 3/4 along costal margin. Labial palpi porrect, second segment with bristles laterally and apically. Antennae about 0.6 × length of forewing, each flagellum covered with one annulus of narrow scales. Hindwings with costal margin curved downwards from about 3/4 in Asian species.

Male genitalia: Uncus undeveloped. Gnathos absent. Subscaphium developed. Tegumen with a

pair of heavily sclerotized caudo-lateral lobes. Valvae convoluted, apex broad; inner side distally covered with numerous long spiny setae; sacculus with distal portion separated from valva, digitate or spine-shaped; transtilla developed, somewhat triangular. Juxta present. Aedeagus simple, generally curved.

Female genitalia: Posterior apophyses about twice length of anterior apophyses. Eighth sternum rugulose. Ostium simple. Ductus bursae short. Corpus bursae elongate pyriform; signum present or absent.

Biology: Unknown.

Distribution (Fig. 1): China, Japan, Kenya, Namibia, Nepal, Thailand, Uganda.

Remarks: Gozmány regarded the sclerotized process at the lateral end of tegumen as an uncus in 1965 and as a gnathos in 1973. Petersen (1983) pointed out that there was no obvious structure showing the uncus, and whether the sclerotized process was a gnathos was doubtful. Robinson (1984) believed that Haplotineini Zagulajev was the senior subjective synonym of Cephimallotini Zagulajev, in which the gnathos is absent and the uncus is strongly sclerotized and specialized. So he placed *Dinica* in the Haplotineini. Huang *et al.* (2006) thought the sclerotized process was neither a gnathos nor an uncus, only a lobe of tegumen. To avoid further confusion in using the terminology, we are here consistent with Huang *et al.* in the description of the male genitalia.

3.2. Catalogue of the known

Dinica species

Dinica aspirans (Meyrick, 1920)

Tinea aspirans Meyrick, 1920: 101.

Dinica aspirans (Meyrick): Gozmány, 1965: 5; Gozmány and Vári, 1973: 7; Petersen, 1983: 39; Robinson, 2001.

Distribution: Kenya.

Dinica diana Gozmány, 1966

Dinica diana Gozmány, 1966: 60; Gozmány and Vári, 1973: 7; Petersen, 1983: 39; Robinson, 2001.

Distribution: Uganda.

Dinica dierli Petersen, 1983

Dinica dierli Petersen, 1983: 36; Robinson & Tuck, 1996: 8; Robinson, 2001.

Distribution: Nepal.

Dinica endochrysa (Meyrick, 1935)

Tinea endochrysa Meyrick, 1935: 579

Dinica endochrysa (Meyrick): Moriuti, 1982: 114; Petersen, 1983: 35; Robinson, 2001.

Distribution: Japan.

Dinica hyacinthopa (Meyrick, 1932)

Homalopsyche hyacinthopa Meyrick, 1932: 208.

Dinica hyacinthopa (Meyrick): Gozmány, 1965: 5; Gozmány and Vári, 1973: 8; Petersen, 1983: 40; Robinson, 2001.

Distribution: Uganda.

Dinica orphnospila (Meyrick, 1934)

Tinea orphnospila Meyrick, 1934: 516.

Dinica orphnospila (Meyrick): Gozmány, 1965: 5; Gozmány and Vári, 1973: 8; Petersen, 1983: 40; Robinson, 2001.

Distribution: Uganda.

Dinica vulcanica Gozmány, 2004

Dinica vulcanica Gozmány, 2004: 52; Robinson, 2001.

Distribution: Namibia.

Dinica rhombata Huang, Wang & Hirowatari, 2006

Dinica rhombata Huang, Wang & Hirowatari, 2006: 386.

Distribution: China (Guangdong, Hunan and Zhejiang).

Dinica rotunda Li & Xiao, sp. n.

Distribution: China (Tibet).

Dinica ruiliensis Li & Xiao, sp. n.

Distribution: China (Yunnan), Thailand.

Dinica sulciformis Li & Xiao, sp. n.

Distribution: China (Guizhou and Sichuan).

Dinica uncata Li & Xiao, sp. n.

Distribution: China (Gansu).

