



## Two new records of leaf pathogenic fungi in Turkey

Erdoğan M<sup>1\*</sup>, Hüseyin E<sup>1</sup> and Özaslan C<sup>2</sup>

<sup>1</sup>Ahi Evran University, Arts and Sciences Faculty, Department of Biology, Kırşehir, Turkey

<sup>2</sup>Dicle University, Faculty of Agriculture, Department of Plant Protection, Diyarbakır, Turkey

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### Abstract

*Rhytisma salicinum*, a parasitic species on *Salix caprea* and *Salix cinerea*, and *Septogloeum thomasianum*, a parasitic species on *Euonymus latifolius* subsp. *cauconis*, are recorded for the first time from Turkey.

**Key words** – microfungi – *Rhytisma salicinum* – *Septogloeum thomasianum*

### Introduction

The concept of the genus *Rhytisma* has evolved since its description by Fries (1819). Species of *Rhytisma* are very familiar and widespread, and they are mostly parasites causing tar spot on leaves of angiosperm trees. *Rhytisma* species are usually characterised by ascomata developing from multilocular stroma (Hou & Piepenbring et al. 2005).

*Septogloeum* was introduced with *Septogloeum carthusianum* (Sacc.) Sacc. as the type species. *Septogloeum* sp. is the causal agent of leaf spot and sleeping blight in soybean plants (Hong 2012, Westcott et al. 1950). *Septogloeum* leaf spots usually cause little damage. The genus is characterised as acervular, with enteroblastic, phialidic, discrete or integrated conidiogenous cells, and 1–3 euseptate, obovoid, hyaline conidia (Sutton 1980, Farr et al. 1993).

### Materials & Methods

Plant specimens infected with microfungi were collected in the Küre Mountain National Park in Kastamonu Province (Black Sea Region). The fungal specimens were examined microscopically by thin sections. Microscopic examination and microphotographs were done using a Leica DM E light microscope. The microfungi were identified using the relevant literature (Ellis & Ellis 1987, Farr 1993, Ignatavičiūtė & Treigienė 1998, Sutton 1980, Sutton & Pollack 1974, Yačevskiy et al. 1913). All specimens examined were deposited in the mycological collection of the Department of Biology, Arts and Sciences Faculty, Ahi Evran University, in Kırşehir Province of Turkey.

### Results

*Rhytisma salicinum* (Pers.) Fr.

Fig 1

Stromata on the upper surface of leaves, usually jet black, shining, with distinct margins, 750–920 µm thick, about 3–7 mm diam., more or less circular, with slightly raised patches containing numerous elliptical apothecia. Apothecia oblong to orbicular, 0.5–2 mm diam., disc

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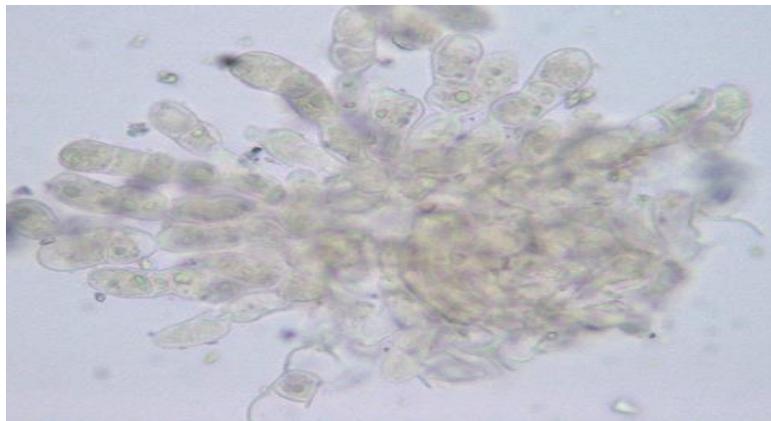
Corresponding Author: M. Erdoğan – e-mail – makbulekarahan40@gmail.com

grey, soft. Asci clavate,  $120\text{--}150 \times 10\text{--}15 \mu\text{m}$ , 8-spored. Ascospores filiform,  $82.5\text{--}100 \times 1.5\text{--}2 \mu\text{m}$ , hyaline. Paraphyses slender, swollen at the tip.

Material examined – Turkey, Kastamonu, Cide, around Şeh Mountain, on leaves of *Salix caprea* L., 21 August 2006, 919 m alt.,  $41^{\circ}46'07''\text{N}$ ,  $33^{\circ}06'92''\text{E}$ , M. Erdoğan 1892. – Turkey, Kastamonu, Azdavay, on leaves of *Salix cinerea* L., 1 October 2005, 1059 m alt.,  $41^{\circ}42'822''\text{N}$ ,  $33^{\circ}08'275''\text{E}$ , M. Erdoğan 1759.



