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A new species of *Anabasis* Heinrich and a related new genus from China (Lepidoptera: Pyralidae: Phycitinae)

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ABSTRACT

A new species, *Anabasis prompta* is described from South China. One related genus and species, *Pseudanabasis incanimaculata* gen. and sp. nov., is described from Xizang, China.

Key words.—Lepidoptera, Pyralidae, *Pseudanabasis*, *Anabasis*, new genus, new species, China.

INTRODUCTION

Anabasis was erected by Heinrich (1956) for the New World species of *A. ochrodesma* Zeller, and was added to two other species, *A. fusciflavida* Du, Song & Wu, and *A. infusella* (Meyrick) by Du et al. (2005). So it presently contains three world species.

Anabasis is sometimes confused with *Acrobasis* Zeller in that males of the two genera both possess a similarly enlarged basal segment of the antenna. Their diagnostic characters as follows: in the hindwing of *Anabasis*, the cell is distinctly less than 1/2 wing length, M_2 and M_3 are stalked for half their length (M_2 and M_3 united briefly at base in hindwing of *Acrobasis*); in the male genitalia the valva of *Anabasis* has a transverse, sclerotized ridge from the terminal end of sacculus to the base of costa and a cluster of modified scales on sacculus, which are both absent in *Acrobasis*.

Several other genera, *Conobathra* Meyrick, *Cyphita* Roesler and *Hypargyria* Ragonot are thought to be closely related to *Acrobasis* by the male antennae, and *Trachycera* Ragonot by both male and female genitalia (Heinrich, 1956; Roesler, 1971; Neunzig, 1986). However, *obrutella*, the monotype species of *Cyphita*, was transferred to *Acrobasis* by Roesler & Küppers (1981, 1983), which means *Cyphita* becomes an invalid genus; *Conobathra* and *Trachycera* were synonymized with *Acrobasis* based on the comparison of some European species by Nuss et al. (2003-2009). It is highly probable that further genera will be discovered as synonyms of *Acrobasis*, as the classification of genera has been arranged in a highly typological way based on antennal modifications (according to an anonymous reviewer on one of our former manuscripts).

Taking above-mentioned viewpoints into account, as another closely related genus of *Acrobasis*, *Anabasis* might be a candidate that should be checked

for its validity. In recent studies we found some intermediate specimens, sharing some diagnostic characters with *Anabasis* (such as the half stalked M_2 and M_3 on hindwing and transverse sclerotized bar on valva) and possessing other identification characters of *Acrobasis* (e.g. bifurcated gnathos). In the present paper, these intermediate specimens are described as *Anabasis prompta* Du Song & Wu sp. nov., and tentatively assigned to *Anabasis*. Another distinct species, *Pseudanabasis incanimaculata* gen. & sp. nov., is described as new to science based on the extraordinary transtilla in male genitalia. All types are deposited in the Institute of Zoology, Chinese Academy of Sciences (IZCAS), Beijing, China.

TAXONOMY

Anabasis prompta Du, Song & Wu, new species

Figs. 3-7

Etymology.—The specific name refers to the very large clasper on male genitalia.

Diagnosis.—The new species distinguished itself from other *Anabasis* species by the bifurcate gnathos and the marked large clasper on male genitalia.

Description.—Wingspan 16.0-17.0 mm. Vertex appressed, male antenna same as generic characters, cilia short, not longer than diameter of the shaft. Labial palpi upturned, blackish fuscous, with three segments about equally long. Maxillary palpi stick-like, about 1/3 times length of the labial palpi.

Forewing narrow, blackish fuscous, basal area covered with large amounts of yellowish gray scales. Antemedial line black, arched, 1/3 away from the basal, with inside bordered by a white line and outside bordered by a yellowish margin and a broad white line successively. The outside margin and line are both transverse, extending from M_1 to dorsum. Postmedial line grayish white, obtusely dentate, curved inside at veins of M_1 and A respectively. Discal spots black, connected with each other as crescent. Cilia gray. Hindwing translucent, grayish.

