

**DIDERMA CRISTATOSPORUM, A NIVICOLOUS MYXOMYCETE  
FROM SPAIN**

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A new species of nivicolous myxomycetes, *Diderma cristatosporum* is described from Spain and compared with the type of *D. subdictyospermum*. LM and SEM photographs of the microscopical characters are provided.

Myxomycetes growing near melting snow have not been well studied in Spain. The first reports were published by Gràcia (1986, 1987), and subsequently by Lado (1992) and Illana et al. (1993) who reported new records from the Sierra de Guadarrama in Central Spain (province of Segovia). Gorris et al. (1999) published some species which fructify in meadows and clearings in the East Pyrenean alpine and higher subalpine belts of the Catalan Pyrenees.

In the present paper we describe a new nivicolous myxomycete species which was also found in the Sierra de Guadarrama (Segovia).

The material studied is deposited in the herbarium of the University of Alcalá (AH).

Images using scanning electron microscopy (SEM) were made following Castillo et al. (1998). The descriptions of spore ornamentation under SEM follow the terminology proposed by Rammeloo (1974, 1975).

***Diderma cristatosporum* A. Sánchez, G. Moreno & Illana, spec. nov. — Figs. 1–10**

Sporecarpia in gregibus, 0.7–1.6 mm diametro, globosae vel subglobosae, sessilia. Peridium duplex, stratum externum albidum, crustaceum, stratum internum membranaceum, hyalinum cinereum. Columella magna, convexa vel hemisphaerica, ferruginosa.

Capillitium 2–5 µm diametro, abundans, fuscum, ramosum, apicibus distinctis. Sporae 12–15 µm, globosae, translucidae, irregulariter coloratae, griseae vel hyalino-griseae, cristis irregularibus sinuosis incrustatae.

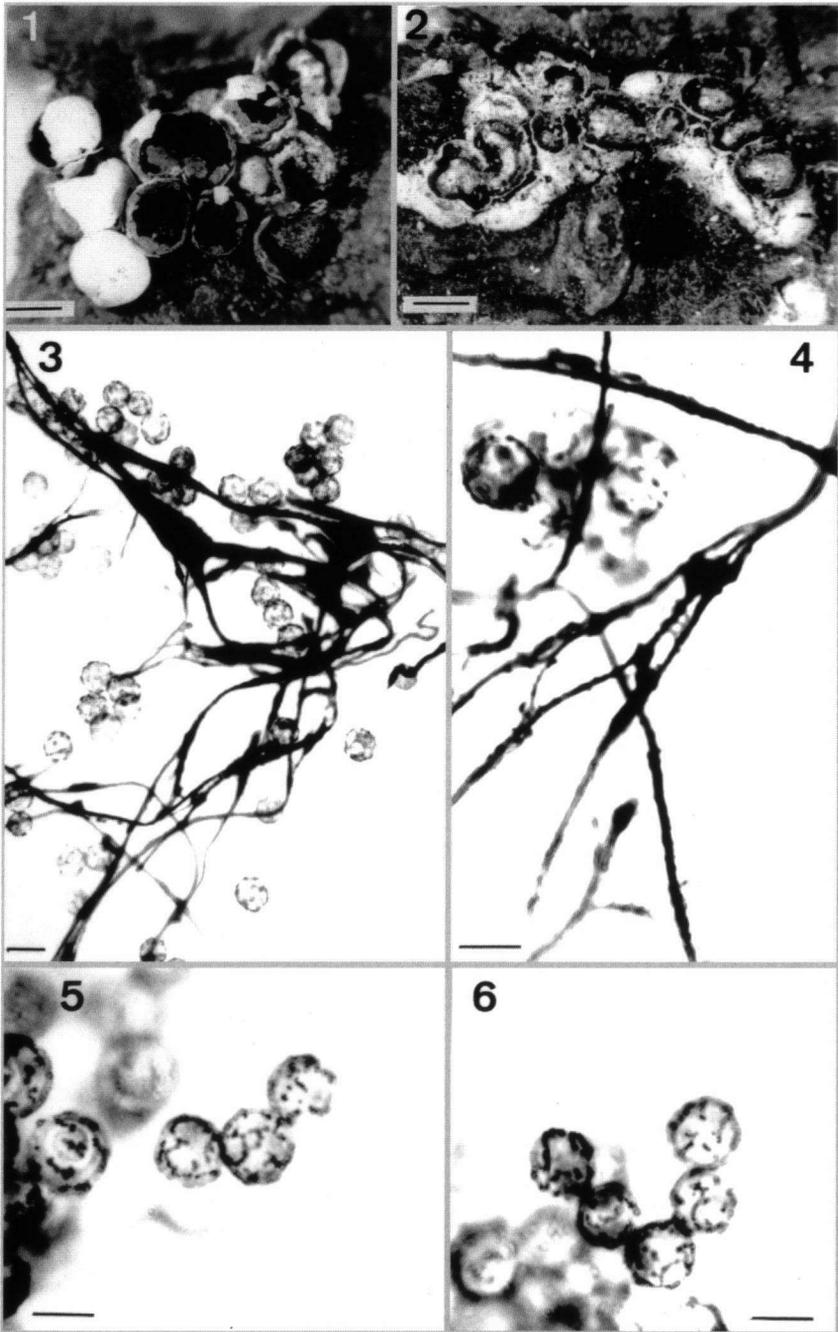
Holotypus: Hispania, Puerto de Navafra 1800 m, Segovia, ad corticem rami emortui *Pini sylvestris* L., 15-V-1997, leg. A. Sánchez, in Herbario AH sub no. 18413 conservatur.

