

Orijinal araştırma (Original article)

Revised checklist of Turkish Agromyzidae (Diptera) with a new record

Yeni bir kayıtle Türkiye Agromyzidae (Diptera) faunasının gözden geçirilmiş tür listesi

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Summary

In this study the checklist of Turkish leafminers of the family Agromyzidae (Diptera) species is presented. With this study the number of leafminer species is updated to 186 species that was previously 165 species.

Of these species, 57 belong to Agromyzinae and 129 species are Phytomyzinae. *Agromyza alandensis* Spencer, 1976, is new records for the Turkish fauna.

Key words: Checklist, Agromyzidae, Turkey, new record

Özet

Bu çalışmada, Türkiye Agromyzidae (Diptera) faunasının gözden geçirilmiş tür listesi verilmiştir. Bu çalışmayla birlikte önceden 165 olan tür sayısı 186'ya yükselmiştir.

Bu türlerden 57 tanesi Agromyzinae ve 129 tanesi de Phytomyzinae alt familyasına aittir. *Agromyza alandensis* Spencer, 1976, Türkiye faunası için yeni kayıttır.

Anahtar sözcükler: Kontrol listesi, Agromyzidae, Türkiye, yeni kayıt

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Introduction

Agromyzidae (leafminer flies) is one of the largest fly family, with more than 2790 valid species belonging to 27 genera worldwide (Spencer, 1989; Gu et al., 1991; Pakalniskis, 1992, 1994; Woodley & Janzen, 1995; Pakalniskis, 1996; Sasakawa, 1997; Pakalniskis, 2000; Černý, 2001, 2005a,b; Sasakawa, 2005; Černý, 2007a,b; Çıkman & Sasakawa, 2008, 2011). From this family, about 1171 species have been identified in the Palearctic region (Scheirs et al., 1999; Pakalniskis, 2000; Černý, 2005b; Çıkman & Sasakawa, 2008; 2011). Many species were described in the period from the 19th century to the 60s of the last century but only a few isolated cases of damage by Agromyzidae were recorded during this period Hering (1957) made a special study of all leaf-mining insects in various orders, and produced keys to European leafminers arranged by plant genera. However in his study, Hering (1957) attached too great an importance to the food plant and trivial differences in the leaf mines as diagnostic characters, and many new species that he described on these bases have been reduced to synonyms since then. An even more significant advance in clarifying the systematics of the family has been made during the past 45 years with the study of male genitalia. Tschirnhaus (1991, 1994, 1999) and Spencer (1964, 1972, 1973, 1976, 1989, 1990) contributed to the Agromyzidae both in terms of number of taxa and systematics with many studies from 1960 to the present. Adults can be minute, with a wing length of little more than 1 mm. The maximum size known is 6.5 mm. The majority of species are in the wing length range of 2 to 3 mm. Agromyzids are typically phytophagous, with larvae living in the tissues of living plants. Larvae of all the agromyzid species are internal plant feeders with a family specific morphology. Larvae of the most leafminers feed within the leaf parenchyma and can cause losses of leaf area and chlorophyll content (Yıldırım et al., 2010). Some species are stem borers or develop in roots, seeds or galls. One genus develops exclusively in the cambium of the young and old trees. The Agromyzidae are one of the most important fly families in Turkey, because of their pest status, especially on vegetable and ornamental plants in the greenhouses. The Turkish agromyzid fauna is poorly known. One of the reasons is that only few entomologists identified Agromyzidae captured on the Turkish territory (e.g. Giray, 1980; Uygun et al., 1995; Yabaş et al., 1995; Civelek et al., 2000a,b). Another important reason is the difficulties identification of the Agromyzidae in general. As a result, in the past 15 years, many studies have been carried out. Over the past 70 years some 165 agromyzid species have been identified and reported in Turkey in various publications (Civelek, 2003; Černý & Merz, 2006; Civelek et al., 2008; Civelek et al., 2009; Çıkman & Sasakawa, 2011; Koçak & Sasakawa, 2011). Most of them are well known to occur in Europe and Mediterranean areas, and smaller numbers are Afrotropical or Oriental origin, or accidental invaders as the agricultural pests. The dominance of the genus *Phytomyza* Fallén, consisting of 27 species, is illustrated as well as in other countries of the Palearctic Region (Hendel, 1931-36).

