

A new record of *Diderma* (Myxomycetes) from Turkey

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Abstract: Turkey is a favourite place for the growth and the development of myxomycete due to its climatic conditions and flora. During routine field trips to several locations of Gökçeada (Çanakkale), which is the largest island of Turkey, numerous samples of myxomycetes were collected. According to the available checklists, *Diderma effusum* (Schw.) Morgan records for the first time from Turkey. It has been isolated by the moist chamber technique. The new record is described by the aid of the literature. Microscopic and macroscopic photographs were taken and a distribution map is provided. This specimen is stored in the Herbarium of Çanakkale Onsekiz Mart University (CNH), Çanakkale – Turkey.

Key words: slime mould, new record, myxobiota

INTRODUCTION

The exact evolutionary affinities of the myxomycetes are still debated, but these organisms constitute a well-defined and homogenous group (class: *Myxomycetes*) of approximately 875 species (Lado, 2001) worldwide. However, only 252 species of this group is documented for Turkey (Sesli et al. 2016). Therefore, it is required to taxonomically study this group to add more species to the existing checklist, which is recorded for the flora of Turkey.

The genus *Diderma* has c. 132 taxa of 75 species all over the world. In Turkey, these species, including *D. chondrioderma* (de Bary & Rostaf.) G.Lister, *D. crustaceum* Peck, *D. hemisphaericum* (Bull.) Hornem, *D. niveum* (Rostaf) T. Macbr., *D. testaceum* (Schrad.) Pers., *D. cinereum* Morgan, *D. carneum* Nann.-Bremek., *D. umbilicatum* Pers., *D. deplanatum* Fr. and *D. radiatum* (L.) Morgan have been previously documented (Baba & Tamer, 2008; Oran and Ergül, 2015; Sesli et al. 2016).

During routine field trips to several locations of, Gökçeada (older name in Turkish: *Imroz*; Greek: *Ἰμβρος* - *Imbros*), which is the largest island of Turkey, the part of Çanakkale province numerous samples of myxomycetes were collected in November 2006. Based on the available checklists provided by Ergül & Dülger (2000), Sesli & Denchev (2005), Dülger (2007), Yagız & Afyon (2007), Sesli & Denchev (2009) and Sesli et al. (2016), *Diderma effusum* (Schw.) Morgan (*Didymiaceae*) is a new record for Turkey.

MATERIALS AND METHODS

The myxomycetes fructification bodies have been obtained by using of the moist chamber technique *in vitro*. Searching in the literatures plays a crucial role leading to the identification of the mentioned taxon. (Martin & Alexopoulos 1969, Farr, 1976, Thind 1977, Nannenga-Bremekamp 1991). Microscopic photographs were taken with the Leica DM 2500 Trinocular Microscope and Leica DFC 280 Model Camera in the pallinology laboratory. Macroscopic photographs were taken with the Nikon E8400 Model Camera. This specimen is deposited at the Herbarium of Çanakkale Onsekiz Mart University (CNH), Çanakkale - Turkey as well as in the personal collection of the first author.

Based on the research performed by Seçmen & Leblebici (1978), the botanical flora of the island is belonged to the Mediterranean Phytogeographical Region. The woody plants of the locality are *Quercus coccifera* L., *Q. infectoria* Oliv. subsp. *infectoria*, *Phillyrea latifolia* L., *Sarcopoterium spinosum* (L.) Spach, *Cistus creticus* L., and *Arbutus andrachne* L.

RESULT AND DISCUSSION

Diderma effusum (Schwein.) Morgan, J. Cincinnati Soc. Nat. Hist. 16: 155 (1894); Fig. 1.

Synonyms

≡ *Physarum effusum* Schwein., Trans. Amer. Philos. Soc. 4:257 (1832).

= *Diderma reticulatum* (Rostaf.) Morgan, J. Cincinnati Soc. Nat.Hist. 16: 155 (1894).

Fructification structures composed of flattened white sporangia massed in plasmodiocarpous fashion, appanate, reticulate, or often forming a broadly effused low pulvinate, 0.2–0.4 mm height, ovoid or longer than wide to oblong, 0.5–1.5 mm wide and 0.6

to well over 1 cm long. Hypothallus is common to a group, membranous and inconspicuous. Peridium of two separated layers, the outer a thin, smooth, white or almost white, calcareous crust closely applied to the delicate membranous and the inner wall membranous as well as colourless or rose-lilac dehiscent irregularly but not together. Columella alutaceous, depressed pulvinate and white to reddish brown, sometimes limited to a thin layer of lime on

the base, and covering most of the base. Capillitium thin, colourless or pale lilac-brown, consisting of abundant short threads somewhat branched toward their distal extremities with few interconnections. Spores in mass brown and lilac-brown in transmitted light, verruculose with faint clusters of larger warts, seeming almost smooth, some in denser groups, 8–9 (–10) μm in diameter. Plasmodium is white colour (Fig. 1).

