

## NEW FAUNISTIC RECORDS OF AGROMYZIDAE (DIPTERA) FROM ANDORRA INCLUDING DESCRIPTIONS OF THREE NEW SPECIES

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**Abstract:** Three new species of Agromyzidae are described from Andorra as new to science: *Phytomyza monticola* **spec. nov.**, *Ph. carlestolrai* **spec. nov.** and *Pseudonapomyza andorrensis* **spec. nov.**, and their main diagnostic characters are illustrated. In addition to the new species and a first faunistic record from Andorra a list of a further 88 species and their localities is presented. The total number of the known agromyzids from Andorra thus rises to 92 species.

**Key words:** Diptera, Agromyzidae, new species, faunistics, Andorra.

**Citas faunísticas nuevas de Agromyzidae (Diptera) de Andorra, incluyendo la descripción de tres especies nuevas.**

**Resumen:** Se describen de Andorra tres especies de Agromyzidae nuevas para la ciencia: *Phytomyza monticola* **spec. nov.**, *Ph. carlestolrai* **spec. nov.** y *Pseudonapomyza andorrensis* **spec. nov.**, y se ilustran sus principales caracteres diagnósticos. Además de las especies nuevas y de una primera cita faunística de Andorra, se presenta una lista de 88 especies y sus localidades. El número total de agromizidos conocidos de Andorra se eleva así a 92 especies.

**Palabras clave:** Diptera, Agromyzidae, especies nuevas, faunística, Andorra.

### Taxonomy/Taxonomía:

*Phytomyza monticola* **sp. n.**

*Phytomyza carlestolrai* **sp. n.**

*Pseudonapomyza andorrensis* **sp. n.**

### Introduction

The dipterous fauna of Andorra is generally very insufficiently known. This is also true for most acalyprates including the family Agromyzidae. Hitherto, only one species of Agromyzidae is known from this country in the Pyrenees and no further published literary data are available. *Liriomyza equeseti* de Meijere, 1924 is recorded from Andorra in the database Fauna Europaea (Martinez, 2005) without precise data. The first list of the species found in Andorra is thus given in this study. Among the 92 recorded species three are described here as new: *Phytomyza monticola* **spec. nov.**, *Ph. carlestolrai* **spec. nov.** and *Pseudonapomyza andorrensis* **spec. nov.**

### Material and methods

The material studied in this paper was collected by two collectors: J. Pujade-Villar (Barcelona, Spain) and M. Barták (Praha, Czech Republic). The specimens by J. Pujade were caught in the parish (province) of Andorra la Vella by a Malaise trap (MT) (for more information see Durán-Alarcón et al., 1998), whilst the material by M. Barták was caught in the parish (province) of Canillo.

The morphological terminology essentially follows Papp & Darvas (2000). The collections that loaned material for this study and their acronyms are as follows:

CCTB – private collection M. Carles-Tolrà, Barcelona, Spain;

CJPVB – collection of Juli Pujade-Villar of the Faculty of Biology, Barcelona, Spain;

CMBP – private collection M. Barták, Praha, Czech Republic;

CMCH – private collection M. Černý, Halenkovice, Czech Republic.

### Localities

[1] – Santa Coloma, 42.49N/01.49E, Vall del Roc de Sant Vicenç, near d'Enclar river, 1050 m a.s.l., Malaise trap, J. Pujade-Villar leg., CCTB, CJPVB and CMCH coll.

[2] – Pto. de Envalira, 42.33N/01.42E, 1800 m a.s.l., pine wood near brook, M. Barták leg., CMBP and CMCH coll.

[3] – Pto. de Envalira, 42.35N/01.40E, 1400 m a.s.l., meadow near wood, M. Barták leg., CMBP coll.

### Description of the new species

#### *Phytomyza monticola* **sp. n.**

Fig. 1-6

**TYPE LOCALITY.** Andorra, Pto. de Envalira, 42.33N/01.42E, 1800 m a.s.l.

**TYPE MATERIAL.** Holotype ♂ (CMCH) labelled: "Holotype" (red round label); "Pto. de Envalira, pine wood nr. brook, 42.33N/1.42E, 1800 m, Barták, 8.vii.1990" (printed on white label); "*Phytomyza monticola* **sp. nov.**, det. M. Černý 2006" (printed on white label). Terminalia dissected, mounted on the same pin (label, medium: glycerin and gum resin).

**DIAGNOSIS:** A small species with yellow head and ash-grey, dull body, 2 equal orbitals, fore coxa yellow, wings veins ochrous brown, margin of calypteres yellow but fringe brown. Total body length cca 2.5 mm.

## DESCRIPTION

**Head** (Fig. 2) pale, yellow, ocellar triangle blackish brown, frons, face, facial groove, gena and parafacialia yellow, occiput dark. Outer vertical seta and inner vertical seta on grey background. Antennae dark but scape and pedicel pale, yellow to ochrous brown. Flagellomere black, slightly longer than broad, with distinct short pile. Arista somewhat spindle-like, dilated in basal quarter. Frons broad, about 2.2 times broader than width of eye at level of anterior ocellus, broader than high, slightly narrowing towards lunule. Ocellar triangle and fronto-orbital plates protruding above level of frons in profile. Lunule low. Each fronto-orbital plate broad, about as broad as 0.2 of frontal width, conspicuously overreaching level of frons at bases of antennae in particular. Two orbitals reclinate and slightly eclinate, of same length and thickness. One long frontal seta inclinate. Two additional, very short frontal setulae developed below frontal seta. Distance between inner vertical seta and upper orbital seta 1.6 times longer than between both orbital setae. Ocellar seta long, reaching level of frontal setae. Orbital setulae sparse, proclinate. Parafacialia broad, broadest in middle, where 0.35 as broad as distance from lower margin of gena to lower margin of eye. Gena unusually broad, reaching 0.4 eye height in posterior part. One stronger vibrissal seta and 3 shorter subvibrissal setae present. Epistoma lacking. Eye bare, almost as broad as high, slightly oblique.

**Thorax** ash-grey, dull. Posterior part of postpronotal lobes and notopleuron paler, yellowish, anepisternum with brightly yellow upper and hind margin but anepisternal seta and setulae below it inserted in dark area. Scutum with 1+3 dorsocentral setae, these only slightly reduced in length, first dorsocentral seta in front of line of presuturals. Distance between 2nd and 3rd dorsocentrals as well as between 3rd and 4th dorsocentrals 1.4 times longer than that between 1st and 2nd dorsocentrals. Acrostichal setulae sparse, developed from anterior margin of thorax to anterior margin of scutellum, arranged in 2 irregular rows. Several scattered additional acrostichal setulae between levels of 3rd and 4th dorsocentrals, 5-6 presutural and 3 postsutural intraalar setulae also present. One strong outer postalar seta and one shorter inner postalar seta developed. All usual setae present: 1 postvertical, 1 propleural, 1 postpronotal, 1+1 notopleural, 1 anepisternal, 1 katepisternal, 1 supraalar, 1 presutural, 1 basal scutellar, 1 apical scutellar.

