

## Two new records for the Turkish Agromyzidae (Diptera) fauna

Hasan Sungur CİVELEK\*

### Summary

This study was carried out in 2003 in Muğla Province. Specimens of leafminers were collected once a week from Muğla Province, western Turkey in 2003 from cultured and non-cultured plants. During this study *Liriomyza pascuum* (Meigen, 1838) and *Phytomyza acontophila* Hendel, 1927 are recorded as new for the Turkish fauna. Their morphological descriptions, hosts and general distributions are given.

**Key words:** *Liriomyza pascuum*, *Phytomyza acontophila*, leafminers, new record, Turkey

**Anahtar sözcükler:** *Liriomyza pascuum*, *Phytomyza acontophila*, galerisineklere, yeni kayıt, Türkiye

### Introduction

Agromyzidae (leafmining flies) is one of the largest fly families with more than 2742 valid species belonging to 27 genera worldwide (Spencer, 1989). From this family, 1165 species have been identified in Palearctic region (Scheirs et al., 1999). Adults can be minute, with wing length of little more than 1 mm. The maximum size known is 6.5 mm. The majority of species are in the range of 2 to 3 mm. There is a high degree of host specificity (Spencer, 1989). Although the larvae of all species are exclusively internal feeders of living plants, they are not confined to leaves and petioles as the common name may suggest. Numerous species live in different parts of the plant, including the cambium of trees, others feed in seeds and flowers, and few species induce galls. Altogether about 150 species are known to

\* Mugla University, Faculty of Technical Education, Wood Entomology Laboratory, 48000 Kötekli, Mugla, Turkey  
e-mail: chasan@mu.edu.tr  
Alınış (Received): 20.01.2004

feed regularly on cultivated plants. Of these many species normally do not reach high population levels, but occasional outbreaks can occur. However, there are species that tend to high reproduction and can cause significant crop yield reduction or even plant mortality. Also adults are capable of transmitting some diseases from infected plants to healthy ones (Civelek & Önder, 1997).

Until now, 78 species have been identified in Turkey (Giray 1980; Spencer 1990; Uygun et al. 1995; Yabaş et al., 1995; Deeming & Civelek 1997; Campobasso et al., 1999; Civelek et al., 2000; Civelek, 2002; 2003). The goal of this study is to contribute to the knowledge of the leafminer fauna from Turkey.

### **Material and Methods**

This study was carried out during 2003 in Muğla province. The leafminer specimens were collected from both cultured and non-cultured plants once a week. The adults were obtained by sweeping or rearing specimens from infested leaves in the laboratory. Since the male genitalia are important characters for identification of leafminers, slide preparations were made. The following general procedures were applied: The abdomen of each male was boiled in 10 % KOH, transferred into 5 % glacial acetic acid for 5 minutes and subsequently transferred to 96 % alcohol for 5 minutes. Then the abdomen was further dissected under a stereoscopic microscope. The male genitalia was transferred into euparal on a micromount pinned under the individual specimen in order to preserve the material perpetuity. Identifications of the species were made by using Spencer (1972, 1976 and 1990). Also aedeagi of two species found were illustrated. Representative specimens were deposited at the Laboratory in Wood Entomology Laboratory in the Faculty of Technical Education, Muğla University, Turkey.

### **Results**

In this study, *Liriomyza pascuum* (Meigen, 1838) and *Phytomyza aconitophila* Hendel, 1927 are reported for the first time from Turkey.

*Liriomyza* Mik, 1894

**Wien. Ent.Ztg., 13:** 289.

**Type species:** *Liriomyza urophorina* Mik, 1894: I.c.: 290.

*Liriomyza pascuum* (Meigen, 1838)

**Syst. Bechr., 7:** 402 (*Agromyza*)

**Description:** Wing length 2.0 mm, jowl, face and frons yellow, with 2 ors and 2 ori; jowl deep, 1/3 height of eyes; all antennal segments yellow, third antennal segment small, round; hind margin of eye black; both vt on yellow

ground; mesonotum shining black with 3+1 dorsocentral and 4 rows acrostichal bristles; mesopleura yellow but with variable patch on upper margin; costa extending to vein  $M_{1+2}$ ; squamae yellowish-grey, margin and fringe black; halteres bright yellow; femora yellow, tarsi variably darkened by irregular striations. Aedeagus as in Figure 1a.

