

New records of Microfungi from Malatya province in Turkey

Türkiye'de Malatya İlinden Yeni Mikrofungus Kayıtları

Research Article

Şanlı Kabaktepe*, Birol Mutlu, Şükrü Karakuş

Department of Biology, Science and Art Faculty, İnönü University, Malatya, Turkey

ABSTRACT

Three microfungi taxa, *Pleospora lithophilae* Gucevič on *Pimpinella paucidentata* V.A.Matthews, *Septoria cruciatae* Roberge ex Desm. on *Galium mite* Boiss. & Hohen., *Placosphaeria campanulae* (DC.) Bäumler on *Asyneuma amplexicaule* Hand.-Mazz. var. *angustifolium* (Boiss.) Bornm., are reported for the first time from Turkey. The morphological and microscopical features with figures of these fungi are described based on the collected materials.

Key words

Malatya, Microfungi, Ascomycota, Turkey.

ÖZET

Pimpinella paucidentata V.A.Matthews üzerinde *Pleospora lithophilae* Gucevič, *Galium mite* Boiss. & Hohen. üzerinde *Septoria cruciatae* Roberge ex Desm. ve *Asyneuma amplexicaule* Hand.-Mazz. var. *angustifolium* (Boiss.) Bornm. üzerinde *Placosphaeria campanulae* (DC.) Bäumler olan 3 tane mikrofungus türü Türkiye'den ilk defa kaydedilmiştir. Bu fungusların şekilleri ile morfolojik ve mikroskopik özellikleri toplanan örneklerle bağılı olarak tanımlanmıştır.

Anahtar Sözcükler

Malatya, Mikrofungus, Ascomycota, Turkey.

Article History: Received May 30, 2013; Revised June 27, 2013; Accepted July 20, 2013; Available Online: September 1, 2013

Correspondence to: Şanlı Kabaktepe, Department of Biology, Science and Art Faculty, İnönü University, Malatya, Turkey

Tel:+90 422 377 37 02

Fax: +90 422 341 00 37

E-mail:birol.mutlu@inonu.edu.tr

INTRODUCTION

Plant diseases are caused mainly by fungi. They often suffer a deficiency of water and minerals which results in discoloration, wilting, desiccation and reduced growth. For effective control of a disease, firstly need to know the causal agent. The floristic studies of the microfungal flora are the first and the most important step to control the fungal diseases in a country.

In the last decade, studies about microfungi fungi have greatly increased in Turkey. Nevertheless, numerous new records and new species can still be expected as result of on going fieldwork because of its high diversity of vascular plants (9996 species) in Turkey [1].

This paper presents rust species collected from Malatya province in Turkey.

MATERIALS AND METHODS

Materials were collected in 1996 and 2012 from Malatya Province in Turkey. The host specimens were prepared according to established herbarium techniques. Host plants identified use the "Flora of Turkey and the East Aegean Islands" [2-4]. Spores were scraped from dried host specimens and mounted in lactophenol. Analysis LS Starter was software used to measure. The current names of fungi are given according to www.indexfungorum.org. Names of host plants and families are given according to <http://www.ipni.org> and <http://www.theplantlist.org>. Voucher specimens are deposited in the İnönü University Herbarium (INU).

RESULTS AND DISCUSSION

Ascomycota Whittaker

Dothideomycetes O.E. Erikss. & Winka

Pleosporales Luttr. ex M.E. Barr

Pleosporaceae Nitschke

Pleospora Rabenh. ex Ces. & De Not.

Pleospora is widespread on plants, causing leaf spots with 63 species [5]. 24 species of *Pleospora* are now known from Turkey [6-10].

Pleospora lithophilae Gucevič (Figure 1A, D, G, H) Pseudothecia superepidermal up to 0.3 mm, black. Ascospores yellow to brown, 5-7 transversa and 1 longitudinal septa, 20-35 × 7-15 µm, rounded at the both base.

Specimen examined: On *Pimpinella paucidentata* V.A. Matthews (*Apiaceae*). **Turkey:** B7 Malatya, Kozluk valley, limestone, east slopes, 1100-1200 m, 08.09.1996, B.Yıldız 14114 (INU 3156).

Remarks: Known from Asia and Europe. *P. lithophilae* is a new microfungi species for Turkey. *P. lithophilae* is also the first *Pleospora* species on *Pimpinella* species in Turkey.

Capnodiales Woron.

Mycosphaerellaceae Lindau

Septoria Sacc.

Septoria is widespread on plants with 1072 species [5]. All the species are parasitic typically causing leaf spots. 82 species of *Septoria* are now known from Turkey [11-14].

Septoria cruciatae Roberge ex Desm. (Figure 1B, E, I)

Spots amphigenous, ovoid, irregular, yellowish-brown. Picnidia epiphyllous, blackish brown, pierced by a pore. Spores elongate, curved, (18-) 25-50 × 1-2 µm.