**Wing** (Fig. 1) 2.08 mm long, almost hyaline, veins ochrous brown, base of wing pale yellow. Calypteres with yellow margin, fringe brown. Knob and stem of halteres yellow. Relation of costal sections 2-4 as 1.58 : 0.74 : 1.00. Tip of vein  $M_{1+2}$  in wing apex.

**Legs** brownish black, fore coxa yellow in distal half, all knees with yellow ring being as broad as femur. Mid tibiae without lateral setae.

**Abdomen** ash-grey, dull, elongate cylindrical, longer than broad, tergite 6 1.5 times longer than tergite 5. Male terminalia (Fig. 3-6): epandrium massive, arched, 1.3 times broader than high. Surstyli with numerous setulae on caudal and ventral surface. Cerci small, only as 0.2 as high as epandrium, weakly sclerotized, with very numerous group of long setae on caudal and ventral surface. Aedeagus (Fig. 4-5) with distiphallus extended into membranous tubule, lateral sclerites long and strongly sclerotized, elongated

distally into long and slightly curved tip, with a distinct spine-like process, basiphallus fused. Hypandrium (Fig. 6) pale and broad, U-shaped, arms only narrow. Ejaculatory apodeme (Fig. 3) with a pale blade and only 0.4 as high as epandrium.

**Female:** unknown.

**NAME DERIVATION.** *P. monticola* indicates the first record in the mountain area of the Pyrennees (1800 m a.s.l.).

**BIOLOGY:** unknown

**DISTRIBUTION:** Andorra, hitherto known only from the type locality.

**DIFFERENTIAL DIAGNOSIS.** *P. monticola* is closely related to the European *P. pedicularifolli* Hering, 1960 and North-American *P. coloradella* Spencer, 1986 from United States and *P. pedicularidis* Spencer, 1969 from Canada. Common characters are represented by the yellow head, the scape and pedicel are pale, the black flagellomere, the frons is broad, 2 orbitals and 1 frontal are present, parafacialia are conspicuously broad and the legs are black, only the fore coxa is at least partly yellow. *P. monticola* is smaller than North-American species and *P. pedicularifolli* with the wing length 1.7 mm is even smaller. The structures of the male terminalia are in these species quite species-specific (see Spencer, 1969, 1981, 1990).

***Phytomyza carlestolrai* sp. n.**

Fig. 7-12.

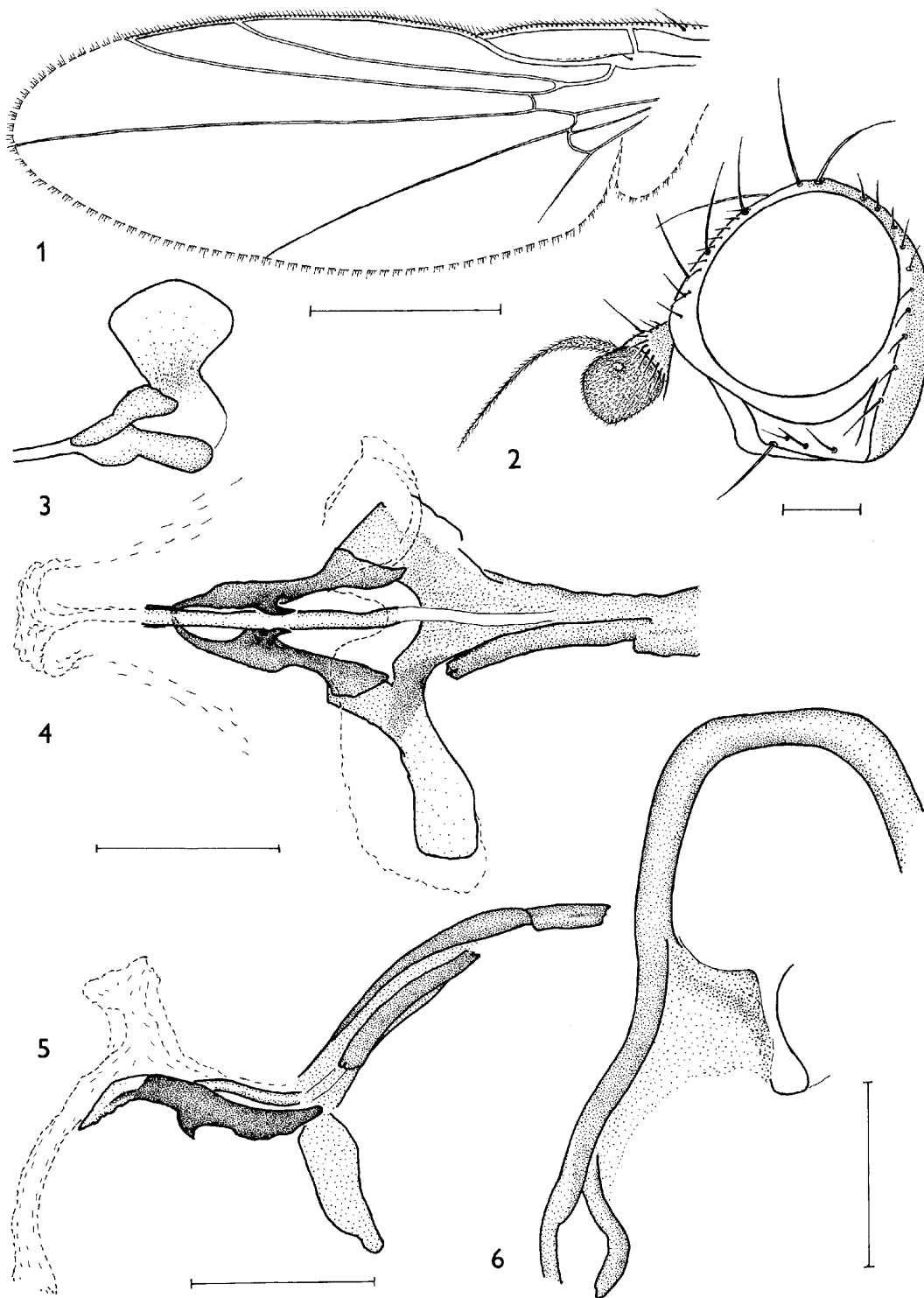
**TYPE LOCALITY.** Andorra, Santa Coloma, Vall del Roc de Sant Vicenç, near d'Enclar river, 1050 m a.s.l.

**TYPE MATERIAL.** Holotype ♂ (CCTB) labelled: "Holotype" (red round label); "Santa Coloma, 1.-15.3.1993, MT, J. Pujade-Villar leg." (printed on white label); "*Phytomyza carlestolrai* sp. nov., det. M. Černý 2006" (printed on white label). Terminalia dissected, mounted on the same pin (label, medium: glycerin and gum resin).