Male genitalia. Uncus triangular, with length shorter than width distinctly, basal 4/5 broad and distal apex narrowly rounded. Gnathos somewhat unguulate, broadened from base till distal apex, terminal 1/4 bifurcated as two short, broad and obtuse lobes. Transtilla complete, posterior margin straight. Valva with basal 1/4 narrow and terminal ends broadly rounded; the transverse sclerotized ridge, extended from basal costa till end of sacculus, and connected with a very large, stick-like clasper, which just a little shorter than juxta; sacculus distinctly broader than costa, but about same long as costa. Juxta V-shaped, lateral lobes somewhat triangular, well sclerotized and same long as gnathos. Vinculum same length of the widest, with anterior margin somewhat concaved. Aedeagus cylindrical, 2.5 times length of width, but a little longer than vinculum, cornutus absent. The eighth tergite and sternite both U-shaped, covered by a pair of culcita.

Female genitalia. Anal papillae small. Anterior apophyses same long as posterior ones. Antrum is a narrow and sclerotized band near genital opening, 1/4 times length of the width. Ductus bursae and Corpus bursa are both membranous, weak group of minute spines in anterior 1/3 of ductus bursae and additional weakly developed tiny spines on Corpus bursa. Corpus bursa somewhat triangular, about same long as ductus bursae. Signum absent, ductus seminalis arising from anterior end of Corpus bursa, far away from ductus bursae.

Type materials.— Holotype: male, Guangxi: Miaoershan, 1985. VII. 10, Shimei Song. Paratypes: 1 male 2 females, same data as holotype; 1 male 1 female, Jiangxi: Doushui, 1975. VI. 29-VII. 3, Shimei Song; 1 female, Jiangxi: Dayu, 1985. VIII. 14, Shimei Song; 1 female, Jiangxi: Jiulianshan, 1975. VII. 27, Shimei Song; 1 female, Gansu: Wenxian, 1500 m, 1999. VII. 28, Chaodong Zhu; 1 female, Fujian: Wuyishan, 1260 m, 2000. VII. 30, Shimei Song; 1 male 1 female, no record.

Distribution.— China (Jiangxi, Guangxi, Gansu, Fujian).

Remarks.— Although there are so clear distinguished characters between *Acrobasis* and *Anabasis* (as mentioned in the part of Introduction), there still exist some intermediate species. For example, this new species, on the one hand, with the half stalked M_2 and M_3 on hindwing and the transverse sclerotized bar on valva match well with the definitions of *Anabasis*; on the other hand, the bifurcate gnathos and the absence of modified scales on sacculus are consistent with *Acrobasis* (Heinrich, 1956; Neunzig, 1986). As above-mentioned, is *Anabasis* a potential synonym of *Acrobasis* and, whether it is reasonable to place this new species in *Anabasis*?

Pseudanabasis Du, Song & Wu, new genus

Figs. 1-2

Type species.— *Pseudanabasis incanimaculata* gen. & sp. nov.

Etymology.— The generic name refers to the species in it very similar to those in the genus of *Anabasis*.

Description.— Male antennal scape with a large prominence and a shallow sinus at base of shaft, very similar to *Acrobasis*, female simple. Labial palpi upturned, above vertex, Maxillary palpi small. Forewing with the venation of R_1 from well before angle of cell, R_3 and R_4 with basal 2/3 fused, R_2 and R_{3+4} stalked for basal 1/3, M_2 and M_3 both extended from lower angle of the cell, but separate from each other, Cu_1 and Cu_2 free, from well before angle of cell. Hindwing with $Sc+R_1$ and Rs stalked for half length of Sc , M_1 from upper angle of cell, M_2 and M_3 both from lower outer angle of cell and narrowly contiguous at base, Cu_1 and Cu_2 free.

Male genitalia. Uncus triangular. Gnathos broad, with terminal end bifurcated. Transtilla inversed Y-shaped, posterior margin extended posteriorly as a stick. Valva broad, terminal narrowly rounded, base with a digitiform clasper, which is connected with a transverse, sclerotized ridge, extending from base of costa till apex of the sacculus, very similar to those of *Anabasis* species; costa well sclerotized, tapered off from base till apex; sacculus strongly sclerotized, somewhat shorter than costa. Juxta V-shaped. Vinculum U-form, anterior margin deeply concaved. Cornutus absent. Culcita one paired.

Female genitalia. Anal papillae narrow. Anterior and posterior apophyses both short. Antrum is large, rectangular and strongly sclerotized. Ductus bursae membranous, with inner-side scattered densely by developed minute spines. Corpus bursa membranous, somewhat oval-like, a little shorter than ductus bursae, signum distinct, nipple-like, comprised by scobinate invaginated cup. Ductus seminalis inserted at posterior end of bursa copulatrix near junction of ductus and Corpus bursa.