**Distribution:** Belgium (Scheirs et al., 1999), England (Spencer, 1972), Germany (Soos & Papp, 1984).

**Hosts:** *Euphorbia* sp. (Spencer, 1972; 1990). Leaf-mine on *Euphorbia* sp. as in Figure 1b.

**Material examined:** In this study, *L. pascuum* was found in Karabağlar Valley, Muğla on *Euphorbia* sp. in 24.09.2003 (5 ♀♀, 5 ♂♂) by rearing from infested leaves.

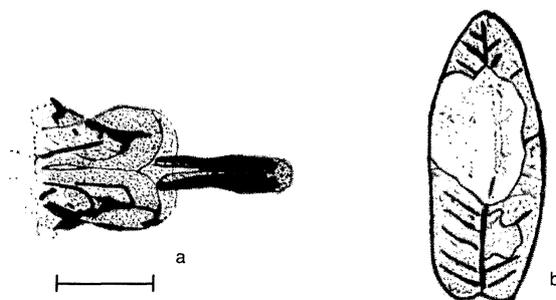


Figure 1. *Liriomyza pascuum*, a) Aedeagus (scale line: 0.1 mm), b) Leaf-mine on *Euphorbia* sp. (Spencer, 1976).

**Phytomyza** Fallén, 1810

**Specim. Entom. novam Dipt.:** 10, 21.

**Type species:** *Phytomyza flaveola* Fallén, 1810: 1.c.: 26.

**Phytomyza aconitophila** Hendel, 1927

**Konowia**, 6: 164.

**Description:** Wing length 2.5-2.9 mm; orbits not projecting above eye, with 2 ors and 2 ori; jowls  $\frac{1}{4}$  of eye; frons, jowl and face yellow; all antennal segments black, third antennal segment round, relatively large; mesonotum mat, greyish-black, 3+1 dorsocentral and 4 rows acrostichal bristles; sides of thorax black, upper margin of mesopleura and wing base bright yellow; second cross vein present; legs black but knees yellow; squamae yellow, margin and fringe dark. Aedeagus as in Figure 2.

**Distribution:** Common in mountains of Central Europe, Denmark, Finland, Sweden (Spencer, 1976 ), Germany (Soos & Papp, 1984).

**Hosts:** *Aconitum septentrionale* and other *Aconitum* spp. (Spencer, 1976).

**Material examined:** In this study, *P. aconitophila* was found in Fethiye (Muğla) on *Vicia sativa* in 11.07.2003 (1 ♀, 1♂) by sweeping.

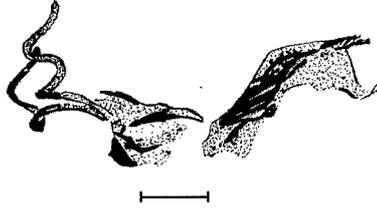


Figure 2. The aedeagus of *Phytomyza aconitophila* (scala line: 0.1 mm).

## Discussion

With this study, the number of leafminer species were updated to 80 species that was previously 78 species. When the species of Agromyzidae family inspected, *Liriomyza* spp. and *Phytomyza* spp. have economical importance on the cultured plants. However, it is realized from the literature that *L. pascuum* and *P. aconitophila* are not economically important species because they are not feeding on the cultured plants that have economic values. On the other hand, it is important to have recorded the existence of these two new species in terms of showing the biodiversity of Turkey.