The goal of this study was to contribute to the knowledge of the leafminer fauna of Turkey and to clarify which valid leafminer species are in Turkey. Also this study will provide a base for future researches regarding the fauna of leafminer species.

Results

There are One hundred eight six species included in this paper which are compiled from all studies done about Turkey through the end of 2011 (Hendel, 1923; 1931-1936; Hering, 1957; Lodos, 1962; Spencer, 1964; 1973; 1976; Giray, 1980; Spencer, 1989; Spencer, 1990; Uygun et al., 1995; Yabaş et al., 1995; Deeming & Civelek, 1996; Civelek et al., 2000a,b; Civelek & Ulusoy, 2000; Civelek, 2002; 2003; Çıkman & Uygun, 2003; Civelek, 2004; Gençer, 2004; Černý, 2005a, b; Çıkman & Civelek, 2005; Mart et al., 2005; Černý & Merz, 2006; Çıkman & Sasakawa, 2005; 2006; Černý & Merz, 2007; Civelek et al., 2007; Hepdurgun et al., 2007; Çıkman & Sasakawa, 2008; Civelek et al., 2008; Koçak et al., 2009;

Civelek et al., 2009; Çıkman & Sasakawa, 2011; Koçak & Sasakawa, 2011). Of these species, 57 belong to Agromyzinae and 129 species are Phytomyzinae. The taxa are presented alphabetically with their distributions in Turkey. Among the 186 species *Agromyza alandensis* Spencer, 1976, is new records for the Turkish fauna.

Subfamily 1. Agromyzinae

Genus 1. *Agromyza* Fallén, 1810

Agromyza abiens Zetterstedt, 1848

Mardin (Çıkman & Civelek, 2005)

Agromyza alandensis Spencer, 1976

Elazığ (new record)

Agromyza albipennis Meigen, 1830

Şanlıurfa (Çıkman & Uygun, 2003)

Agromyza albitarsis Meigen, 1830

İzmir (Giray, 1980); Mardin (Çıkman & Civelek, 2005)

Agromyza alunulatas (Hendel, 1931)

Malatya (Dursun et al., 2010)

Agromyza ambigua Fallén, 1823

Aydın (Civelek et al., 2007)

Agromyza anderssoni Spencer, 1976

Kırklareli (European part of Turkey, Civelek et al., 2007)

Agromyza anthracina Meigen, 1830

Erzurum (Civelek et al., 2007)

Agromyza apfelbecki Strobl, 1902

İzmir (Giray, 1980)

Agromyza bromi Spencer, 1966

Erzurum (Civelek et al., 2007)

Agromyza felleri Hering, 1941

Diyarbakır, Mardin (Çıkman & Sasakawa, 2005)

Agromyza flavipennis Hendel, 1920

Isparta (Civelek et al., 2007)

Agromyza frontella (Rondani, 1875)

İzmir (Civelek et al., 2000a).

Agromyza graminicola Hendel, 1931

Erzurum (Civelek et al., 2007)