**DIAGNOSIS:** A small species with a yellow head, body ash-grey and matt, 2 equal orbital setae, wing veins ochrous brown, calypteres with margin and fringe yellow. Total body length cca 2.1 mm.

## DESCRIPTION

**Head** (Fig. 8) pale, yellow, ocellar triangle blackish brown, matt, frons, face, facial grooves, gena and parafacialia yellow. Occiput dark, outer vertical seta inserted in dark area, inner vertical seta at margin of dark area. Antennae dark, pedicel and scape pale, flagellomere black, with distinct pile being apically longer than thickened base of arista. Palpi dark. Arista slightly spindle-shaped, thickened in basal third. Frons broad, about twice as wide as eye at level of anterior ocellus, broader than high and narrowing toward lunule. Ocellar triangle slightly protruding above level of frons. Lunule arched, twice broader than high. Fronto-orbital plate broad, each about 0.3 of frontal width, in profile prominent above level of frons as a narrow ring. 2 equally long and strong, reclinate and slightly eclinate orbital setae and 1 long, inclinate and slightly reclinate frontal seta present. One additional very short frontal setula visible below frontal seta. Distance between inner vertical seta and upper orbital seta 1.3 times longer than that between both orbitals.



**Fig 1-6.** *Phytomyza monticola* spec. nov., holotype, male. **1.** wing; **2.** head (lateral view); **3.** ejaculatory apodeme (lateral view); **4.** aedeagus (ventral view); **5.** the same (lateral view); **6.** hypandrium (dorsal view). Scale lines for Fig. 2-6 = 0.1 mm, Fig. 1 = 0.5 mm.

Distance between lower orbital seta and frontal seta only as long as a half distance between both orbital setae. Ocellar seta long, reaching beyond line of frontals setae. Orbital setulae very sparse, in one row only, proclinate. Parafacialia very broad, broadest in middle where reaching 0.4 distance between lower margin of gena to lower margin of eye. Gena very broad, reaching 0.4 of eye height in posterior part. 1

strong and very long vibrissal seta with 1-2 additional, very short setulae at its base, 2-3 shorter subvibrissal setae developed. Epistoma lacking. Eyes bare, about as high as broad. **Thorax** grey and matt (specimen was originally preserved in alcohol and dark areas are apparently discoloured). Posterior part of postpronotal lobe and notopleuron paler, anepisternum with bright yellow upper and hind margin but

anepisternal setae and additional setulae below it inserted in dark area. Scutum with 1+3 dorsocentral setae, 1st, 2nd and 3rd dorsocentral setae reaching only 0.75 length of 4th dorsocentral seta. 1st dorsocentral seta placed in front of presutural setae, 2nd dorsocentral closely beyond transverse suture and 3rd dorsocentral beyond line of supraalar setae. Distance between 3rd and 4th and also between 1st and 2nd dorsocentral setae 1.3 times longer than that between 2nd and 3rd dorsocentrals. Acrostichal setulae developed as 3 pairs in two rows between 1st and 3rd dorsocentrals. 1 postsutural and 2-3 presutural intraalar setulae present, almost twice as long as acrostichal setulae. One strong outer postalar seta and one shorter inner postalar seta present. Postpronotal callus with 1 postpronotal seta and 4 short setulae in front of it. Notopleuron with 2 notopleural setae, posterior seta missing on left side. Anepisternum with 1 long seta, 2 setulae below it and 1 setula at upper margin. Katepisternum with 1 strong seta and 1 lower setula. All usual setae present: 1 postvertical, 1 propleural, 1 postpronotal, 1 supraalar, 1 presutural, 1 basal scutellar, 1 apical scutellar.

**Wing** 2.25 mm long (Fig. 7), almost hyaline, veins ochrous brown, base of wing pale yellow. Calypteres with margin and fringe yellow. Knob and stem of halteres yellow. Relation of costal sections 2-4 as 2.1 : 0.7 : 1.0. Tip of vein  $M_{1+2}$  in wing apex.

**Legs** brownish black, all knees distinctly yellow in same width as femora. Mid tibiae without lateral setae.

**Abdomen** matt, elongate cylindrical, longer than broad. Tergite 6 only slightly longer than tergite 5. Male terminalia (Fig. 9-12): Aedeagus as in Fig. 9-10, distiphallus with broad, long, paired tubules, each with a small flap in distal half and at base as well. Both tubules fused in basal half and divergent distally. Hypandrium (Fig. 12) pale, V-shaped. Ejaculatory apodeme (Fig. 11) with a pale blade, only as high as a half height of epandrium.

**Female:** unknown.

**NAME DERIVATION.** *P. carlestolrai* is named in honour of Dr. Miguel Carles-Tolrà from Barcelona, a distinguished Spanish dipterist.

**BIOLOGY:** unknown.

**DISTRIBUTION:** Andorra, hitherto known only from the type locality.

**DIFFERENTIAL DIAGNOSIS.** *P. carlestolrai* belongs to the *robustella* species group and resembles, especially with its shape of the male terminalia, North-American species *P. crepidis* Spencer 1981 and *P. integerrimi* Griffiths 1974. The main common characters are as follows: frons yellow, 2 equal orbital setae, flagellomere black, small and round, scutum and scutellum grey, acrostichal setulae in 2 rows, second costal section twice as long as fourth. *P. carlestolrai* is a lesser species, with wing length only 2.25 mm, the antennae are dark although the scape is pale. Moreover, this species has a conspicuously pale upper and hind margin of anepisternum, all knees are broadly yellow and calypteres have the margin and fringe yellow. The male terminalia of the species under discussion are species-specific. The distiphallus tubes are fused only in basal third of their long in *P. crepidis* but almost in basal 3/4 in *P. integerrimi* and they are not diverging distally in the latter species (see. Griffiths, 1974; Spencer, 1981; Spencer & Steyskal, 1986).

*P. robustella* is known as a leaf-miner of *Crepis* in Europe and the larvae of American *P. crepidis* also form leaf-mines on *Crepis* sp. A host plant for *P. integerrimi* is *Senecio integerrimus*. It may be thus presumed that the larvae of *P. carlestolrai* mine some species of *Crepis* or *Senecio* as well.

***Pseudonapomyza andorrensis* sp. n.**

Fig. 13-18.

**TYPE LOCALITY.** Andorra, Santa Coloma, Vall del Roc de Sant Vicenç, near d'Enclar river, 1050 m a.s.l.

**TYPE MATERIAL.** Holotype ♂ (CCTB) labelled: "Holotype" (red round label); "Santa Coloma, 16.-30.6.1993, MT, J. Pujade-Villar leg." (printed on white label); "*Pseudonapomyza andorrensis* sp. nov., det. M. Černý 2006" (printed on white label). Terminalia dissected, mounted on the same pin (label, medium: glycerin and gum resin). Paratype ♂ (CMCH) labelled: "Paratypes" (yellow label); "Santa Coloma, 1.-15.8.1993, MT, J. Pujade leg." (printed on white label); "*Pseudonapomyza andorrensis* sp. nov., det. M. Černý 2006" (printed on white label). Terminalia dissected, mounted on the same pin (label, medium: glycerin and gum resin).

