Four Newly Recorded Species of the Family Crambidae (Lepidoptera) from Korea

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ABSTRACT

This study was carried out to report the newly recorded species of the family Crambidae, belonging to the order Lepidoptera. During the course of investigation on the family Crambidae in South Korea, the following four species are reported for the first time from Korea: Diplopseustis perieresalis (Walker, 1859), Dolicharthria bruguieralis (Duponchel, 1833), Herpetogramma ochrimaculale (South, 1901), and Omiodes diemenalis (Guenée, 1854). Among them two genera, Diplopseustis Meyrick and Dolicharthria Stephens, are also newly reported from Korea. External and genital characteristics of adults were examined and illustrated. All of the newly recorded species were enumerated with their available information including the collecting localities, illustrations of adults, and genitalia.

Keywords: Lepidoptera, Crambidae, new record, Korea

INTRODUCTION

Until now, more than 16,000 species of the superfamily Pyraloidea have been recorded in the world (Munroe and Solis, 1999). In Korea, a total of 349 species of the superfamily Pyraloidea have been known to date (Bae et al., 2008). Later Kim et al. (2012) added two newly recorded species from Korea, Daulia afralis Walker and Herpetogramma cynaralis Walker. Recently, Kim et al. (2014) reviewed the genus Nacoleia, including two new records, N. inouei Yamanaka and N. satsumalis South. Consequently, a total of 353 species has been recorded from Korea to date. During the course of the survey on the microlepidoptera in Korea, we found the following four species of Crambidae: Diplopseustis perieresalis (Walker), Dolicharthria bruguieralis (Duponchel), Herpetogramma ochrimaculale (South), and Omiodes diemenalis (Guenée).

Thus, the aim of this study is to report four newly recorded species and to update our knowledge with recently collected data on the fauna of Crambidae of Korea. All of the examined materials for each species are enumerated with their localities and available information.

MATERIALS AND METHODS

Materials examined in the present study are preserved in the Systematic Entomology Laboratory, Hannam University (SELHNU), Daejeon, Korea. The genitalia of both sexes were dissected and examined after mounting with Euparal mountant for identification of the species. The photos of adults and genitalic structures for the species were taken by a digital camera, Pax cam (PAXcam Microscope Cameras Co., Chicago, IL, USA) attached on the microscope, Carl Zeiss Axio Imager A1 (Carl Zeiss Ltd., Cambridge, UK). Abbreviations used in this study are as follows: TL, type locality; TS, type species; GS, genitalia slide number.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Crambidae Latreille, 1810
Subfamily Pyraustinae Meyrick, 1890
=Spilomelinae Guenée, 1854

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Genus *Diplopseustis* Meyrick, 1884: 284
TS: *Cymoriza minima* Butler, 1881

18* Diplopseustis perieresalis* (Walker, 1859) (Figs. 1A–3A)
*Cymoriza minima* Butler, 1881: 684. TL: Taiwan.
*Diplopseustis perieresalis* Hampson, 1896: 489.


**Adult** (Fig. 1A). Wingspan 12–14 mm. Head light gray, antenna brownish mixed gray color. Thorax light brown. Forewing with ground color brownish; yellowish spots presented along the costa; a small blackish round shape speck near discoidal cell; postmedial line with yellowish gray; outer margin presented blackish brown line with light brown scales, costa straight. Hindwing with ground color light gray; outer margin light gray with some postmedial line color as forewing; tornus blackish scales, cilia whitish color basally.

**Male genitalia** (Fig. 2A). Uncus very short, rounded terminally. Anal tube very long with narrow to the top. Valva broad and expanded; bundle of long hair on basal margin; apex of valva hook shaped bearing slightly long hairs; outer margin gentle curved. Sacculus broad with short hairs on basal margin. Juxta narrow to the bottom. Aedeagus stout, narrowed towards apex, with a bundle of short hair on vesica.

**Female genitalia** (Fig. 3A). Papillae analis narrow, very long. Apophyses anteriores as long as half of apophyses posteriores. Ostium bursae narrow, well sclerotized. Ductus bursae very long as long as 1/4 of corpus bursae. Corpus bursae very small, globular shaped, slightly sclerotized around entrance with no signum.