3.3. Key to the world species of *Dinica* Gozmány

1. Forewings white to ochreous white, with a dark brown blotch from base to about 2/3 along costal margin 2
 - Forewings purple fuscous or gray, without dark brown blotch along costal margin 10
2. Dark brown blotch reaching about anal fold of forewing 3
 - Dark brown blotch reaching posterior margin of forewing *D. dierli* Petersen
3. Tegumen with posterior margin convex 4
 - Tegumen with posterior margin concave or somewhat straight 8
4. Tegumen with posterior margin convex in triangular shape 5
 - Tegumen with posterior margin convex in trapezoidal or M shape 6
5. Subscaphium broad and irregularly rounded, with two rounded apical lobes
 - D. rotunda* sp. n.
 - Subscaphium elongate, arrow-like, pointed at apex *D. rhombata* Huang *et al.*
6. Tegumen with posterior margin in somewhat trapezoidal shape 7
 - Tegumen with posterior margin in somewhat M shape *D. aspirans* (Meyrick)
7. Subscaphium membranous
 - D. diana* Gozmány
 - Subscaphium sclerotized *D. endochrysa* (Meyrick)
8. Saccus slender, rod-like 9
 - Saccus broadly triangular *D. ruiliensis* sp. n.

9. Caudo-lateral lobe of tegumen rounded distally
D. sulciformis sp. n.
– Caudo-lateral lobe of tegumen long, spiny, hooked
D. uncata sp. n.
10. Tegumen with posterior margin convex, somewhat M-shaped 11
– Tegumen with posterior margin almost straight
D. vulcanica Gozmány
11. Caudo-lateral lobe of tegumen with a long spine directed downwards at apex
D. hyacinthopa (Meyrick)
– Caudo-lateral lobe of tegumen with a short process at apex
D. orphnospila (Meyrick)

3.4. *Dinica sulciformis* Li & Xiao, sp. n. (Figs. 2a, 3a, 3b)

Type material. Holotype ♂: China, Baoxing County (30°22' N, 102°50' E), Sichuan Province, 1,600 m a.s.l., 2.VIII.2004, Yingdang Ren leg., genital slide no. XYL04136. Paratypes: 2 ♂♂, Wolong Nature Reserve (31°08' N, 103°13' E), Sichuan Province, 1,900 m a.s.l., 8.VIII.2004, Yingdang Ren leg.; 2 ♂♂, 1 ♀, Wolong Nature Reserve (31°08' N, 103°13' E), Sichuan Province, 2,008 m a.s.l., 25–26.VII.2005, Haili Yu leg.; 1 ♂, Jiangkou County (27°41' N, 108°50' E), Guizhou Province, 1,700 m a.s.l., 29.VII.2001, Houhun Li and Xinpu Wang leg.; 1 ♀, Mt. Fanjing (27°55' N, 108°41' E), Guizhou Province, 1,300 m a.s.l., 3.VIII.2001, leg. Houhun Li and Xinpu Wang.

Diagnosis. This species is similar to *D. endochrysa* (Meyrick) superficially. It can be separated easily from the latter by the tegumen having the posterior margin concave at the middle, the subscaphium being inverted T-shaped, the sacculus about equal to the ventral margin of the valva in length, and the aedeagus almost straight or arc-shaped in the male genitalia. In *D. endochrysa* (Meyrick), the tegumen is slightly convex in the middle on the posterior margin, trapezoidal, the subscaphium is narrow at the base, the sacculus is much shorter than the ventral margin of the valva and the aedeagus is strongly curved and S-shaped.

Description. Adult (Fig. 2a): Wingspan 12.5–16.0 mm. Head white. Labial palpi with inner side ochreous white or ochreous yellow, outer side

ochreous brown. Antennae grayish brown; scape dark brown, sometimes with sparse white scales. Thorax white. Tegulae with basal half dark brown, distal half white. Forewings with ground color white to ochreous white; basal 2/5 of dark brown blotch narrow, sinuate ventrally, distal 3/5 convex downward to near anal fold, inverted trapezoidal, its posterior margin nearly parallel with anal fold, and its outer margin obliquely straight; cilia white to ochreous white. Hindwings and cilia pale white.