Etimology: Referring to the ridged ornamentation of the spores.

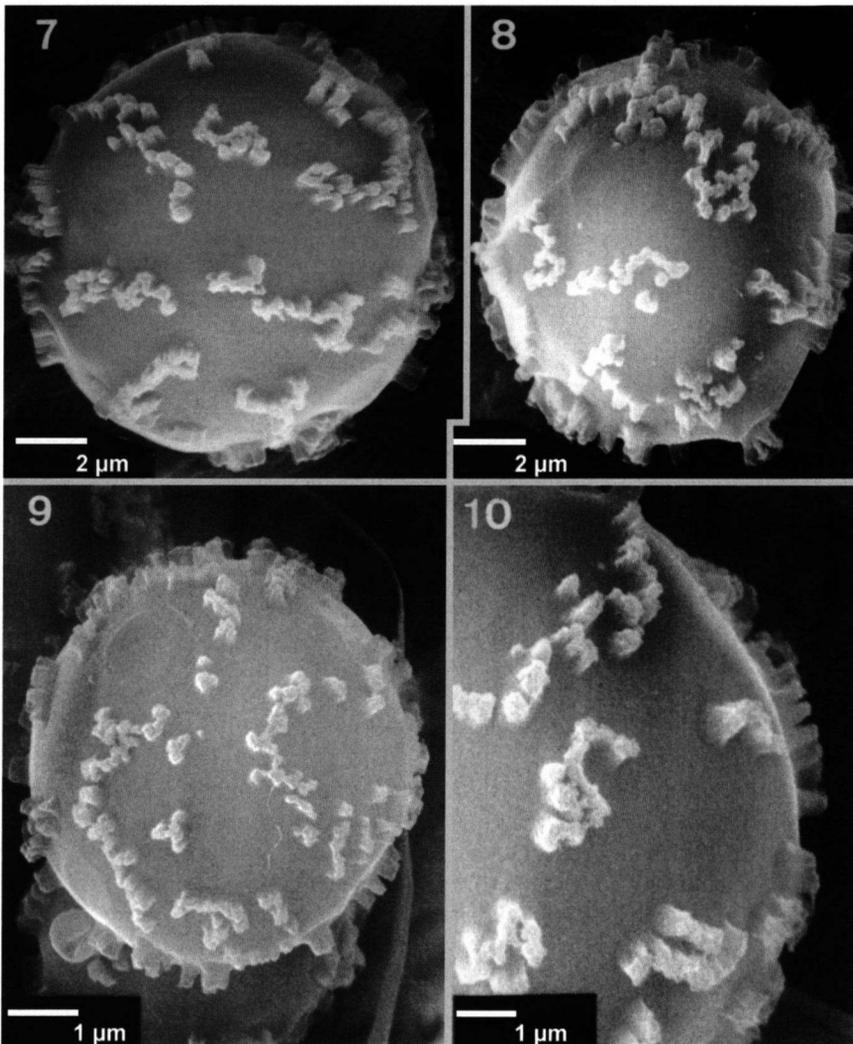
Fructification formed of 15–30 sessile sporocarps. Sporocarps globose to subglobose, some slightly plasmodiocarpous, 0.7–1.6 mm diam. Hypothallus membranous, continuous, whitish with lime incrustation. Peridium clearly double; outer layer very fragile, thick, smooth, irregularly dehiscent, white, inner layer membranous, cinereous and closely applied to the spore mass. Columella hemispherical to elongated, rough, reddish brown.

Capillitium abundant, branched and anastomosed, threads 2–5 µm diam., rigid, flexuous, often with many irregular swellings and membranous expansions, dark brown and some-

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Figs. 1–6. *Diderma cristatosporum*, holotype (AH 18413). 1 & 2. Sporocarps; 3 & 4. capillitium and spores under LM; 5 & 6. spores under LM. — Scale bars: Figs. 1 & 2 = 1 mm; Figs. 3–6 = 10  $\mu$ m.