Specimen examined: On *Galium mite* Boiss. & Hohen. (*Rubiaceae*). **Turkey:** B7 Malatya, Arguvan, Kuruttaş village, Hasbek hill, 1700 m, 06.07.2012, Ş.Karakuş 2833 & B.Mutlu (INU 1198).

Remarks: Known from Asia, Europe and North America. *S. cruciatae* is a new microfungi species for Turkey.

S. cruciatae is also the first *Septoria* species on *Galium* species in Turkey.

Dothideales Lindau

Incertae sedis

Placosphaeria (De Not.) Sacc.

Placosphaeria is widespread on plants with 50 species [5]. 2 species of *Placosphaeria* are now known from Turkey [15, 16].

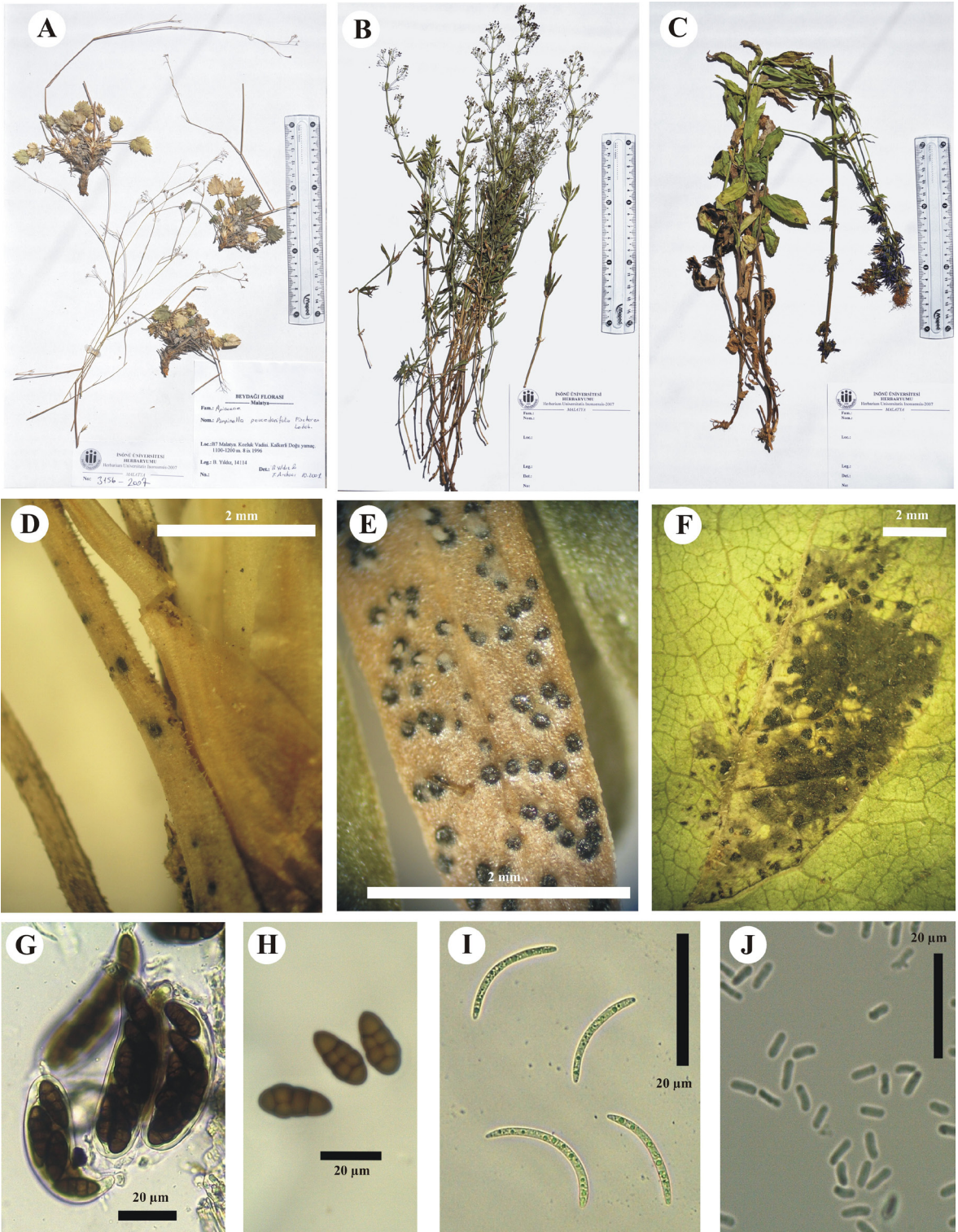


Figure 1. Herbarium specimens (**A**, *B.Yıldız* 14114; **B**, *Ş.Karakuş* 2833; **C**, *Ş.Karakuş* 2802), stromboscopic image of infected area on the leaves tissue (**D-F**) and lightmicroscope image of ascus (**G**), ascospores (**H**) and conidiospores (**I-J**) of *Pimpinella paucidentata* V.A.Matthews (**A**, **D**), *Galium mite* Boiss. & Hohen. (**B**, **E**), *Asyneuma amplexicaule* (Willd.) Hand.-Mazz. var. *angustifolium* (Boiss.) Bornm. (**C**, **F**), *Pleospora lithophilae* Gucevič (**G-H**), *Septoria cruciatae* Roberge ex Desm. (**I**) and *Plachosphaeria campanulae* (DC.) Bäumler (**J**).