Male genitalia (Fig. 3a). Tegumen with posterior margin concave, anterior margin slightly concave at middle; caudo-lateral lobe narrowed at middle; apex rounded, dorsally with a small toothlike process. Subscaphium about 0.5 × length of valva, inverted T-shaped; its transverse arm with anterior margin concave, arcuate; longitudinal arm somewhat groove-shaped, slightly broadened at middle, obtusely rounded at apex; a weakly sclerotized plate extending obliquely downwards from 2/3 of dorsal side. Valva ventrally with an irregularly rectangular process at base, posterior and anterior margins concave; distal half gradually broadened, covered with numerous spiny setae, dorsal half strongly folded inwards and fully covering ventral half; apex greatly convex. Sacculus about equal to length of ventral margin of valva, distal 3/5 separated from valva, elongately spine-shaped, covered with about ten coarse spines near apex; apex obtusely pointed. Saccus slender, gradually narrowed to obtusely pointed apex. Juxta short, leaflike, with small oblique folds from sides to middle, apex pointed. Aedeagus slender, about 1.2 × length of valva, curved in median portion, slightly recurved near apex; apex obtusely pointed.

Female genitalia (Fig. 3b). Eighth sternum with posterior 3/4 strongly concave, posterior half having small oblique folds, anterior margin with a strongly sclerotized, arcuate band medially. Ostium cup-shaped, its anterior margin slightly rounded and posterior margin concave in broad V shape. Ductus bursae slightly shorter than corpus bursae. Corpus bursae with two small signa, each composed of a small sclerotized plate and several long and short spines.

Distribution. China (Guizhou and Sichuan).

Etymology. The specific name is derived from the Latin *sulciformis* = groove-shaped, referring

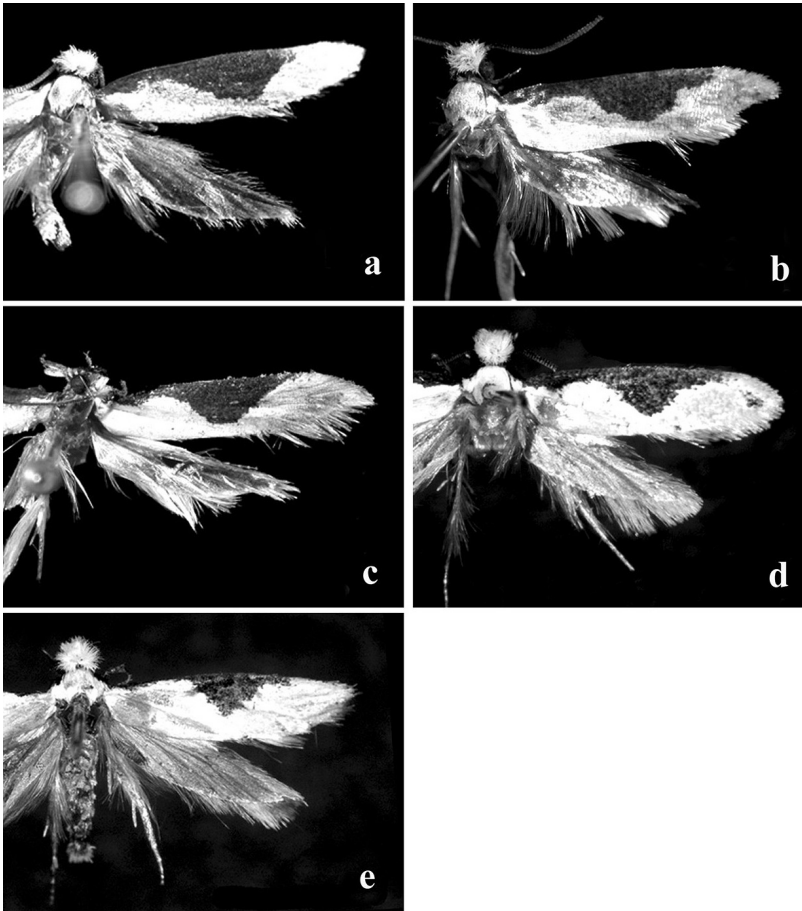


Fig. 2. Adults of *Dinica* spp. – a. *D. sulciformis* sp. n., paratype ♂. – b. *D. rhombata* Huang, Wang & Hirowatari ♂. – c. *D. rotunda* sp. n., holotype ♂. – d. *D. uncata* sp. n., paratype ♂. – e. *D. ruii* sp. n., paratype ♂.

to the longitudinal arm of subsclerophium somewhat groove-shaped.