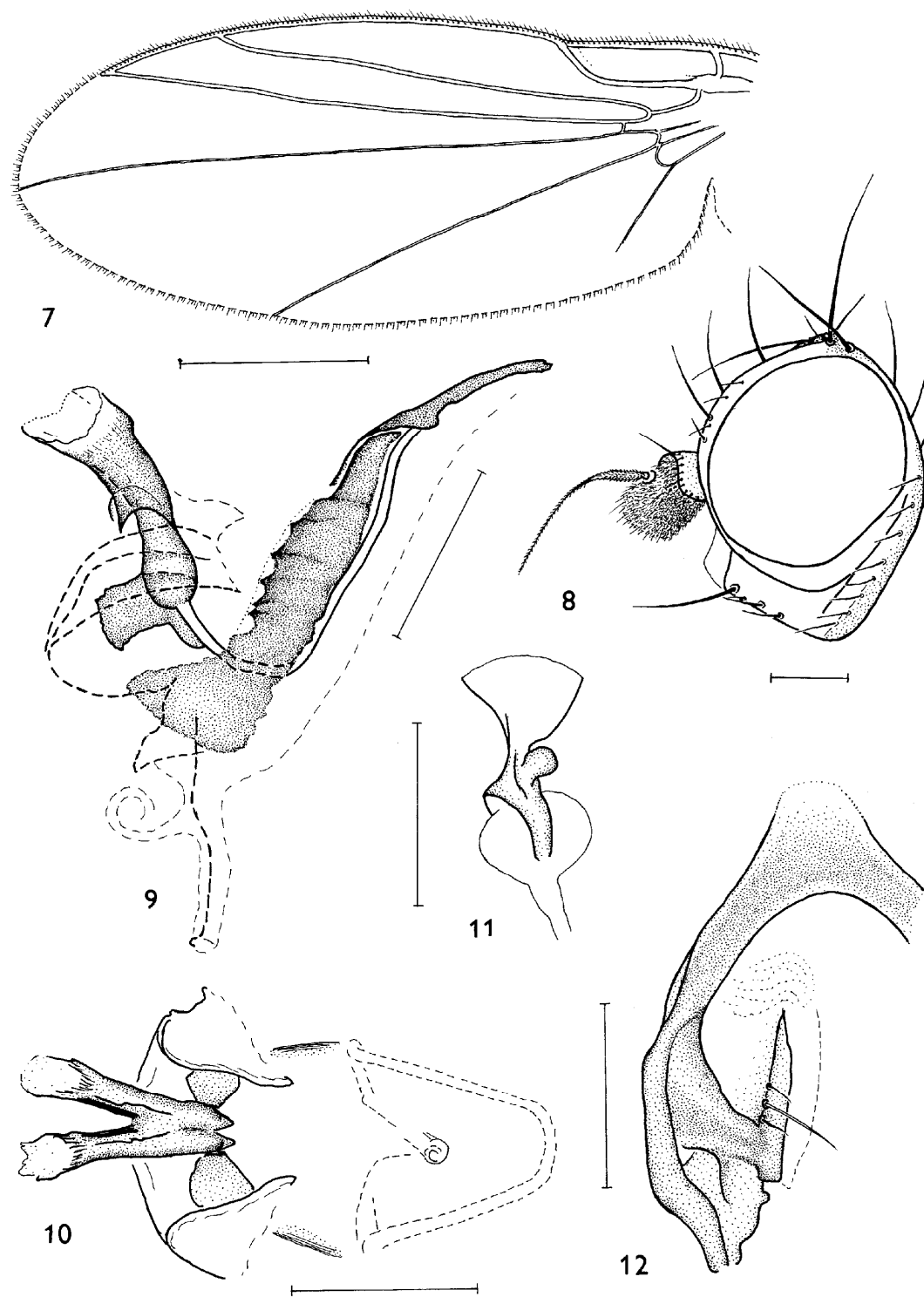
**DIAGNOSIS:** A small species, basic colour shining black, wing veins ochrous brown, calypteres white, with whitish yellow margin and fringe. 1st dorsocentral seta inserted in front of supraalar setae line and reaches almost 0.7 length of 3th dorsocentral seta. Total body length cca 1.56 mm.

**DESCRIPTION**

**Head** (Fig. 14) black, ocellar triangle and fronto-orbital plate black, shining, frontal vitta blackish brown, matt. Gena blackish brown and dull. Antenna black, flagellomere short haired, elongated apically into a sharp tip. Palpi black, clavate apically. Frons relatively broad, about as wide as 1.5 width of eye at level of anterior ocellus, narrower than high, slightly tapering toward lunule. Ocellar triangle large, conspicuously protruding above level of frons. Lunule 1.5 times broader than high, its upper margin reaching above line of upper frontal setae. Fronto-orbital plate broad, each about 0.2 width of frons, protruding above level of frons in profile as a narrow ring. 1 long reclinate orbital seta and 3-4 long inclinate frontal setae present. Distance between inner vertical seta and upper orbital seta more than twice as long as that between both upper orbital setae. Sparse orbital setulae long and erect. Parafacialia very narrow, gena highest in posterior part, reaching 0.33 height of eye. 1 stronger vibrissal seta and 3-4 short subvibrissal setae present. Epistoma lacking. Eye as broad as high, slightly oblique and totally bare.

**Thorax** dark, scutum and scutellum shining black. Scutum with 3 postsutural dorsocentral setae, 1st dorsocentral seta inserted in front of supraalar setae line, reaching almost 0.75 width of 3rd dorsocentral. Acrostichal setulae in 6 rows, reaching level of 3th dorsocentral seta. One strong outer postalar seta and one shorter inner postalar seta present. All usual setae present: 1 ocellar, 1 postvertical, 1 propleural, 1 postpronotal, 1+1 notopleural, 1 anepisternal, 1 katepisternal, 1 supraalar, 1 presutural, 1 basal scutellar, 1 apical scutellar.

**Wing** (Fig. 13) 1.50-1.60 mm long, veins ochrous brown,



**Fig. 7-12.** *Phytomyza carlestoltrai* spec. nov., holotype, male. **7.** wing; **8.** head (lateral view); **9.** aedeagus (lateral view); **10.** distiphallus (anteroventral view); **11.** ejaculatory apodeme (lateral view); **12.** hypandrium (dorsal view). Scale lines for Fig. 8-12 = 0.1 mm, Fig. 7 = 0.5 mm.

calypteres white with whitish yellow margin and fringe. Knob and stem of halteres yellowish white. Relation of costal sections 2-4 as 1.00-1.17 : 0.53-0.68 : 1.00.