Agromyza hiemalis Becker, 1908

- İzmir (Giray, 1980); Adana and Hatay (Uygun et al., 1995)
Agromyza idaeiana Hardy, 1853
Artvin (Civelek et al., 2007)
Agromyza intermittens Becker, 1907
İzmir (Deeming & Civelek, 1996)
Agromyza marionae Griffiths, 1963
Hatay (Civelek et al., 2009)
Agromyza megalopsis Hering, 1933
Turkey (Černý & Merz, 2006)
Agromyza myosotidis Kaltenbach, 1864
Isparta (Civelek et al., 2007)
Agromyza nana Meigen, 1830
İzmir (Deeming & Civelek, 1996)
Agromyza nigrella (Rondani, 1875)
Hatay, Kırklareli (European part of Turkey), Muğla, (Dursun et al., 2010)
Agromyza nigrescens Hendel, 1920
Turkey (Černý & Merz, 2006)
Agromyza nigripes Meigen, 1830
Turkey (Černý & Merz, 2006)
Agromyza phylloposthia Sasakawa, 2008
Adıyaman (Çıkman & Sasakawa, 2008)
Agromyza pittodes Hendel, 1931
Muğla (Civelek et al., 2007)
Agromyza prespana Spencer, 1957
Turkey (Černý & Merz, 2006)
Agromyza reptans Fallén, 1823
Turkey (Hering, 1931-1936); Şanlıurfa (Çıkman & Uygun, 2003)
Agromyza rondensis Strobl, 1900
İzmir (Deeming & Civelek, 1997); Şanlıurfa (Çıkman & Uygun, 2003)
Agromyza trebinjensis Strobl, 1900
İzmir (Giray, 1980)
Agromyza vicifoliae Hering, 1932
Mardin (Çıkman & Sasakawa, 2005).
Genus 2. *Hexomyza* Enderlein, 1936
Hexomyza simplex (Loew 1869)

- Kırklareli (European part of Turkey, Civelek et al., 2009)
Genus 3. *Japanagromyza* Sasakawa, 1958
Japanagromyza salicifolii (Collin, 1911)
Turkey (Hering, 1957); İzmir (Giray, 1980)
Genus 4. *Melanagromyza* Hendel, 1920
Melanagromyza aeneoventris (Fallén, 1823)
Adıyaman (Çıkman & Sasakawa, 2006)
Melanagromyza cunctans (Meigen, 1830)
Muğla (Civelek, 2003)
Melanagromyza heracleana Zlobin, 2005
Bolu (Koçak & Sasakawa, 2011)
Melanagromyza limata Spencer, 1971
Bolu (Koçak & Sasakawa, 2011)
Melanagromyza provecta (de Meijere, 1969)
Malatya (Çıkman & Sasakawa, 2011)
Melanagromyza pubescens Hendel, 1923
Adıyaman (Çıkman & Sasakawa, 2006)
Melanagromyza tripolii Spencer, 1957
Elazığ (Civelek et al., 2007)
Melanagromyza signalis Spencer, 1959
Şanlıurfa (Çıkman & Uygun, 2003)
Genus 5. *Ophiomyia* Braschnikov, 1897
Ophiomyia beckeri (Hendel, 1923)
Mardin (Çıkman & Sasakawa, 2005)
Ophiomyia cunctata (Hendel, 1920)
İzmir (Civelek et al., 2000a); Şanlıurfa (Çıkman & Uygun, 2003)
Ophiomyia curvipalpis (Zetterstedt, 1848)
İzmir (Civelek et al., 2000a)
Ophiomyia delphinii Hendel, 1928
Muğla (Černý & Merz, 2007)
Ophiomyia galii Hering, 1937
Muğla (Černý & Merz, 2007)
Ophiomyia inaequalis (Hendel, 1931)
Turkey (Hendel, 1931-1936); İzmir (Civelek et al., 2000a)
Ophiomyia labiatarum Hering, 1937

Turkey (Černý & Merz, 2006)

Ophiomyia maura (Meigen, 1838)

Çanakkale (Hepdurgun et al., 2007)

Ophiomyia memorabilis Spencer, 1974

Turkey (Černý & Merz, 2006)

Ophiomyia nasuta (Melander, 1913)

Hatay, Kars, Kastamonu, Muğla, Van (Dursun et al., 2010)

Ophiomyia orbiculata (Hendel, 1931)

İzmir (Deeming & Civelek, 1997)

Ophiomyia phaseoli (Tryon, 1895)

Adana, Hatay (Civelek & Ulusoy, 2000)

Ophiomyia pinguis (Fallén, 1820)

Turkey (Hendel, 1931–1936); Şanlıurfa (Çıkman & Uygun, 2003)

Ophiomyia pulicaria (Meigen, 1830)

Muğla (Civelek, 2002)

Ophiomyia quadrispinosa Sasakawa & Çıkman, 2011

Malatya (Sasakawa & Çıkman, 2011)

Ophiomyia submaura Hering, 1926

Turkey (Hendel, 1931-1936).