**Fig 1** – *Rhytisma salicinum*. Stromata.



**Fig 2** – *Septogloeum thomasianum*. Conidia and conidiogenesis.

***Septogloeum thomasianum*** (Sacc.) Höhn.

Figs 2–3

Spots circular to irregular, discrete or confluent, white or grey to brown, 10–12 mm diam. Conidiomata acervular, on both sides of leaves, separate or confluent, epidermal to subepidermal, mostly rounded, sometimes irregular or elongated,  $42\text{--}210 \mu\text{m}$  diam., ocher-coloured. Conidiogenous cells enteroblastic, phialidic with a narrow apical channel and prominently thickened apex, collarete lacking, discrete, hyaline, smooth, cylindrical, doliiform to obpyriform, formed directly from the upper cells of the acervulus or from septate hyaline cells typically with a single lower lateral branch,  $10\text{--}15 \times 5\text{--}9 \mu\text{m}$ . Conidia 1–2 septate, constricted at the septum, lower cell smaller than the upper, occasionally "Y" shaped, smooth, eguttulate, obovoid, straight, apex obtuse, base truncate,  $20\text{--}32.5 \times 10\text{--}15 \mu\text{m}$ , hyaline.

Material examined – Turkey, Kastamonu, Pınarbaşı, close to Kurtgirmez Mountain, on leaves of *Euonymus latifolius* subsp. *cauconis* Coode & Cullen, 18 August 2006, 1310 m alt., 41°36'90''N, 33°12'32''E, M. Erdoğan 1815.



**Fig 3** – *Septogloeum thomasianum*. Conidia.

### Discussion

*Rhytisma salicinum* is common on *Salix* species throughout the world (Minter et al. 2010). *R. salicinum* affecting *Salix caprea* and *S. cinerea* is a common species in our study area with high humidity. Disease incidence varies between years and is favoured by rainy periods in late spring-early summer and by the occurrence of moist sites (Hjältén et al. 2000). *R. salicinum* is reported for the first time from Turkey.

There are approximately 120 species described in the genus *Septogloeum* (Sutton et al. 1980) and no comprehensive treatment exists (Farr et al. 1993). Sutton & Pollack (1974) re-examined the type of *Septogloeum*, *S. carthusianum*, and accepted only one other species, *S. thomasianum*. In *S. carthusianum* conidia are curved, sometimes distinctly, and vary from 0–3 septate. In *S. thomasianum* conidia are constantly 1-septate with the upper cell larger than the lower one. Farr (1993) examined collections of *S. thomasianum* (Kryptogamae Exsiccatae Vindobonensi no. 1179) and found it to be similar to other collections of this species except for a greater variety of conidial shapes. None of the other collections observed of *S. thomasianum* showed this range of diversity. A greater diversity of conidial shapes of *S. thomasianum* was observed on our collection. We encountered 2-septate and "Y" shaped conidia, a morphology not noted by Sutton & Pollack (1974). *S. thomasianum* was reported from Austria, Canada, Romania and Sweden (Sutton et al. 1980), but has not been previously recorded in Turkey.

### References

- Ellis BM, Ellis JP. 1987 – Microfungi on Land Plants: An Identification Handbook. Croom Helm, Sydney, Australia.
- Farr DF. 1993 – *Marssonina obclavata* sp. nov. with observations on *Marssonina* and *Septogloeum*. Mycologia 85, 814–824.
- Hjältén J, Ericson L, Roininen H. 2000 – Resistance of *Salix caprea*, *S. phylicifolia*, and their F1 hybrids to herbivores and pathogens. Ekoscience 7(1), 51–56.
- Hong SK, Choi HW, Lee YK, Lee SY, Shim HS. 2012 – Occurrence of soybean sleeping blight caused by *Septogloeum sojae* in Korea. Mycobiology 40(4), 265–267.
- Hou C-L, Piepenbring M. 2005 – Known and two new species of *Rhytisma* (Rhytismatales, Ascomycota) from China. Mycopathologia 159, 299–306.

- Ignatavičiūtė M, Treigienė A. 1998 – Mycota Lithuaniae. Vol. 9. Melanconiales. UAB Vaslstiečių Lankraštis, Vilnius.
- Minter DW. 2010 – Fungi of Ukraine, Rhytismatales. [retrieved May 20, 2015, from <http://www.cybertruffle.org.uk/papers/rhytukra/rhytisma.htm>].
- Sutton BC. 1980 – The Coelomycetes. Fungi Imperfecti with Pycnidia, Acervuli and Stromata. CABI, Kew.
- Sutton BC, Pollack FG. 1974 – Microfungi on *Cercocarpus*. Mycopathologia et Mycologia Applicata 52, 331–351.
- Yačevsky AA. 1913 – Opredeľitel' gribov T. I. Soveršenniye griby. Tipografiya S. L. Kinda, St. Petersburg.
- Westcott C. 1950 – Plant Disease Handbook. D. Van Nostrand Company, New York.