**Legs** blackish brown, tibiae without lateral setae.

**Abdomen** black, elongate cylindrical, tergites 5 and 6 of same length. Male terminalia (Fig. 15-18): epandrium massive and arched, 1.2 times broader than high. Surstyli with a

bunch of thin and long setae on inner surface. Cerci short, reaching 0.25 height of epandrium, wedge-like, tapering into a dull tip with numerous setae on caudal and ventral surface. Aedeagus (Fig. 16-17) symmetrical, distiphallus with a pair of reclinate knife-shaped ventral projections, anterior margin of distiphallus provided with a lateral band covered with two rows of small spinulae. Mesophallus

spherical, without ventral projection. Bacilliform sclerite with lateral flat processes, each with a strong seta on caudal surface (Fig. 15). Ejaculatory apodeme (Fig. 18) 1.25 times longer than broad, with narrow base and broadly expanded blade.

**Female:** unknown.

**NAME DERIVATION.** *Ps. andorrensis* indicates country where the holotype was found.

**BIOLOGY:** unknown.

**DISTRIBUTION:** Andorra, hitherto known only from the type locality.

**DIFFERENTIAL DIAGNOSIS.** *Ps. andorrensis* belongs to the species group characterized by shining black scutum, entirely black legs, ochrous brown wing veins and 2nd costal section being as long as 4th one. Externally it resembles *Ps. strobliana* Spencer, 1973, that was recently confirmed from Andorra and known to occur in Spain as well. The species-specific structure of the male terminalia is distinctly different from *Ps. strobliana* and other species of the *atra* group known from the Pyrenean Peninsula (see Spencer, 1973, 1990; Černý, 1992; Zlobin, 1993).

### List of species

All species are new to Andorra.

#### AGROMYZINAE

- Agromyza abiens* Zetterstedt, 1848  
Material examined: [1] – 1 ♀ 16.-31.vii.1993.
- Agromyza felleri* Hering, 1941  
Material examined: [1] – 1 ♂ 1 ♀ 16.-31.iii.1993.
- Agromyza frontella* (Rondani, 1875)  
Material examined: [1] – 1 ♀ 1.-15.ix.1993.
- Agromyza lucida* Hendel, 1920  
Material examined: [1] – 1 ♂ viii.1992.
- Agromyza mobilis* Meigen, 1830  
Material examined: [1] – 3 ♂ viii.1992.
- Agromyza nana* Meigen, 1830  
Material examined: [1] – 1 ♂ ix.1992, 1 ♀ x.1992, 7 ♂♂ 1 ♀ 1.-15.iii.1993, 1 ♂ 1.-15.iv.1993, 1 ♀ 16.-31.v.1993, 1 ♂ 16.-31.vi.1993.
- Agromyza viciae* Kaltenbach, 1872  
Material examined: [1] – 1 ♂ 1.-15.v.1993, 3 ♂♂ 1.-15.vi.1993.
- Agromyza vicifoliae* Hering, 1932  
Material examined: [1] – 1 ♂ 1.-15.v.1993, 4 ♂♂ 1.-15.vi.1993.
- Melanagromyza cunctans* (Meigen, 1830)  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ ix.1992.
- Ophiomyia alliariae* Hering, 1957  
Material examined: [2] – 1 ♂ 8.vii.1990.
- Ophiomyia beckeri* (Hendel, 1923)  
Material examined: [1] – 1 ♂ 1.-15.vi.1993, 1 ♂ 1.-15.vii.1993, 1 ♂ 16.-31.viii.1993.
- Ophiomyia cunctata* (Hendel, 1920)  
Material examined: [1] – 2 ♂♂ viii.1992, 1 ♀ 16.-31.v.1993, 1 ♀ 1.-15.vi.1993, 1 ♂ 1.-15.viii.1993.
- Ophiomyia curvipalpis* (Zetterstedt, 1848)  
Material examined: [1] – 1 ♂ 3 ♀♀ 16.-31.vii.1993, 1 ♀ 16.-31.viii.1993.
- Ophiomyia galii* Hering, 1937  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ 16.-31.vi.1993, 1 ♂ 1 ♀ 1.-15.viii.1993.

*Ophiomyia labiatarum* Hering, 1937

Material examined: [1] – 2 ♂♂ ix.1992, 1 ♂ 1.-15.vi.1993, 1 ♂ 1.-15.vii.1993, 1 ♀ 16.-31.vii.1993, 1 ♂ 1.-15.viii.1993, 1 ♂ 16.-31.viii.1993.

*Ophiomyia maura* (Meigen, 1830)

Material examined: [1] – 1 ♂ viii.1992.

*Ophiomyia melandricaulis* Hering, 1943

Material examined: [1] – 2 ♂♂ viii.1992, 1 ♂ 1 ♀ 16.-31.vii.1993.

*Ophiomyia melandryi* de Meijere, 1924

Material examined: [1] – 1 ♂ 2 ♀♀ 16.-31.v.1993.

*Ophiomyia pulicaria* (Meigen, 1830)

Material examined: [1] – 1 ♂ 1.-15.vi.1993, 1 ♂ 16.-31.vii.1993.

*Ophiomyia vimmeri* Černý, 1994

Material examined: [1] – 1 ♂ 16.-31.v.1993.

#### PHYTOMYZINAE

*Aulagromyza anteposita* (Strobl, 1898)

Material examined: [1] – 1 ♂ 1 ♀ 16.-31.iii.1993, 4 ♂♂ 1 ♀ 1.-15.iv.1993.

*Aulagromyza hendeliana* (Hering, 1926)

Material examined: [1] – 1 ♂ 1.-15.iv.1993.

*Aulagromyza orphana* (Hendel, 1920)

Material examined: [1] – 2 ♀♀ xi.1992, 1 ♂, 3 ♀♀ 1.-15.iv.1993, 2 ♀♀ 1.-15.vi.1993.

*Aulagromyza trivittata* (Loew, 1873)

Material examined: [1] – 2 ♀♀ x.1992, 1 ♂ xi.1992.

*Calycomyza artemisiae* (Kaltenbach, 1856)

Material examined: [1] – 1 ♂ viii.1992, 1 ♂ ix.1992.

*Cerodontha (Butomyza) angulata* (Loew, 1869)

Material examined: [1] – 1 ♂ ix.1992, 1 ♂ 16.-31.viii.1993.

*Cerodontha (Butomyza) pseuderrans* (Hendel, 1931)

Material examined: [1] – 1 ♂ 16.-31.vi.1993.

*Cerodontha (Butomyza) vigneae* Nowakowski, 1967

Material examined: [1] – 1 ♂ viii.1992.

*Cerodontha (Cerodontha) affinis* (Fallén, 1823)

Material examined: [2] – 1 ♂ 8.vii.1990.

*Cerodontha (Cerodontha) denticornis* (Panzer, 1806)

Material examined: [1] – 2 ♂♂ 1 ♀ viii.1992, 1 ♂ ix.1992, 3 ♂♂ x.1992, 2 ♂♂ 2 ♀♀ 16.-31.v.1993, 12 ♂♂ 14 ♀♀ 1.-15.vi.1993, 2 ♂♂ 16.-31.vi.1993, 2 ♂♂ 16.-31.vii.1993, 1 ♂ 1.-15.viii.1993, 1 ♂ 1 ♀ 1.-15.ix.1993; [2] – 2 ♂♂ 8.vii.1990.