Subfamily 2. Phytomyzinae

Genus 1. *Amauromyza* Hendel, 1931

Subgenus 1. *Amauromyza* Hendel, 1931

Amauromyza (Amauromyza) morionella (Zetterstedt, 1848)

İzmir (Giray, 1980).

Subgenus 2. *Cephalomyza* Hendel, 1931

Amauromyza (Cephalomyza) flavifrons (Meigen, 1830)

İzmir (Civelek et al., 2000b).

Amauromyza (Cephalomyza) luteiceps (Hendel, 1920)

Muğla (Civelek et al., 2000b)

Genus 2. *Aulagromyza* Enderlein, 1936

Aulagromyza buhri (de Meijere, 1938)

Muğla (Civelek, 2002).

Aulagromyza hamata (Hendel, 1932)

İzmir (Giray, 1980).

Aulagromyza heringii (Hendel, 1920)

Muğla (Giray, 1980)

Aulagromyza orphana (Hendel, 1920)

İzmir (Civelek et al., 2000).

Aulagromyza populi (Kaltenbach, 1864)

Isparta, İzmir (Giray, 1980)

Aulagromyza trivittata (Loew, 1873)

Balıkesir (Hepdurgun et al., 2007)

Genus 3. *Calycomyza* Hendel, 1931

Calycomyza humeralis (von Roser, 1840)

İzmir (Civelek et al., 2000a); Şanlıurfa (Çıkman & Uygun, 2003); Mardin (Çıkman & Civelek, 2005)

Genus 4. *Cerodontha* Rondani, 1861

Subgenus 1. *Butomomyza* Nowakowski, 1967

Cerodontha (Butomomyza) angulata (Loew, 1869)

Turkey: (Hendel, 1931–1936)

Cerodontha (Butomomyza) pseuderrans (Hendel, 1931)

Rize (Civelek et al., 2009)

Cerodontha (Butomomyza) scutellaris (von Roser, 1840)

Şanlıurfa (Civelek et al., 2009)

Subgenus 2. *Cerodontha* Rondani, 1861

Cerodontha (Cerodontha) denticornis (Panzer, 1806)

Turkey (Hendel, 1931-1936); İzmir (Civelek, 1998); Şanlıurfa (Çıkman & Uygun, 2003); Diyarbakır and Mardin (Çıkman & Civelek, 2005)

Cerodontha (Cerodontha) fulvipes (Meigen, 1830)

Artvin, Rize, Trabzon (Civelek et al., 2009)

Subgenus 3. *Dizygomyza* Hendel, 1920

Cerodontha (Dizygomyza) bimaculata (Meigen, 1830)

Isparta (Civelek et al., 2009)

Subgenus 4. *Poemyza* Hendel, 1931

Cerodontha (Poemyza) imbuta (Meigen, 1838)

Rize (Civelek et al., 2009)

Cerodontha (Poemyza) incisa (Meigen, 1830)

Mersin (Civelek et al., 2009)

Cerodontha (Poemyza) lateralis (Macquart, 1835)

Turkey (Černý & Merz, 2006)

Cerodontha (Poemyza) pygmaea (Meigen, 1830)

Turkey (Černý & Merz, 2006)

Genus 5. *Chromatomyia* Hardy, 1849

Chromatomyia ciliata (Hendel, 1935)

Erzurum (Civelek et al., 2007)

Chromatomyia fuscula (Zetterstedt, 1838)

Kahramanmaraş (Mart et al., 2005)

Chromatomyia horticola (Goureau, 1851)

Adana, İstanbul, İzmir, Muğla (Giray, 1980); Adana and Hatay (Uygun et al., 1995); Şanlıurfa (Çıkman & Uygun, 2003); Ankara (Gençer, 2004); Diyarbakır and Mardin (Çıkman & Civelek, 2005)

Chromatomyia luzulae (Hering, 1924)

Rize (Civelek et al., 2007)

Chromatomyia milii (Kaltenbach, 1864)

İzmir (Civelek et al., 2000a)

Chromatomyia nigra (Meigen, 1830)

Elazığ (Civelek et al., 2007)

Chromatomyia scolopendri (Robineau-Desvoidy, 1851)

Muğla (Civelek, 2002).