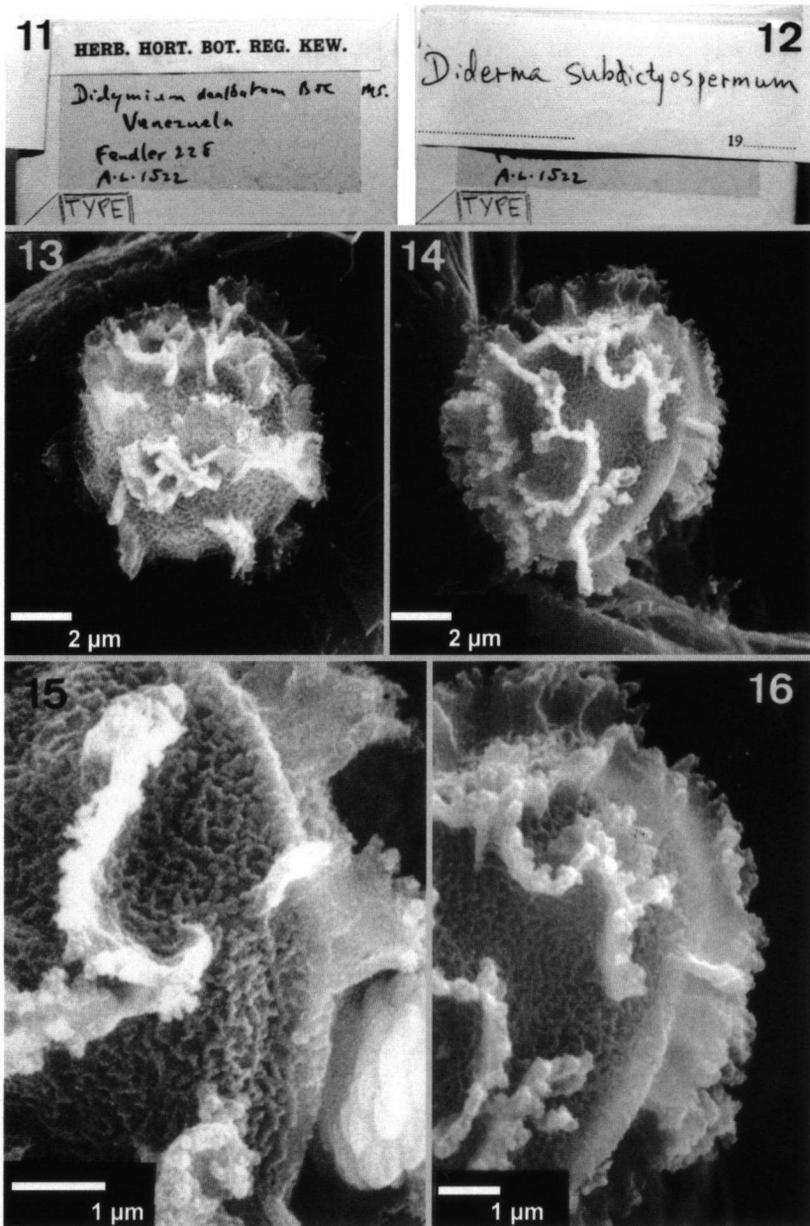
Figs. 7–10. *Diderma cristatosporum*, holotype (AH 18413). 7 & 8. Spores under SEM; 9 & 10. detail of spore ornamentation under SEM.

times colourless at the extremities. Spores free, dark brown in mass, pale purple-grey in the light microscope, globose, 12–15 μm diam., with small, scattered ridges; when observed by SEM, the spore has a smooth surface and the ridges are formed by long bacula united to form sinuous lines.

**Habitat** — On fallen branches of *Pinus sylvestris* near melting snow.

**Distribution** — Known only from Spain (province of Segovia).

**Collections studied.** SPAIN: Segovia, Puerto de Navafra, 1800 m, on bark of dead branches of *Pinus sylvestris* L., 15-V-1997, A. Sánchez, AH 18413 (holotype) and AH 19557.



Figs. 11–16. *Didymium subdictyospermum*, holotype (Fendler 228 in K). 11 & 12. Box and labels of the type; 13 & 14. spores under SEM; 15 & 16. detail of spore ornamentation under SEM.

*Diderma cristatosporum* is characterized by its sessile sporocarps, double peridium, reddish brown, hemispherical to elongated columella, thick dark brown capillitium and spores with small ridges.

Other *Diderma* species described with reticulate or subreticulate spores are: *Diderma subdictyospermum* (Rostaf.) G. Lister, *D. reticulosporum* Nann.-Bremek., Mukerji & Pasricha and *D. diadematum* Schokn. & J.L. Crane.

*Diderma subdictyospermum* was originally described from Venezuela, growing on dead leaves and moss. We have studied the type material deposited in Kew (Figs. 11–16): the ornamentation of the spores is different from that of *D. cristatosporum*, viz. very marked ridges and a reticulum on the spore surface that is visible only with SEM.

*Diderma reticulosporum* described from India by Nannenga-Bremekamp et al. (1984) has stipitate sporocarps, a short, cylindrical columella and subvoid to subglobose spores with an irregular reticulum.

*Diderma diadematum* described by Schoknecht & Crane (1978) from Illinois (USA) was obtained from moist-chamber cultures of submerged leaf litter of *Acer* sp. and *Taxodium distichum* (L.) Rich. This species possesses sessile sporocarps with a double peridium (the outer peridium is white and often incompletely covers the inner layer), no columella and globose spores, (11–)12–13(–15)  $\mu\text{m}$  diam., with large spines arranged in an apparently subreticulate pattern.

#### ACKNOWLEDGEMENTS

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