*Cerodontha (Cerodontha) flavicornis* (Egger, 1862)

Material examined: [1] – 1 ♂ 3 ♀♀ viii.1992.

*Cerodontha (Dizygomyza) bimaculata* (Meigen, 1830)

Material examined: [1] – 3 ♂♂ viii.1992, 1 ♂ ix.1992, 1 ♂ 1.-15.vi.1993, 1 ♂ 16.-31.vi.1993.

*Cerodontha (Dizygomyza) crassiseta* (Strobl, 1900)

Material examined: [1] – 2 ♂♂ 1.-15.v.1993, 2 ♂♂ 16.-31.v.1993.

*Cerodontha (Dizygomyza) fasciata* (Strobl, 1880)

Material examined: [1] – 3 ♂♂ viii.1992.

*Cerodontha (Dizygomyza) morosa* (Meigen, 1830)

Material examined: [1] – 3 ♂♂ viii.1992.

*Cerodontha (Poemyza) atra* (Meigen, 1830)

Material examined: [1] – 2 ♂♂ 1.-15.vi.1993.

*Cerodontha (Poemyza) incisa* (Meigen, 1830)

Material examined: [1] – 1 ♂ ix.1992, 1 ♂ 1.-15.viii.1993, 1 ♂ 16.-31.viii.1993.

*Cerodontha (Poemyza) muscina* (Meigen, 1830)

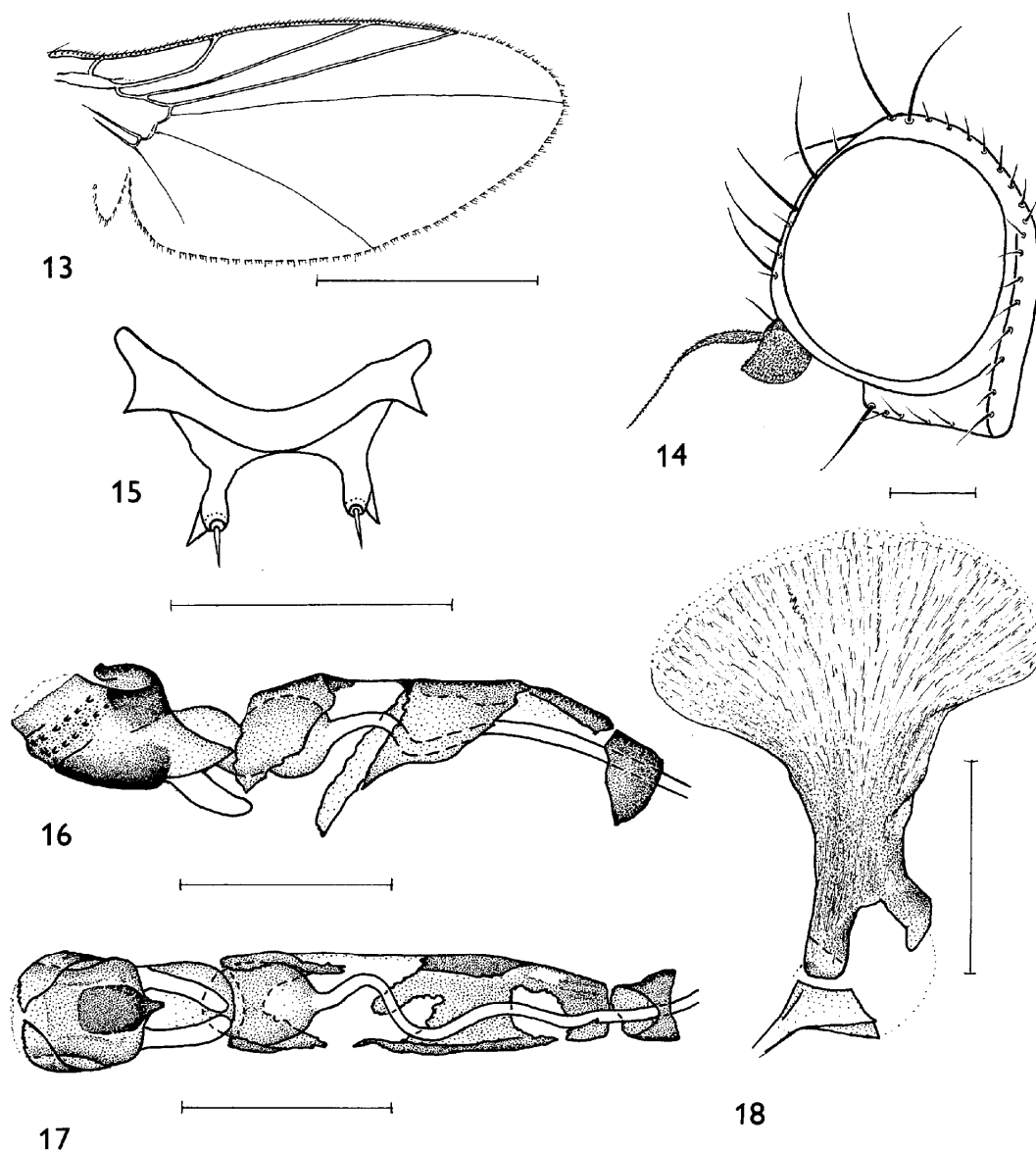
Material examined: [1] – 5 ♂♂ viii.1992, 3 ♂♂ ix.1992, 1 ♂ 1.-15.vi.1993, 2 ♂♂ 16.-31.vi.1993.

*Cerodontha (Poemyza) pygmaea* (Meigen, 1830)

Material examined: [1] – 1 ♂ 1.-15.vi.1993.

*Chromatomyia fuscula* (Zetterstedt, 1838)

Material examined: [1] – 4 ♂♂ 4 ♀♀ 16.-28.ii.1993, 3 ♂♂



**Fig. 13-18.** *Pseudonapomyza andorrensis* spec. nov. holotype, male. **13.** wing; **14.** head (lateral view); **15.** bacilliform sclerites (caudal view); **16.** aedeagus (lateral view); **17.** the same (ventral view); **18.** ejaculatory apodeme (lateral view). Scale lines for Fig. 14-18 = 0.1 mm, Fig. 13 = 0.5 mm.