## Özet

### Türkiye Agromyzidae (Diptera) faunası için iki yeni kayıt

Bu çalışma 2003 yılında Muğla İlinde gerçekleştirilmiş olup, *Liriomyza pascuum* (Meigen, 1838) ve *Phytomyza aconitophila* Hendel, 1927'nin Türkiye galerisineklere faunası için yeni kayıtlar olduğu bu çalışmayla ortaya konulmuştur.

## References

- Campobasso, G., E. Colonnelli, L. Knutson, G. Terragitti and M. Cristofaro, 1999. Wild Plants and Their Associated Insects in the Port Royal Road, Springfield, Palearctic Region, Primarily Europe and the Middle East. U.S. Department of Agriculture, Agricultural Research Service, ARS-147, 249 pp.
- Civelek, H. S., 2002. New records for the Turkish Agromyzidae (Diptera) from Muğla Province, Western Turkey. *Insecta Mundi*, **16**: (1-3): 49-55.

- Civelek, H. S., 2003. Checklist of Agromyzidae (Diptera) Family of Turkey, with a New Record. **Phytoparasitica**, **31** (2): 132-138.
- Civelek, H. S. & F. Önder, 1997. Bitki hastalık etmenlerinin taşınmasında galerisineklerinin (Diptera: Agromyzidae) rolü üzerinde bir inceleme. **Türk. entomol. derg.**, **21** (3) : 233-241.
- Civelek, H. S., J. C. Deeming & F. Önder, 2000. Some new records for Turkish leafminers (Diptera: Agromyzidae) fauna from Izmir province. **Türk. entomol. derg.**, **24** (1): 17-26.
- Deeming, J. C. & H. S. Civelek, 1997. "Türkiye Agromyzidae (Diptera) familyası için yeni kayıtlar, s. 526- 533". Türkiye 3. Entomoloji Kongresi (24-28 Eylül, 1996, Ankara) Bildirileri, Ankara Üniversitesi Basımevi, 716 pp.
- Giray, H., 1980. Türkiye'de Bitki Yapraklarında Galeri Açan Böcekler Faunasına Ait İlk Liste ile Bunların Konukçu ve Önemlilerinin Galeri Şekilleri Hakkında Notlar. Ege Üniv. Ziraat Fak. Yayınları No: 374, 106 s.
- Scheirs, J., L. de Bruyn & M. von Tschirnhaus, 1999. Agromyzidae (Diptera) of the nature reserve Etang de Virelles: faunistics and life-history aspects. **Bulletin S. R. B. E. / K. B. V. E.**, **135**: 152-158.
- Soos, A. & L. Papp, 1984. Catalogue of Palearctic Diptera, Micropezidae-Agromyzidae, **9**: 263-343. Akademiai Kiado, Budapest, Hungary.
- Spencer, K. A., 1972. Handbooks for the Identification of British Insects. **Royal entomological society**, **10** (5): 1-136.
- Spencer, K. A., 1976. The Agromyzidae (Diptera) of Fennoscandia and Denmark. **Fauna ento. scandinavica**, **5** (1-2): 1-606.
- Spencer, K. A., 1989. 71. Family Agromyzidae. - pp. 538-547 in: N. L. Evenhuis (ed.): Catalogue of the Diptera of the Australasian and Oceanian regions. Bishop Museum Special Publication, **86**: 1-1155. Bishop Museum Press, Honolulu, USA .
- Spencer, K. A., 1990. Host Specialization in the World Agromyzidae (Diptera). Kluwer Academic Publishers, Netherlands, 444 pp.
- Uygun, N., Z. Polatöz & H. Başpınar, 1995. Doğu Akdeniz Bölgesi Agromyzidae (Diptera) familyası türleri üzerinde sistematik araştırmalar. **Türk. entomol. derg.**, **19** (2): 123-136.
- Yabaş, C., H. S. Civelek & A. Ulubilir, 1995. Türkiye Agromyzidae faunası için yeni bir yaprak galerisineği, **Liriomyza huidobrensis** (Blanchard, 1926). **Türk. entomol. derg.**, **19** (2): 117-122.