Chromatomyia succisae (Hering, 1922)

Turkey (Černý & Merz, 2006).

Genus 6. *Galiomyza* Spencer, 1981

Galiomyza violiphaga (Hendel, 1932)

Çanakkale (Hepdurgun et al., 2007)

Genus 7. *Liriomyza* Mik, 1894

Liriomyza alyssi (Hering, 1960)

Turkey (Černý & Merz, 2006)

Liriomyza amarellae Hering, 1963

Çanakkale (Hepdurgun et al., 2007)

Liriomyza amoena (Meigen, 1830)

İzmir (Giray, 1980)

Liriomyza balcanica (Strobl, 1900)

İzmir (Civelek et al., 2000a).

Liriomyza brassicae (Riley, 1884)

Antalya, İzmir (Giray, 1980).

Liriomyza bryoniae (Kaltenbach, 1858)

İzmir (Giray, 1980); Adana and Hatay (Uygun et al., 1995).

Liriomyza buhri Hering, 1937

Antalya (Civelek et al., 2009)

Liriomyza cannabis Hendel, 1931

İzmir, Kastamonu (Giray, 1980)

Liriomyza cardariae Sasakawa, 2008

Adıyaman (Çıkman & Sasakawa, 2008)

Liriomyza centaureae Hering, 1927

İzmir (Civelek et al., 2000a)

Liriomyza cepae (Hering, 1927)

İzmir (Giray, 1980)

Liriomyza cicerina (Rondani, 1875)

İzmir (Lodos, 1962); Adana and Hatay (Uygun et al., 1995); Şanlıurfa (Çıkman & Uygun, 2003).

Liriomyza congesta (Becker, 1903)

İzmir, Manisa (Giray, 1980) Şanlıurfa (Çıkman & Uygun, 2003); Mardin (Çıkman & Civelek, 2005)

Liriomyza dracunculi Hering, 1932

Rize (Civelek et al., 2007)

Liriomyza eupatorii (Kaltenbach, 1873)

Mersin (Civelek et al., 2009)

Liriomyza euphorbiae Martinez, 1999

Isparta (Martinez & Sobhian, 1999)

Liriomyza flaveola (Fallén 1823)

Muğla (Civelek, 2002)

Liriomyza freyella Spencer, 1976

Kırkırelili (European part of Turkey, Civelek et al., 2009)

Liriomyza hieracivora Spencer, 1971

Şanlıurfa (Çıkman & Uygun, 2003)

Liriomyza huidobrensis (Blanchard, 1926)

Adana, İzmir (Yabaş et al., 1995); Aydın (Yıldırım, 2002)

Liriomyza lutea (Meigen 1830)

Malatya (Çıkman & Sasakawa, 2011)

Liriomyza orbona (Meigen, 1830)

İzmir (Deeming & Civelek, 1997)

Liriomyza pascuum (Meigen, 1838)

Muğla (Civelek, 2004)

Liriomyza pedestris Hendel, 1931

Turkey (Černý & Merz, 2006)

Liriomyza periorbita Hendel, 1931

Elazığ (Çıkman & Sakawa, 2011)

Liriomyza puella (Meigen, 1830)

Trabzon (Dursun et al., 2010)

Liriomyza pusilla (Meigen, 1830)

Turkey (Hendel, 1931–1936)

Liriomyza sativae Blanchard, 1938

Muğla (Civelek, 2002); Diyarbakır (Çıkman & Civelek, 2005)

Liriomyza strigata (Meigen, 1830)

Denizli, İzmir (Giray, 1980); Adana and Hatay (Uygun et al., 1995); Şanlıurfa (Çıkman & Uygun, 2003); Mardin (Çıkman & Civelek, 2005)

Liriomyza trifolii (Burgess in Comstock, 1880)

Adana, Hatay (Uygun et al., 1995); Şanlıurfa (Çıkman & Uygun, 2003); Aydın (Yıldırım, 2002); Muğla (Civelek & Weintraub, 2003); Ankara (Gençer, 2004); Diyarbakır and Mardin (Çıkman & Civelek, 2005)