- 9 ♀♀ 1.-15.iii.1993, 5 ♂♂ 27 ♀♀ 16.-31.iii.1993, 1 ♂ 6 ♀♀ 1.-15.iv.1993, 1 ♂ 16.-30.iv.1993.
- Chromatomyia horticola* (Goureau, 1851)  
Material examined: [1] – 1 ♂ 1.-15.iv.1993, 1 ♂ 16.-30.iv.1993, 1 ♂ 1.-15.v.1993.
- Chromatomyia milii* (Kaltenbach, 1864)  
Material examined: [1] – 1 ♂ x.1992, 6 ♂♂, 1.-15.vi.1993, 4 ♂♂ 16.-31.vi.1993.
- Chromatomyia nigra* (Meigen, 1830)  
Material examined: [1] – 1 ♂ 1.-15.vi.1993.
- Chromatomyia pseudomilii* Griffiths, 1980  
Material examined: [1] – 1 ♂ 4 ♀♀ x. 1992, 4 ♂♂ 2 ♀♀ xi. 1992, 1 ♂ 16.-31.iii.1993, 1 ♂ 1.-15.iv.1993, 1 ♂ 16.-30.iv.1993, 1 ♂ 1.-15.v.1993.
- Chromatomyia ramosa* (Hendel, 1923)  
Material examined: [1] – 1 ♂ viii.1992, 2 ♂♂ 16.-31.vi.1993, 1 ♂ 16.-31.vii.1993; [2] – 1 ♂ 8.vii.1990.
- Chromatomyia succisae* (Hering, 1922)  
Material examined: [1] – 1 ♂ 1.-15.vi.1993, 1 ♂ 16.-31.vi.1993, 1 ♂ 16.-31.vii.1993.
- Liriomyza artemisicola* de Meijere, 1924  
Material examined: [1] – 1 ♂ viii.1992.
- Liriomyza balcanica* (Strobl, 1898)  
Material examined: [1] – 1 ♂ 1 ♀ viii.1992, 2 ♂♂ 2 ♀♀ 1.-15.viii.1993.
- Liriomyza congesta* (Becker, 1903)  
Material examined: [1] – 5 ♂♂ viii.1992, 1 ♂ 16.-31.vii.1993, 1 ♂ 1 ♀ 16.-31.viii.1993.
- Liriomyza dianthicola* (Venturi, 1949)  
Material examined: [1] – 7 ♂♂ 16.-31.vii.1993, 6 ♂♂ 1.-15.viii.1993.
- Liriomyza flaveola* (Fallén, 1823)  
Material examined: [1] – 2 ♂♂ viii.1992, 16 ♂♂ 11 ♀♀ ix.1992, 2 ♂♂ 2 ♀♀ xi.1992, 1 ♂ 16.-30.iv.1993, 2 ♂♂ 16.-31.v.1993, 18 ♂♂ 4 ♀♀ 1.-15.vi.1993, 2 ♂♂ 5 ♀♀ 1.-15.ix.1993, 1 ♂ 7 ♀♀ 1.-15.x.1993.
- Liriomyza flavopicta* Hendel, 1931  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ 16.-31.vii.1993.

- Liriomyza phryne* Hendel, 1931  
Material examined: [1] – 1 ♂ viii.1992.
- Liriomyza ptarmicae* de Meijere, 1925  
Material examined: [1] – 3 ♂♂ viii.1992, 1 ♂ x.1992, 2 ♂♂ 16.-31.vi.1993, 2 ♂♂ 16.-31.vii.1993.
- Liriomyza richteri* Hering, 1927  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ 16.-31.vi.1993, 1 ♂ 16.-31.viii.1993.
- Liriomyza taurica* Zlobin, 2003  
Material examined: [1] – 1 ♂ 16.-31.vii.1993, 1 ♂ 1.-15.viii.1993.
- Metopomyza scutellata* (Fallén, 1823)  
Material examined: [1] – 8 ♂♂ 5 ♀♀ viii.1992, 1 ♂ 1.-15.v.1993, 1 ♀ 16.-31.v.1993, 4 ♂♂ 1.-15.vi.1993, 3 ♂♂ 16.-31.vi.1993, 1 ♂ 1.-15.vii.1993, 1 ♂ 16.-31.vii.1993, 1 ♂ 16.-31.viii.1993.
- Metopomyza xanthaspis* (Loew, 1858)  
Material examined: [1] – 9 ♂♂ 6 ♀♀ viii.1992, 2 ♂♂ 7 ♀♀ 16.-31.vii.1993.
- Napomyza bellidis* Griffiths, 1967  
Material examined: [1] – 1 ♂ 1.-15.vi.1993.
- Napomyza cichorii* Spencer, 1966  
Material examined: [1] – 1 ♂ 2 ♀♀ 16.-31.v.1993, 2 ♂♂ 1.-15.vi.1993.
- Napomyza lateralis* (Fallén, 1823)  
Material examined: [1] – 1 ♂ 16.-31.vi.1993.
- Napomyza scrophulariae* Spencer, 1966  
Material examined: [1] – 1 ♂ 16.-31.v.1993.
- Phytobia mallochi* (Hendel, 1924)  
Material examined: [1] – 1 ♂ 16.-31.vii.1993.
- Phytoliriomyza arctica* (Lundbeck, 1901)  
Material examined: [1] – 9 ♂♂ viii.1992, 1 ♂ 3 ♀♀ 1.-15.iv.1993, 1 ♂ 2 ♀♀ 16.-30.iv.1993, 6 ♂♂ 10 ♀♀ 1.-15.v.1993, 1 ♂ 3 ♀♀ 16.-31.v.1993.
- Phytoliriomyza immoderata* Spencer, 1963  
Material examined: [1] – 1 ♂ 16.-30.iv.1993, 1 ♂ 1.-15.v.1993.
- Phytoliriomyza pteridii* Spencer, 1973  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ 1.-15.vi.1993, 1 ♂ 16.-31.vii.1993.
- Phytomyza adjuncta* Hering, 1928  
Material examined: [1] – 1 ♂ 1.-15.vi.1993.
- Phytomyza albipennis* Fallén, 1823  
Material examined: [1] – 1 ♂ 16.-31.v.1993, 15 ♂♂ 8 ♀♀ 1.-15.vi.1993, 3 ♂♂ 16.-31.vi.1993.
- Phytomyza angelicae* Kaltenbach, 1872  
Material examined: [1] – 1 ♂ viii.1992.
- Phytomyza chaerophylli* Kaltenbach, 1856  
Material examined: [1] – 1 ♂ 1.-15.vi.1993.
- Phytomyza clematidis* Kaltenbach, 1859  
Material examined: [1] – 4 ♂♂ 1.-15.vi.1993.
- Phytomyza continua* Hendel, 1920  
Material examined: [1] – 3 ♂♂ viii.1992, 3 ♂♂ 16.-31.vii.1993.
- Phytomyza crassiseta* Zetterstedt, 1860  
Material examined: [1] – 1 ♂ ix.1992, 2 ♂♂ 1 ♀ 16.-30.iv.1993.
- Phytomyza evanescens* Hendel, 1920  
Material examined: [1] – 1 ♂ 1.-15.vi.1993.
- Phytomyza fallaciosa* Brischke, 1880  
Material examined: [1] – 1 ♂ 1.-15.v.1993.
- Phytomyza marginella* Fallén, 1823  
Material examined: [1] – 1 ♂ ix.1992.
- Phytomyza plantaginis* Robineau-Desvoidy, 1851  
Material examined: [1] – 3 ♂♂ viii.1992, 1 ♂ ix.1992, 1 ♂ x.1992, 1 ♂ 1.-15.iv.1993, 1 ♂ 1.-15.vi.1993, 1 ♂ 1.-15.vii.1993; [3] – 1 ♂ 8.vii.1990.
- Phytomyza platystoma* (Hendel, 1920)  
Material examined: [1] – 1 ♂ 1.-15.iv.1993, 1 ♂ 16.-31.vi.1993.
- Phytomyza ptarmicae* Hering, 1937  
Material examined: [1] – 1 ♂ ix.1992.
- Phytomyza pullula* Zetterstedt, 1848  
Material examined: [1] – 2 ♂♂ viii.1992, 1 ♂ ix.1992, 1 ♂ 1.-15.v.1993, 1 ♂ 16.-31.vi.1993.
- Phytomyza ranunculi* (Schrank, 1803)  
Material examined: [1] – 1 ♂ viii.1992, 15 ♂♂ 9 ♀♀ x.1992, 13 ♂♂ 6 ♀♀ xi.1992, 1 ♂ 16.-30.iv.1993, 8 ♂♂ 1 ♀ 1.-15.v.1993, 6 ♂♂ 1 ♀ 1.-15.vi.1993, 1 ♀ 16.-31.vii.1993, 11 ♂♂ 9 ♀♀ 1.-15.x.1993, 15 ♂♂ 8 ♀♀ 16.-31.x.1993, 14 ♂♂ 3 ♀♀ 1.-15.xi.1993.
- Phytomyza sedi* Kaltenbach, 1869  
Material examined: [1] – 15 ♂♂ 9 ♀♀ 1.-15.vi.1993, 28 ♂♂ 1 ♀ 16.-31.vi.1993.
- Phytomyza sedicola* Hering, 1924  
Material examined: [1] – 1 ♂ viii.1992, 1 ♂ ix.1992, 1 ♂ 1.-15.vi.1993, 1 ♂ 16.-31.vi.1993, 1 ♂ 1.-15.viii.1993.
- Phytomyza socia* Brischke, 1880  
Material examined: [1] – 1 ♂ ix.1992.
- Phytomyza vitalbae* Kaltenbach, 1872  
Material examined: [1] – 1 ♂ ix.1992, 1 ♂ xi.1992, 1 ♂ 16.-28.ii.1993, 1 ♂ 1.-15.vi.1993, 2 ♂♂ 1.-15.vii.1993.
- Pseudonapomyza atra* (Meigen, 1830)  
Material examined: [1] – 18 ♂♂ 11 ♀♀ viii.1992, 1 ♂ ix.1992, 1 ♂ x.1992, 1 ♂ 1 ♀ 16.-31.vi.1993, 1 ♂ 3 ♀♀ 1.-15.vii.1993, 4 ♂♂ 1 ♀ 16.-31.vii.1993, 3 ♂♂ 1 ♀ 1.-15.viii.1993, 4 ♂♂ 16.-31.viii.1993.
- Pseudonapomyza europaea* Spencer, 1973  
Material examined: [1] – 3 ♂♂ viii.1992, 1 ♂ ix.1992, 3 ♂♂ 1 ♀ 16.-31.vi.1993, 5 ♂♂ 16.-31.vii.1993, 4 ♂♂ 1 ♀ 1.-15.viii.1993, 3 ♂♂ 1 ♀ 16.-31.viii.1993.
- Pseudonapomyza strobliana* Spencer, 1973  
Material examined: [1] – 2 ♂♂ 16.-31.v.1993.