**Distribution.** Korea (new record), China, Japan, Taiwan, Boreno, Indonesia, Malaysia, Brunei, Australia, Portugal, Spain, Canary Islands, Netherlands, England.

**Host plant.** *Carex secta* (Cyperaceae) in Europe (Muus and Wullaert, 2008).

Genus *Dolicharthria* Stephens, 1834: 55
TS: *Scopula longipedalis* Curtis, 1830

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**Fig. 1.** Adults: A, *Diplopseustis perieresalis*; B, *Dolicharthria bruguieralis*; C, *Herpetogramma ochrimaculale*; D, *Omiodes diemenalis*.

Korean name: 18가는줄들명나방(신칭)
1**Dolicharthria bruguieralis** (Duponchel, 1833)  
(Figs. 1B – 3B)  
*Dolicharthria bruguieralis* Duponchel, 1833: 320. TL: France.  
*Diasemia calcaralis* Strand, 1918: 73. TL: China, Taiwan.  
*Metasia coniotalis* Hampson, 1903: 220. TL: Japan, China, India.  
*Stenia adelalis* Guenée, 1854: 245.  


**Adult (Fig. 1B).** Wingspan 9 – 11 mm. Head light brown, antenna brownish. Thorax brownish mixed gray scales. Forewing with ground color brownish; a small blackish round shape speck near discoidal cell; postmedial line with blackish brown; outer margin presented light brown scales, costa straight with somewhat rounded apex. Hindwing with ground color blackish brown; outer and inner margin light brown scales; cilia light brown color basally.  

**Male genitalia (Fig. 2B).** Uncus very long, rounded terminally. Socii relatively small; tongue shape with black terminal. Valva broad and expanded; bundle of long hair on basal margin; apex of valva curved bearing slightly long hairs; outer margin gentle curved. Sacculus broad with short hairs on...

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**Fig. 2.** Male genitalia: A, *Diplopseustis perieresalis*; B, *Dolicharthria bruguieralis*; C, *Herpetogramma ochrimaculata*; D, *Omiodes diemenalis*. Scale bars: A – D = 1 mm.

Korean name: **회색애기등명나방 (신칭)**
basal margin. Juxta broad to the bottom. Aedeagus stout, wide towards apex, ductus ejaculatorius presented. **Female genitalia (Fig. 3B).** Papillae analis slightly long, narrow, covered numerous short hairs. same ground color as forewing Apophyses anteriores almost same length as apophyses posteriores. Ostium bursae wide, rounded. Ductus bursae short; slightly wide in diameter, well sclerotized from entrance to middle. Corpus bursae large, pear shaped, with a small thorn like signa.

**Distribution.** Korea (new record), China, Japan, Taiwan, India, France, Libya, Israel, Morocco.

**Host plant.** *Gynura bicolor* (Compositae), *Ipomoea batatas* (L.) Lam. (Convolvulaceae) in Japan (Yoshiyasu, 2013).

Genus *Herpetogramma* Lederer, 1863: 430
TS: *Herpetogramma servalis* Lederer, 1863

Acharana Moore, 1885: 285.
*Corematuria* Amsel, 1956: 207–208.
*Calcitaria* Amsel, 1957: Pl. 39, fig. 1.
*Pachyzancla* Meyrick, 1884: 315.
*Piloptila* Swinhoe, 1894: 142.
*Ptiloptila* Hampson, 1899: 201.
*Stenomeles* (sic.) Hampson, 1912.
*Stenomeles* Warren, 1892: 437.

**19 Herpetogramma ochrimaculale** (South, 1901)
(Figs. 1C, 2C)

*Nacoleia ochrimaculalis* South, 1901, in Leech, 1901: 460, Pl. 15: 28.

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**Fig. 3.** Female genitalia: A, *Diplopeustis perieresalis*; B, *Dolicharthria bruguieralis*. Scale bars: A, B=1 mm.