3.5. *Dinica rhombata* Huang, Wang & Hirowatari, 2006 (Figs. 2b, 3c)

Dinica rhombata Huang, Wang & Hirowatari, 2006: 386.

Material examined. 1 ♂, China: Mt. Badagong, Sangzhi County (29°23' N, 110°11' E), Hunan Province, 1,250 m a.s.l., 13.VIII.2001, Houhun Li & Xinpu Wang leg., genital slide no. XYL03268. Paratype: 1 ♂, Wuyanling Nature Reserve, Taishun County (27°33' N, 119°42' E), Zhejiang Province, 1,000 m a.s.l., 3.VIII.2005, Yunli Xiao leg.

Adult (Fig. 2b): Wingspan 10.0–12.0 mm.

Male genitalia (Fig. 3c). As illustrated.

Distribution. China (Guangdong, Hunan and Zhejiang).

Remarks. Huang *et al.* (2006) described this species based on two male specimens collected from Guangdong, China. We collected two male specimens from Hunan and Zhejiang, China belonging to this species.

This species is allied to *D. endochrysa* (Meyrick) superficially, but can be distinguished by the tegumen having the posterior margin convex triangularly, the subsclerophium elongate and arrow-shaped, the juxta long tongue-shaped, and the aedeagus slightly curved. In *D. endochrysa*, the tegumen is slightly convex, subtrapezoidal on posterior margin; the subsclerophium is inverted subtriangular or cone-shaped; the juxta is somewhat inverted heart-shaped, and the aedeagus is strongly curved in S form.

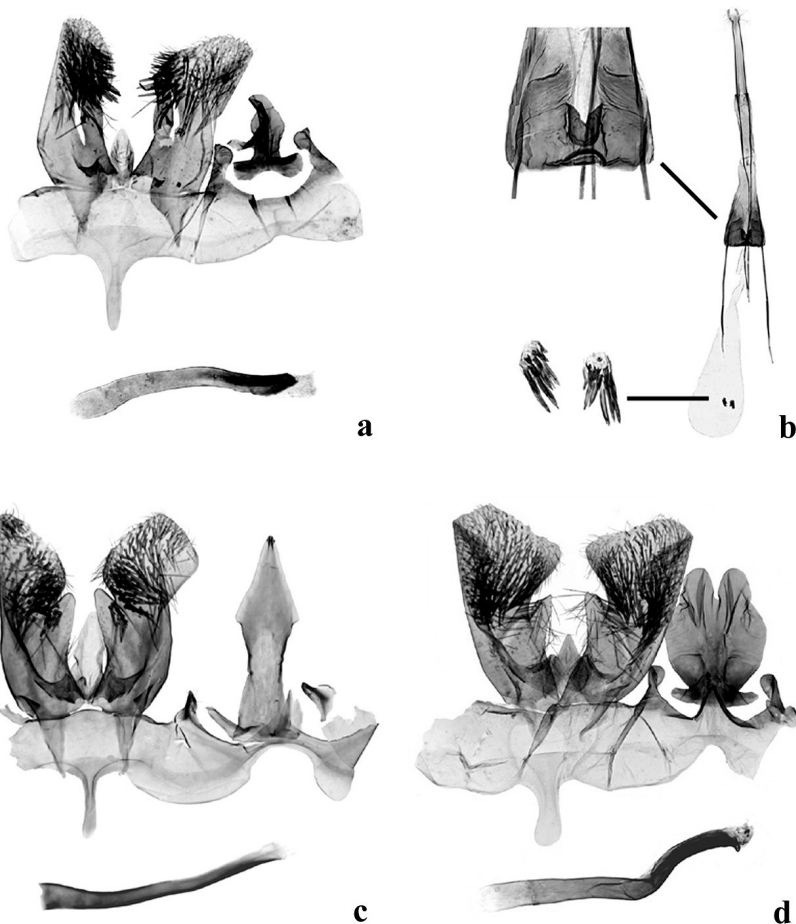


Fig. 3. Genitalia of *Dinica* spp. a–b. *D. sulciformis* sp. n.: – a. holotype ♂, slide no. XYL04136. – b. paratype ♀, slide no. XYL03266. – c. *D. rhombata* Huang, Wang & Hirowatari ♂, slide no. XYL03268. – d. *D. rotunda* sp. n., holotype ♂, slide no. XYL04130.