Placosphaeria campanulae (DC.) Bäumler
(Figure 1C, F, J)

Spots amphigenous, in clusters, blackish brown.
Spores cylindrical, 2-5 × 1µm, hyaline.

Specimen examined: On *Asyneuma amplexicaule* (Willd.) Hand.-Mazz. var. *angustifolium* (Boiss.) Bornm. (*Campanulaceae*). **Turkey:** B7 Malatya, Arapkir, Göldağı mountain, 1800 m, 04.07.2012, Ş.Karakuş 2802 & B.Mutlu (INU 1197).

Remarks: Known from Asia and Europe. *P. campanulae* is a new microfungi species for Turkey.

P. campanulae is also the first *Placosphaeria* species on *Asyneuma* species in Turkey.

ACKNOWLEDGEMENTS

The plant samples of collector named "Ş.Karakuş" were collected during Phd study of Şükrü Karakuş. This study was supported by XV Regional Directorate of the Ministry of Forestry and Water Affairs of the Republic of Turkey.

REFERENCES

1. A. Güner, S. Aslan, T. Ekim, M. Vural, M.T. Babaç, Türkiye Bitkileri Listesi (Damarlı Bitkiler). Nezahat Gökyiğit Botanik Bahçesi ve Flora Araştırmaları Derneği Yayını. İstanbul, Turkey, 2012.
2. V.A. Matthews, Pimpinella L. In: Davis PH (ed.), Flora of Turkey and the East Aegean Islands, Edinburgh: Edinburgh University Press., 4 (1972) 352.
3. J. Damboldt, *Asyneuma* Griseb. & Schenk In: Davis PH (ed.), Flora of Turkey and the East Aegean Islands, Edinburgh: Edinburgh University Press., 6 (1978) 65.
4. F. Ehrendorfer, E. Schönbeck-Temesy, Galium L. In: Davis PH, et al. (eds.), Flora of Turkey and the East Aegean Islands, Edinburgh: Edinburgh University Press., 7 (1982) 767.
5. P. Kirk, P.F. Cannon, D.W. Minter, J.A. Stalpers, Ainsworth & Bisby's Dictionary of the Fungi. 10th edn. CAB International, Wallingford, UK, 2008.
6. G.Karel, A Preliminary List of Plant Disease in Turkey. AyYıldız Matbaası, Ankara, Türkiye, 1958.
7. M.Göbelez, La mycoflore de Turquie 1, Mycopathologia Applicata, 19 (1962) 296.
8. S. Baydar, Erzurum, Erzincan ve Gümüşhane İllerinde Bitkilerden Toplanan Ascomycetes Fungusları Üzerinde Araştırmalar, Erzurum: Atatürk Üniv., Fen Fak. Yayınları No: 411 (1975).
9. S. Baydar, Trabzon ve Rize illerinin (Ascomycetes) fungus türleri. Atatürk Üniversitesi, Fen Fakültesi Dergisi 1, (1982) 250.
10. A.Ü. Tamer, F. Gucin, Y. Altan, Malatya Pütürge öresi Bitkilerinde Belirlenen Bazı Parazit Funguslar, 8. Ulusal Biyoloji Kongresi, İzmir: Botanik bildirileri 2, (1987) 202.
11. Z. Bahçecioğlu, B. Yıldız, A study on the microfungi of Sivas Province, Turk J Bot., 29 (2005) 23.
12. F. Selçuk, M. Erdoğan, H. Akgül, E. Hüseyin, The genus *Septoria* Sacc. in Turkey, Mycopath, 7 (2009) 21.
13. Ş. Kabaktepe, Kars ve Ardahan yöresi vasküler bitkiler üzerinde belirlenen mikrofunguslar, PhD, İnönü University, Turkey, 2010.
14. T. Ekici, M. Erdoğan, Z. Aytaç, Z. Suludere *Septoria* species in Kıbrıs Village Valley (Ankara, Turkey), Nova Hedwigia, 95 (2012) 483.
15. E. Hüseyinov, New records of microfungi for Turkey, Israel Journal of Plant Science, 48 (2000) 75.
16. S. Kirbag, New records of microfungi from Turkey, Pakistan Journal of Botany, 36 (2004) 445.