Liriomyza virgula Frey, 1946

Mersin (Civelek et al., 2009)

Genus 8. *Metopomyza* Enderlein, 1936

Metopomyza lingulata (Çıkman & Sasakawa, 2011)

- Elazığ (Çıkman & Sasakawa, 2011)
Metopomyza scutellata (Fallén, 1823)
Mersin (Civelek et al., 2009)
Metopomyza xanthaspis (Loew, 1858)
Mersin (Civelek et al., 2009)
Genus 9. *Napomyza* Westwood, 1840
Napomyza bellidis Griffiths, 1967
Hatay (Civelek et al., 2009)
Napomyza carotae Spencer, 1966
Erzurum (Civelek et al., 2007).
Napomyza cichorii Spencer, 1966
Isparta (Civelek et al., 2009)
Napomyza elegans (Meigen, 1830)
Mardin (Çıkman & Civelek, 2005).
Napomyza lateralis (Fallén, 1823)
İzmir (Civelek et al., 2000a); Diyarbakır (Çıkman & Civelek, 2005)
Napomyza hirticornis Hendel, 1932
Afyonkarahisar, Kastamonu, Muğla, (Civelek et al., 20010);
Genus 10. *Phytoliriomyza* Hendel, 1931
Phytoliriomyza arctica (Lundbeck, 1901)
Turkey (Spencer, 1964); İzmir (Civelek et al., 2000a)
Phytoliriomyza dorsata (Siebke, 1863)
Diyarbakır (Çıkman & Civelek, 2005)
Phytoliriomyza oasis (Becker, 1907)
Turkey (Černý & Merz, 2006)
Phytoliriomyza perpusilla (Meigen, 1830)
Kahramanmaraş (Mart et al., 2005)
Genus 11. *Phytomyza* Fallén, 1810
Phytomyza aconitophila Hendel, 1927
Muğla (Civelek, 2004)
Phytomyza affinis Fallén, 1823

Turkey (Bodenheimer, 1958); Şanlıurfa (Çıkman & Uygun, 2003)

Phytomyza albipennis (Fallén, 1823)

Muğla (Civelek et al., 2007)

Phytomyza angelicae Kaltenbach, 1872

Muğla (Civelek, 2002)

Phytomyza astrantiae Hendel, 1924

Trabzon (Civelek et al., 2007)

Phytomyza aquilonia Frey, 1946

Diyarbakır (Çıkman & Civelek, 2005)

Phytomyza aurei Hering, 1931

Kırklareli (European part of Turkey, Civelek et al., 2009)

Phytomyza brevifacies Hendel, 1934

Rize (Civelek et al., 2007)

Phytomyza cecidonomia Hering, 1937

Muğla (Civelek et al., 2009)

Phytomyza chelonei Spencer, 1969

Şanlıurfa (Çıkman & Uygun, 2003)

Phytomyza cirsii Hendel, 1923

Turkey (Hering, 1957)

Phytomyza clematidis Kaltenbach, 1859

İzmir (Civelek et al., 2000a).

Phytomyza continua Hendel, 1920

Turkey (Černý & Merz, 2006).

Phytomyza conyzae Hering, 1920

Muğla (Civelek, 2002)

Phytomyza crassiseta Zetterstedt, 1860

Bursa, Çanakkale, İzmit, Muğla (Civelek et al., 2009)

Phytomyza dalmatiensis (Spencer, 1961)

Hatay (Dursun et al., 2010)

Phytomyza fallaciosa Brischke, 1880

Kahramanmaraş (Mart et al., 2005).

Phytomyza ferulae Hering, 1927

İzmir (Giray, 1980)

Phytomyza flavicornis Fallén, 1823

Turkey (Černý & Merz, 2006).

Phytomyza geminata Sasakawa, 2008

Adıyaman (Çıkman & Sasakawa, 2008)

Phytomyza glabra Hendel, 1935

Erzurum (Civelek et al., 2007).