3.6. *Dinica rotunda* Li & Xiao, sp. n. (Figs. 2c, 3d)

Type material. Holotype ♂: China, Mêdog County (29°13' N, 95°18' E), Tibet, 2,380 m a.s.l., 9.VIII.2003, Xinpun Wang & Huaijun Xue leg., genital slide no. XYL04130.

Diagnosis. This species resembles *D. rhombata* Huang et al. superficially, but can be separated easily from it by the subscaphium being deeply concave posteriorly and forming two rounded lobes at the apex, and the juxta being inverted heart-shaped. In *D. rhombata*, the subscaphium is large, arrow-like and pointed at the apex, and the juxta is tongue-shaped and elongate.

Description. Adult (Fig. 2c): Wingspan 13.0 mm. Head, thorax, forewings, hindwings, and cilia all white. Inner side of labial palpi ochreous

white, outer side dark brown. Antennae dark brown; scape dark brown, with scattered white scales. Tegulae with basal half dark brown, distal half white. Forewings with basal 2/5 of dark brown blotch narrow and curved, distal 3/5 inverted trapezoid, extending downward to about 2/3 of anal fold, its outer margin obliquely straight; cilia ochreous white. Hindwings grayish white; cilia ochreous white.

Male genitalia (Fig. 3d). Tegumen with posterior margin triangularly convex at middle, anterior margin concave; caudo-lateral lobe broad at base, constricted medially, rounded distally. Subscaphium large and broad, length about 0.7 × valva, strongly constricted and forming a neck near base; median portion roundly expanded; posterior margin deeply concave and forming two rounded lobes in distal 1/5. Valva with a somewhat L-shaped process in basal 2/5, which is

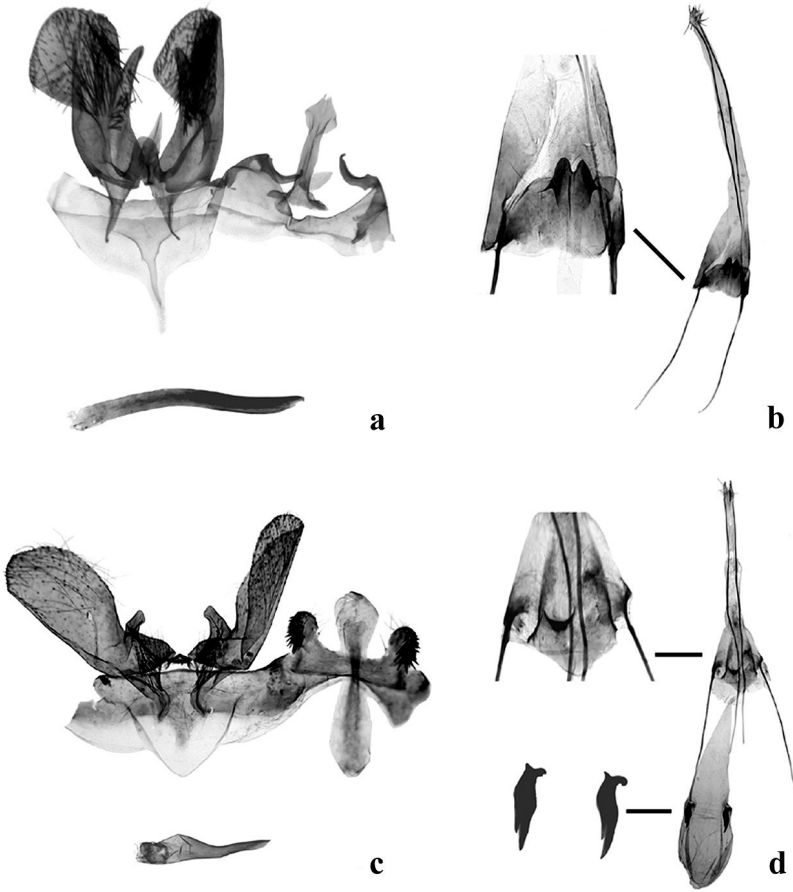


Fig. 4. Genitalia of *Dinica* spp. a–b. *D. uncata* sp. n.: – a. paratype ♂, slide no. XYL05019. – b. paratype ♀, slide no. XYL05007. c–d. *D. ruiliensis* sp. n.: – c. holotype ♂, slide no. XYL05042. – d. paratype ♀, slide no. XYL05043.