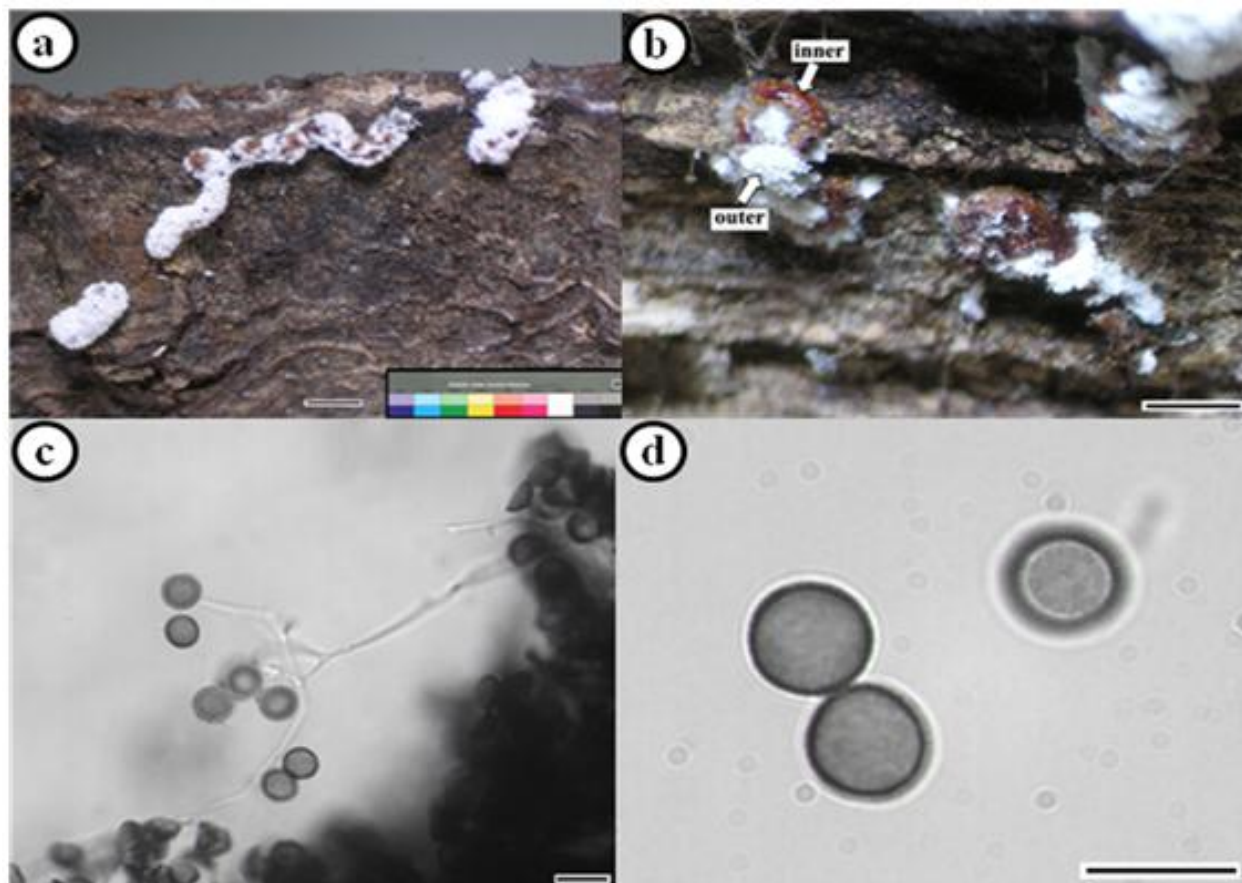


Fig. 1. *Diderma effusum*. **a.** The group of plasmodiocarps on bark under the dissection microscope. — Scale bar = 1 mm. **b.** Two layers of the peridium. — Scale bar = 1 mm. **c.** Capillitial threads on LM. — Scale bar = 10 μm . **d.** Micrograph of spores. — Scale bar = 10 μm .

Specimens examined. Turkey, Çanakkale, Gökçeada, Junction of Tepeköy, 40° 10' 48.13" N, 25° 50' 51.95" E, elevation 99 m, on barks of *Quercus coccifera*, 26 Nov. 2006, Tülay Bican Süerdem 40; Fig. 2.

Diderma effusum can be recognised by the typical depressed, smooth, white sporangia or plasmodiocarpic fructification bodies and by its rather small pale spores. Taxonomically, *D. effusum* is the closest species to the *D. deplanatum* and *D. testaceum* but *D. deplanatum* is more plasmodiocarpous and has larger and darker spores. Previously, it was recorded from Turkey (Baba, 2012). Occasionally, *D. testaceum* has pale spores. In this case, two species are similar to each other. But *D. testaceum* is typically smaller and the sporangia are rarely crowded; also has a dark red

or rust-brown columella. Commonly, *D. effusum* is confused with some *Didymium* species such as *D. difforme*, *D. comatum* and *D. tubulatum*, but all of them have a compact lime shell of chrySTALLINE structure which is visible (with difficulty) on the broken edges. They have larger and darker spores with exception of *D. comatum*, (Nannenga-Bremekamp 1991). The spore diameter of *D. effusum* is diverse ranging from 7–10 μm (Martin & Alexopoulos, 1969; Thind, 1977; Nannenga-Bremekamp, 1991) or 6–10 μm (Farr, 1976), respectively. The spore diameter of the identified specimen is in agreement with that of mentioned in the literatures, which is mostly 8–9 μm .