Phytomyza gymnostoma Loew, 1858

İzmir (Civelek et al., 2000a)

Phytomyza hirsuta Spencer, 1976

Muğla (Dursun et al., 2010)

Phytomyza kaltenbachi Hendel, 1922

Balıkesir, İzmir, Manisa (Giray, 1980)

Phytomyza lappae Goureau, 1851

Ankara (Gençer, 2004)

Phytomyza nigrifula Zetterstedt, 1838

Burdur (Civelek et al., 2007)

Phytomyza origani Hering, 1931

Çanakkale (Civelek et al., 2009)

Phytomyza orobanchia Kaltenbach, 1864

Balıkesir, Bursa, Manisa (Civelek & Demirkan, 1998); Şanlıurfa (Çıkman & Uygun, 2003);
Diyarbakır, Mardin (Çıkman & Civelek, 2005)

Phytomyza petoei Hering, 1924

İzmir (Civelek et al., 2000a)

Phytomyza phillyreae Hering in Buhr, 1930

Turkey (Černý & Merz, 2006)

Phytomyza plantaginis Robineau-Desvoidy, 1851

İzmir (Civelek et al., 2000a); Mardin (Çıkman & Civelek, 2005)

Phytomyza podagrariae Hering, 1954

Çanakkale (Civelek et al., 2009)

Phytomyza pubicornis Hendel, 1920

- Isparta (Civelek et al., 2009)
Phytomyza pullula Zetterstedt, 1848
Trabzon (Dursun et al., 2010)
Phytomyza ranunculi (Schrank, 1803)
İzmir (Deeming & Civelek, 1997)
Phytomyza rhabdophora Griffiths, 1964
Kars (Dursun et al., 2010)
Phytomyza rostrata Hering, 1934
İzmit (Civelek et al., 2009)
Phytomyza rufescens von Roser, 1840
İzmir (Civelek et al., 2000a)
Phytomyza rufipes Meigen, 1830
İzmir (Civelek et al., 2000a); Mardin (Çıkman & Civelek, 2005)
Phytomyza sii Hering, 1930
Kırkırelili (European part of Turkey, Civelek et al., 2009)
Phytomyza spoliata Strobl, 1906
Turkey (Hering, 1957)
Phytomyza socia Brischke, 1880
Diyarbakır (Çıkman & Sasakawa, 2005)
Phytomyza tenella Meigen, 1830
İzmir (Civelek et al., 2000a)
Phytomyza tetrasticha Hendel, 1927
İzmir (Giray, 1980)
Phytomyza thysselinivora Hering, 1924
Muğla (Civelek, 2002)
Phytomyza veronicicola Hering, 1925
Elazığ (Çıkman & Sasakawa, 2011)
Phytomyza wahlgreni Rydén, 1944
Malatya (Çıkman & Sasakawa, 2011)
Genus 12. *Pseudonapomyza* Hendel, 1920

- Pseudonapomyza atra* (Meigen, 1830)
Şanlıurfa (Çıkman & Uygun, 2003)
- Pseudonapomyza balkanensis* (Spencer, 1976)
Artvin, Iğdır (Dursun et al., 2010)
- Pseudonapomyza europaea* Spencer, 1973
Turkey (Černý, 2005b)
- Pseudonapomyza hispanica* Spencer, 1973
İzmir (Civelek et al., 2000a)
- Pseudonapomyza multicostata* (Sasakawa & Çıkman, 2011)
Malatya (Sasakawa & Çıkman, 2011)
- Pseudonapomyza pyriformis* Sasakawa, 2008
Adıyaman (Çıkman and Sasakawa, 2008)
- Pseudonapomyza spicata* (Malloch, 1914)
Şanlıurfa (Çıkman & Uygun, 2003)
- Pseudonapomyza spinosa* Spencer, 1973
Şanlıurfa (Çıkman & Uygun, 2003)
- Pseudonapomyza strobliana* Spencer, 1973
Turkey (Černý, 2005b)

Conclusion

As the analysis of the checklist shows, the biological diversity of Phytomyzinae family is richer than the Agromyzinae family.

With this study, the number of leafminer species which was 165 previously has been updated to 186 species.

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