Adult (Fig. 1C). Wingspan 24 mm. Head dark brown, antenna blackish brown. Thorax dark brown, mixed with yellowish gray scales. Forewing with ground color yellowish dark brown; dark brown scales along the costa, four yellowish white round shape specks, two blackish spots presented near discoidal cell; apex and posterior margin blackish brown. Costa straight, with somewhat rounded apex. Hindwing with same ground color as forewing, a blackish brown area form 1/3 of hindwing; antemedial and postmedial line blackish gray. Cilia dark brown, mixed with grayish color basally.

Male genitalia (Fig. 2C). Uncus long, rounded terminally with numerous blackish hairs from middle to the top. Valva broad and expanded; sclerotized costa towards apex; apex of valva softly curved. Transtilla heart shape. Sacculus slightly narrowed. Juxta narrow to the bottom. Aedeagus slighty stout with narrowed towards apex; ductus ejaculatorius very long.

Female genitalia. Unknown.

Distribution. Korea (new record), China, Japan.

Host plant. Unknown.

Genus Omiodes Guenée, 1854: 355
TS: Omiodes humeralis Guenée, 1854
Charema Moore, 1888: 218.
Coenolestia Whalley, 1962.
Deba Walker, 1866: 1494.
Hedylepta Lederer, 1863: 409.
Hedilepta Lederer, 1863: 279.
Heydelepta Dyar, 1917: 70.
Lonchodes Guenée, 1854: 354.
Loxocreon Warren, 1892: 432.
Merotoma Meyrick, 1894: 460.
Pelecyntis Meyrick, 1884: 315.

Omiodes diemenalis (Guenée, 1854) (Figs. 1D, 2D)
Omiodes diemenalis Guenée, 1854: 203. TL: Tasmania.
Asopia lydialis Walker, 1859a: 374–375.
Botys ustalis Lederer, 1863: 375, 471, Pl. 10, fig. 14.
Hedylepta pyraustalis Snellen, 1880: 71.
Pyralis incertalis Walker, 1866.


Adult (Fig. 1D). Wingspan 17 mm. Head light brown, antenna blackish brown. Thorax blackish brown, mixed with yellowish scales. Forewing with ground color blackish brown; yellowish scales along the costa, yellowish white round shape specks presented near discoidal cell; apex and posterior margin blackish brown, mixed with gray scales. Costa straight. Hindwing with blackish brown ground color mixed white scales, a blackish brown area form 1/2 of hindwing; antemedial and postmedial line blackish gray. Cilia light brown, mixed with whitish color basally.

Male genitalia (Fig. 2D). Uncus very long, rounded terminally with numerous blackish hairs from middle to the top. Valva broad and expanded; sclerotized costa towards apex; apex of valva softly curved. Transtilla heart shape. Sacculus slightly narrowed. Juxta narrow to the bottom. Aedeagus slighty stout with narrowed towards apex; ductus ejaculatorius very long.

Female genitalia. Unknown.

Distribution. Korea (new record), China, Japan, Taiwan, Malaysia, India, Australia, Samoa, Africa.

Host plant. Vigna sp. (Leguminosae), Solanaceae, Urticaceae, Cruciferae in Southeast Aisa, Nicotiana tabacum L. (Solanaceae) in China (Yoshiyasu, 2013).

DISCUSSION

In this study, four species of Crambidae, Diplopseustis peri-eresalis (Walker), Dolicharthria bruguieralis (Duponchel), Herpetogramma ochrimaculale (South), and Omiodes diemenalis (Guenée) are reported from Korean peninsula for the first time. The three species among them, with the exception of Herpetogramma ochrimaculale (South), are distributed worldwide including Asia, Europe, Africa, and Australia. In Korea, Diplopseustis peri-eresalis (Walker) was collected from Is. Geoje which is the southern area of the Korean peninsula. Also, Herpetogramma ochrimaculale (South) was collected from Isl. Ulleung which is the eastern area of the Korean peninsula. These species can be expected to be used as indicator species for the time being to monitor the distributional characteristics.

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