Remarks.— This genus is very similar to *Anabasis* Heinrich in the large prominence and shallow sinus at base of shaft on male antennae, the approximated M_2 and M_3 at base point and antemedial scale ridge on forewing, as well as the transverse, sclerotized ridge in male genitalia, but can be distinguished by following characters: (i) Hindwing with M_2 and M_3 narrowly contiguous at base; (ii) in male genitalia, transtilla inversed Y-shaped, with posterior margin extended posteriorly, but not concaved; (ii) in female genitalia, antrum large and strongly sclerotized, corpus bursa with signum, which is consisted of scobinate invaginated cup. In *Anabasis*, M_2 and M_3 of hindwing contiguous for almost half their lengths; transtilla with posterior margin deeply concaved to flat; in female genitalia, antrum small and somewhat sclerotized, signum as invaginated cup or absent.

Pseudanabasis incanimaculata Du, Song & Wu, new genus & new species
Figs. 8-13

Etymology.— The specific name refers to the grayish white spot at dorsum of the forewing.

Diagnosis.— This new species is similar to *Anabasis fusciflavida* Du, Song & Wu, but can be distinguished clearly by its oval grayish white spot at dorsum of the forewing and its bifurcated gnathos, as well as its posteriorly extended, but not concaved posterior margin of transtilla in male genitalia, and the large, rectangular and well sclerotized antrum in female genitalia. However, in *A. fusciflavida*, dorsum of forewing without grayish white spot, gnathos stick-like and not forked, transtilla with posterior margin concaved, antrum small and slightly sclerotized.

Description.— Wing span 16.5-17.0 mm. Antennal scape of male greatly enlarged as a thumb-like prominence, cilia distinctly shorter than width of shaft. Vertex appressed. Labial palpi thin and upturned, slightly above vertex, with the second segment same long as the third, and about twice length of the basal one. Maxillary palpi cigarette.

Forewing blackish fuscous, basal area dotted with some yellowish scales. Antemedial scale ridge arched, black, 1/3 away from the basal, bordered by a white thin line inside and a yellowish narrow margin outside, which is short, not reaching costa and adjoined by an oval grayish white spot at dorsum of the wing. Postmedian line zigzagged, whitish. Discal spots black, confused with each other. Hindwing translucent, cilia gray.

Male genitalia. Uncus triangular, the apex distally rounded, terminal 1/5 narrow, basal 4/5 broad and lateral sides folded inside. Gnathos broad, 3/4 times length of the uncus, terminal half bifurcated as two lobes and slightly broader than basal half. Transtilla inversed Y-shaped, posterior margin extended posteriorly as a stick, which is as long as gnathos; anterior lobes short, only half long as the posterior one. Valva short, terminal rounded, base with a digitiform clasper, which is connected with a transverse, sclerotized ridge, extending from base of costa till apex of the sacculus; costa well sclerotized, tapered off from base till apex; sacculus strongly sclerotized, somewhat shorter than costa. Juxta V-shaped, lateral lobes as long as the gnathos. Vinculum U-form, same long as the widest, anterior margin deeply concaved. Aedeagus about 3.5 times length of the width and same long as the costa, cornutus absent. The eighth tergite and sternite are U-shaped and V-shaped respectively.

Female genitalia. Anal papillae narrow. Anterior apophyses same long as

the posterior ones. Antrum is a strongly sclerotized rectangular band, almost same long as apophyses and a little shorter than its width. Ductus bursae membranous, 4 times long as antrum, widening from posterior extremities till anterior end, inside scattered densely by developed minute spines except the posterior extremities. Corpus bursa membranous, somewhat oval-like, a little shorter than ductus bursae, signum distinct, nipple-like, consisting of scobinate invaginated cup, lying at medial area of Corpus bursa. Ductus seminalis inserted at posterior end of bursa copulatrix near junction of ductus and Corpus bursa.

Type materials.— Holotype: male, Xizang: Motuo (1080 m), 2006. VIII. 21, Fuqiang Chen. Paratype: 2...B2 females, same data as holotype.