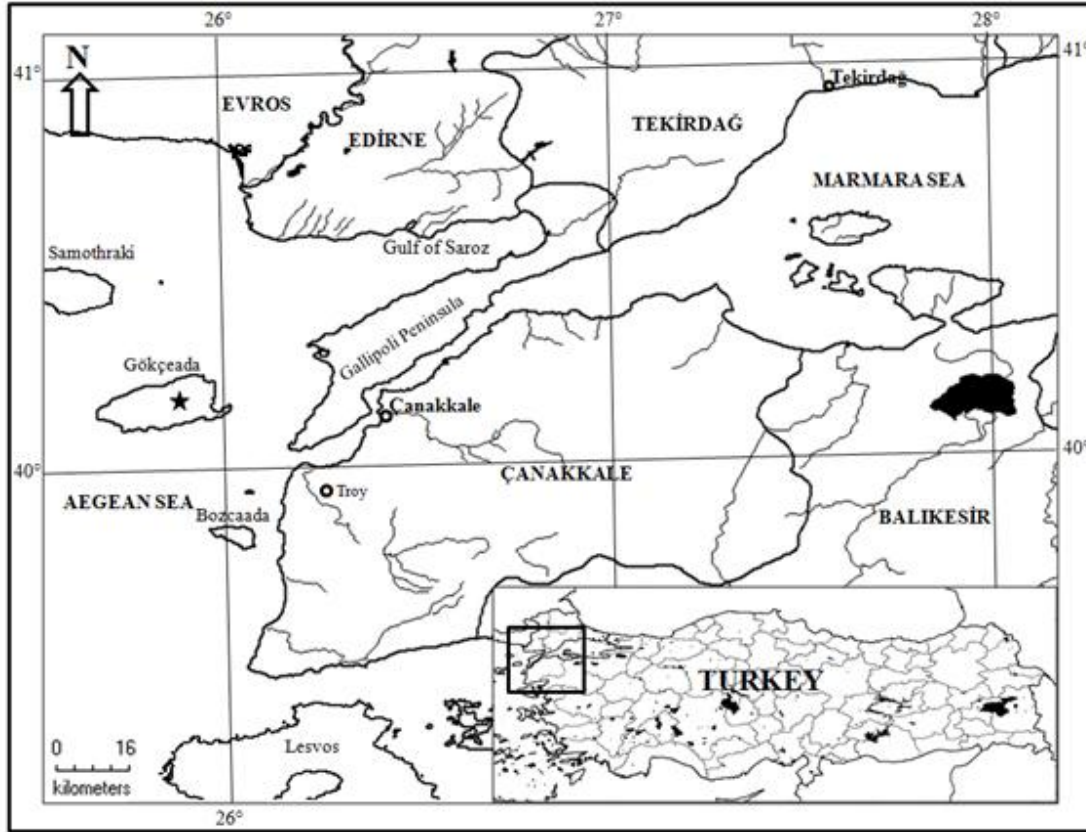


Fig. 2. The presence of *Diderma effusum* in Turkey, pointed by “★”.

ACKNOWLEDGMENTS

We are grateful to the Commission of Çanakkale Onsekiz Mart University Scientific Research Projects (BAP) (Project No: 2006/29) for supporting and financially funding this research.

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گزارش جدید از جنس *Diderma* (Myxomycetes) در ترکیه

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چکیده: ترکیه به خاطر به خاطر شرایط آب و هوایی و پوشش گیاهی، منطقه مناسبی برای رشد و توسعه میکسومیست ها است. طی بازدیدهای روزمره در چندین منطقه کوچک آدا (کاناکاله اون) که بزرگترین جزیره ترکیه می باشد، نمونه های متعددی از میکسومیست ها جمع آوری شدند. براساس اطلاعات موجود، گونه *Diderma effusum* برای اولین بار از ترکیه گزارش می شود. این گونه به روش کشت مرطوب جداسازی و شرح آن با استفاده از منابع علمی موجود نوشته شده است. عکس های میکروسکوپی و ماکروسکوپی تهیه و یک نقشه پراکنش برای آن رسم شده است. نمونه شناسایی شده در هرباریوم دانشگاه کاناکاله اون سه ئیز مارت شهر کاناکاله در ترکیه نگهداری می شود.

واژه های کلیدی: کپک لزج، گزارش جدید، میکسوبیوتا