## Discussion

In the recently published checklist by Martínez & Báez (2002) an account of the agromyzids occurring in Spain, Portugal and Andorra is given. Altogether 228 species are named from the territory of Spain including 206 species recorded in the continental part. The Portuguese fauna of the Agromyzidae is much less known, only 46 species are listed, 18 species of which occur only in the continental part. In the Fauna Europaea Martínez (2005) presents already 235 species from the Spanish mainland and 18 species from the Portuguese mainland. Only one species, *Liriomyza equeseti* de Meijere, 1924, is recorded from Andorra but a relevant reference to this faunistic record has not been published (von Tschirnhaus, pers. comm.). Some additional faunistic data from Spain and Portugal are included in a paper by Černý & Merz (2006, 2007). In this study faunistic novelties represent 91 species from the territory of Andorra, three of them (*Phytomyza carlestolrai* spec. nov., *P. monticola* spec. nov. and *Pseudonapomyza andorrensis* spec. nov.) being described as new. First records in the Pyrenean Peninsula are present for 26 species – *Agromyza viciae*, *Aulagromyza anteposita*, *Aul. trivittata*, *Cerodontha (Butomomyza) angulata*, *C. (B.) pseuderrans*, *C. (B.) vigneae*, *Chromatomyia fuscata*, *Ch. nigra*, *Ch. pseudomilii*, *Liriomyza artemisicola*, *L. balcanica*, *L. flavopicta*, *L. ptarmicae*, *L. taurica*, *Napomyza bellidis*, *Ophiomyia labiatarum*, *O. melandryi*, *Phytomyza adjuncta*, *P. angelicae*, *P. chaerophylli*, *P. fallaciosa*, *P. marginella*, *P. platystoma*, *P. ptarmicae*, *P. sedicola* and *P. socia*. Localities of six species prove the westernmost occurrence in Europe – *Cerodontha (Butomomyza) vigneae*, *Chromatomyia pseudomilii*, *Liriomyza taurica*, *Phytomyza platystoma*, *P. ptarmicae* and *P. socia*.



*Cerodontha (Butonomyza) vigneae* was described from Poland and hitherto it was known only from Central and North Europe but now it is also confirmed from the Pyrenees. *Chromatomyia pseudomilii* ranges in higher altitudes in Europe and North America and now it was found at Santa Coloma as well. *Liriomyza taurica* was described from the Ukraine by Zlobin (2003), later this species was found also in the Czech Republic (Černý *et al.*, 2006) and the third record originates from Andorra now. The alpine *Phytomyza platystoma*, which was described from Austria (Piestingtal, Nördliche Voralpen) and recently also confirmed in Switzerland (Černý, 2005) from a locality at 950 m a.s.l. was now proved in the Pyrenees in the area of Andorra on a locality at Santa Coloma. *Phytomyza ptarmicae*, as a species described from Germany, was known to occur in Central and North Europe and Lithuania up to present. Likewise *Phytomyza socia* was described from Poland and later recorded chiefly from Central Europe but also from North Italy, Lithuania and Sweden.

The list of the species known from Andorra includes 92 species from 14 genera. Compared with numbers of the Agromyzidae from adjoining areas, e.g. Spain (257 species) and France (359 species) it is clear enough that at least several additional dozens of species may be presumed here with a certain even when the predominantly mountain area on one side and a low number of the examined localities in Andorra on other side is respected.

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