slender in distal half, expanded and rectangular in basal half; distal 3/5 broadened, with dense spiny setae, dorsal 1/4 folded inwards; apex slightly convex at middle. Sacculus about $0.7 \times$ ventral margin of valva in length, distal 1/3 separated from valva, gradually narrowed to apex, dorsally covered with a row of spines; apex pointed. Saccus slightly narrowed at middle; distally broadened and rounded. Juxta inverted heart-shaped, apex pointed. Aedeagus about $1.3 \times$ length of valvae, curved at about 3/5, distal 2/5 curved, arcuate, apex obliquely straight.

Female. Unknown.

Distribution. China (Tibet).

Etymology. The specific name is derived from the Latin *rotundus* = rounded, referring to subscaphium somewhat rounded in the medial portion.

3.7. *Dinica uncata* Li & Xiao, sp. n. (Figs. 2d, 4a, 4b)

Type material. Holotype ♂: China, Wen County ($32^{\circ}58' N$, $104^{\circ}41' E$), Gansu Province, 860 m a.s.l., 11.VII.2005, Haili Yu leg., genital slide no. XYL05019. Paratypes: 1 ♂, 1 ♀, 14.VII.2005, same data as holotype.

Diagnosis. The new species resembles *D. sulciformis* sp. n. superficially, but can be separated from the latter in the male genitalia by the caudo-lateral lobe of the tegumen being hooked distally, the subscaphium with distal 1/4 rhombic and pointed at the apex; in the female genitalia the ostium is broader medially than posteriorly or anteriorly, and signa are absent. In *D. sulciformis*, the caudo-lateral lobe of the tegumen is rounded apically, the subscaphium is obtusely rounded at the apex, the ostium is cup-shaped and signa are present.

Description. Adult (Fig. 2d): Wingspan 11.0–13.0 mm. Head and thorax white. Labial palpi ochreous white on inner side and dark brown on outer side. Antennae dark brown. Tegulae with basal half dark brown and distal half white. Forewings white but distally ochreous white; apex with some dark brown scales; dark brown blotch with basal 1/3 narrow and sinuate ventrally, distal 3/4 triangularly protruding downward to about anal fold, its outer margin slightly concave at middle; cilia ochreous yellow. Hindwings and cilia gray.

Male genitalia (Fig. 4a). Tegumen with posterior margin deeply concave, anterior margin nearly straight; caudo-lateral lobe horn-shaped, hooked distally, each side with a small tooth-like process at basal 1/5, apex pointed. Subscaphium about $0.6 \times$ valva in length, basal portion extending narrowly outward, about $3.0 \times$ medial portion in width; median portion straight and parallel laterally; distal 1/4 expanded to a rhombus; apex pointed. Valvae bearing a slender, somewhat L-shaped process in basal 2/5, fused with each other over juxta at base; distal 3/5 densely covered with spiny setae, dorsal 2/3 greatly folded inwards, apex bluntly rounded. Sacculus with distal 1/5 separated from valva, tapered to apex, covered with about twenty spines from 2/5 to 4/5; apex pointed, reaching near end of ventral margin of valva. Saccus narrowed to pointed apex. Juxta long, leaflike. Aedeagus slender, about $1.3 \times$ length of valva, pointed at apex.

Female genitalia (Fig. 4b). Eighth sternum deeply concave at posterior margin, laterally extending to base of posterior apophyses. Ostium broad at middle, narrowed anteriorly and posteriorly; posterior margin concave, V-shaped; lateral margin protruding medially outwards and forming a small spine. Signa absent.

Distribution. China (Gansu).

Etymology. The specific name is derived from the Latin *uncatus* = hooked, referring to the hooked caudo-lateral lobe of the tegumen.

