



Two species of Gracillariidae (Lepidoptera) new to China, and description of the pupal morphology of the genera *Corythoxestis* and *Eumetriochroa*

SHIGEKI KOBAYASHI^{1,2}, GUO-HUA HUANG³ & TOSHIYA HIROWATARI²

¹Research Fellow of the Japan Society for the Promotion of Science

²Entomological laboratory, Graduate School of life & Environmental Sciences, Osaka Prefecture University, Sakai, Osaka, 599-8531, Japan. E-mail: crossroad1994@hotmail.co.jp

³Institute of Entomology, College of Bio-safety Science and Technology, Hunan Agricultural University, Changsha 410128, Hunan, China

Abstract

The subfamily Oecophyllembiinae (Gracillariidae) is reported from China for the first time. Two species, *Corythoxestis sunosei* (Kumata, 1998) (host plant: *Mussaenda esquirolii* H. Lév. Rubiaceae) and *Eumetriochroa hederæ* Kumata, 1998 (host plant: *Hedera nepalensis* var. *sinensis* (Tobl.) Rehd., Araliaceae), are recorded from new host plants from Hunan, China. Pupae of the genera *Corythoxestis* and *Eumetriochroa* are described for the first time. We found three diagnostic differences from other genera of Oecophyllembiinae and *Phyllocnistis*. *Corythoxestis sunosei* has a unique frontal process flanked by two long processes with a pair of setae, and both *C. sunosei* and *E. hederæ* have a cremaster with two pairs of caudal processes.

Key words: *Hedera nepalensis*, *Mussaenda esquirolii*, leaf miner, Oecophyllembiinae

Introduction

Adult Oecophyllembiinae are some of the smallest in size of the leaf-mining gracillariid subfamilies, with a wing expanse of only 5–10 mm. This subfamily is characteristic in having the veins Rs and M1 in the hindwing long-stalked, and the larval thoracic spiracles opening on the mesothorax instead of the prothorax (Kumata 1998). The leaf mines of Oecophyllembiinae species are very similar to each other as well as to those of *Phyllocnistis* in possessing the following habits: the larvae form long, serpentine, sinuous, subepidermal mines, and the last instar larva pupates inside an ellipsoidal pupal chamber within the end of the mine (Kumata 1998). Six genera and 24 species are known globally in the subfamily. Nearly 10 plant families have been reported as hosts (De Prins & De Prins 2005, 2010). Later authors (Vári *et al.* 2002) treated Oecophyllembiinae as a synonym of Phyllocnistinae. De Prins & De Prins (2005, 2010) recognized seven genera in Phyllocnistinae: *Angelabella* Vargas & Parra, 2005, *Corythoxestis* Meyrick, 1921, *Eumetriochroa* Kumata, 1998, *Guttigera* Diakonoff, 1955, *Metriochroa* Busck, 1900, *Phyllocnistis* Zeller, 1848, and *Prophyllocnistis* Davis, 1994. Because it still remains largely uncertain whether these groups are monophyletic, we followed Kumata (1998) in placing six genera in Oecophyllembiinae and *Phyllocnistis* as the sole member of Phyllocnistinae.

Recently several authors noted that pupal morphology of leaf mining moths provides the most informative characters for distinguishing species (Tischeriidae: Patočka 1989; *Phyllonorycter* (Gracillariidae): Fujihara *et al.* 2001; *Phyllocnistis* (Gracillariidae): Kawahara *et al.* 2009).

In China, five *Phyllocnistis* species have been recorded: *P. citrella* Stainton, 1856; *P. saligna* (Zeller, 1839); *P. wampilla* Liu & Zeng, 1985; *P. breynilla* Liu & Zeng, 1989; and *P. embeliella* Liu & Zeng, 1989 (Liu & Zeng 1985, 1989). However, the subfamily Oecophyllembiinae was previously unreported. In this paper, two Oecophyllembiinae species are recorded for the first time from Hunan, China.