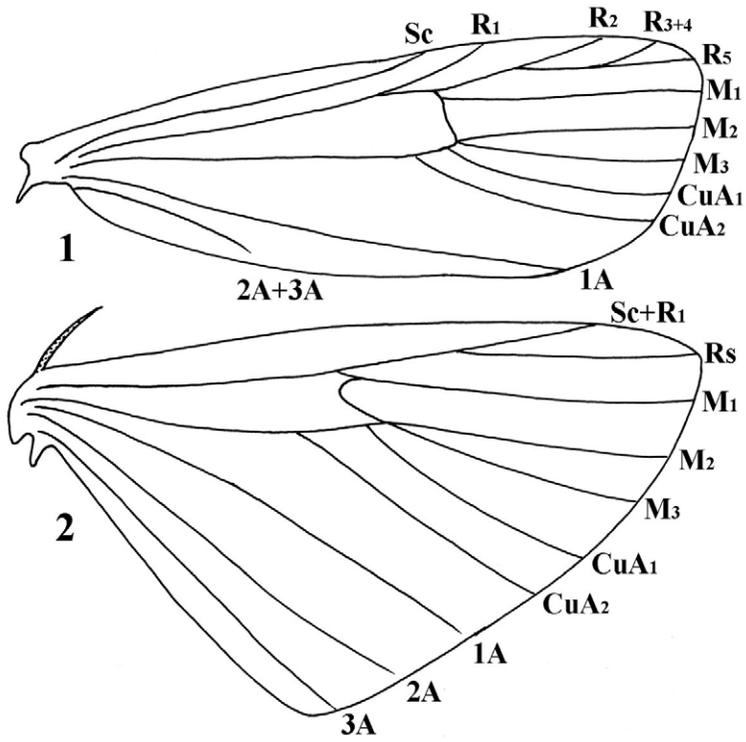
Distribution.— China (Xizang).

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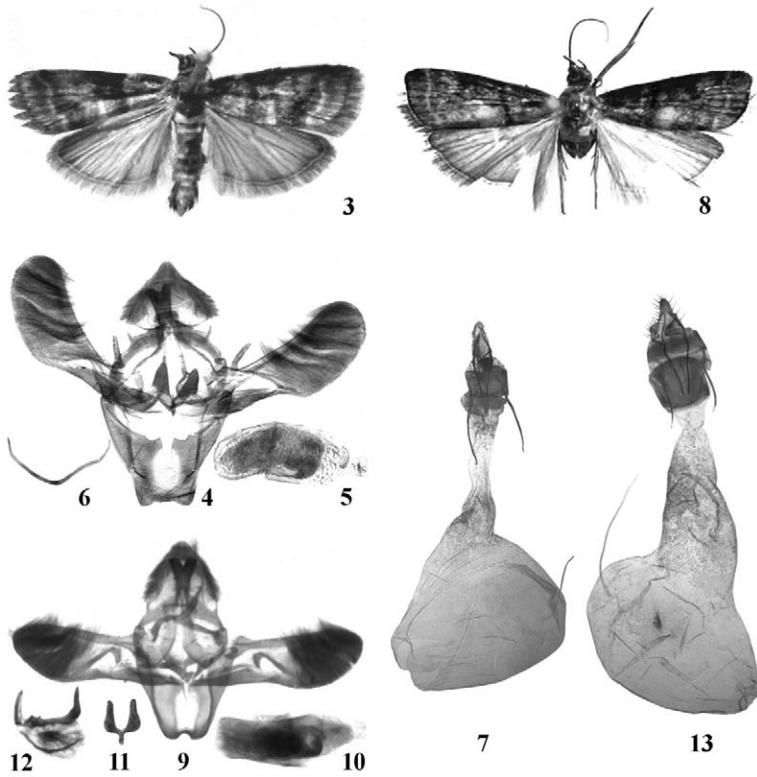
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Figures 1–2. Venation of *Pseudanabasis incanimaculata* gen. & sp. nov. 1. forewing; 2. hindwing.



Figures 3–12. Adults and Genitalia. 3–7. *Anabasis prompta* sp. nov.; 8–11. *Pseudanabasis incanimaculata* gen. & sp. nov. 3, 8. Adults; 4, 9. Male genitalia (excluding aedeagus); 5, 10. Aedeagus; 11. Juxta (from paratype); 6, 12. Eighth tergite and sternite; 7, 13. Female genitalia.