3.8. *Dinica ruihensis* Li & Xiao, sp. n. (Figs. 2e, 4c, 4d)

Type material. Holotype ♂: China, Ruili City (24°00' N, 97°50' E), Yunnan Province, 1,000 m a.s.l., 6.VIII.2005, Yingdang Ren leg., genital

slide no. XYL05042. Paratypes: 2 ♂♂, 2 ♀♀, same data as holotype; 1 ♂, Chiang Mai, Doi Suthep Pui NP, 1,200 m, a.s.l., 23.V/3.VI.1988; A. M. Cotton and I. J. Kitching leg., BM 1988-312 (BMNH); 2 ♀♀, same locality, 1,300 m a.s.l., 20–23.IX.1986, G. S. Robinson leg. 1986-299 (BMNH); 1 ♂, 1 ♀, Chiang Mai, Doi Chang Khian, 1,250 m a.s.l., 21. VII. 1981, H. Kuroko, S. Moriuti, Y. Arita and Y. Yoshiyasu leg. (OPU); 1 ♀, Chiang Mai, Doi Pui, 1,300 m a.s.l., 26–27. X. 1985, S. Moriuti, T., Saito and Y. Arita leg. (OPU).

Diagnosis. The new species is similar to *D. diana* Gozmány, 1965, but differs from the latter by the caudo-lateral lobe of the tegumen being nearly rounded and lacking a long apical spine, the subscaphium is narrowed at the middle, the valvae lack thorny setae, the aedeagus is about $0.8 \times$ valva in length and straight distally. In *D. diana*, the caudo-lateral lobe of the tegumen bears a long spine, the subscaphium is basally narrow but distally broad, the valvae have thorny setae, the aedeagus is about $1.1 \times$ length of valva and strongly curved near apex.

Description. Adult (Fig. 2e): Wingspan 10.0–12.0 mm. Head white. Inner side of labial palpi ochreous white, outer side dark brown. Antennae dark brown, scape white. Thorax white. Tegulae white except dark brown along anterior margin. Forewings white, gradually turning to ochreous yellow to apex; dark brown blotch with basal half very narrow, distal half triangularly convex to about lower edge of cell; cilia ochreous yellow, distally tinged with dark brown. Hindwings gray; cilia ochreous white.

Male genitalia (Fig. 4c). Tegumen with posterior margin nearly straight, anterior margin broadly concave; caudo-lateral lobe of the tegumen semicircular, bearing numerous strong spines along outer margin. Subscaphium about $1.2 \times$ length of valva, membranous but slightly sclerotized medially, narrowed at middle. Valva subrectangular, dorsal half folded inwards, distal half setose, apex bluntly rounded. Sacculus short; basal 3/5 somewhat triangular, setose; distal 2/5 separated from valva, digitate; apex truncate. Saccus broadly triangular, rounded at apex. Juxta small, more or less triangular. Aedeagus about 0.8 – $1.1 \times$ length of valva, basal half broad, distal half tapering.

Female genitalia (Fig. 4d). Eighth sternum with anterior margin triangularly convex, posterior 3/5 deeply concave and forming two narrow bands. Ostium more or less broadly U-shaped. Signa large, more or less hand-like; basal half fused, slightly narrowed near base; distal half composed of three or five spines, medial one about $1.5 \times$ length of lateral spines.

Distribution. China (Yunnan), Thailand.

Etymology. The specific name is derived from the type locality of China.

Remarks. The specimens show some differences in the genitalia characters from the different localities: in the specimens collected from Yunnan, China, the caudo-lateral lobe of the tegumen is semicircular; the aedeagus is obviously shorter than length of valva; signa are composed of three spines. In the specimens collected from Thailand, the caudo-lateral lobe of the tegumen is more or less triangular; the aedeagus is slightly longer than length of valva; signa are composed of five spines.

Acknowledgments. We are grateful to Dr. T. Hirowatari (Osaka), Dr. G. Petersen (Berlin), Dr. G. S. Robinson (London), and late Dr. L. A. Gozmány (Budapest) for the kind assistance in references, or reviewing the manuscript and providing us very helpful comments and suggestions. The research was supported by the National Natural Science Foundation of China (No. 30670251).

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