

Two New Species of *Didymium* (Myxomycetes) from Spanish Territories

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Abstract

Two species of *Didymium* new to science are described: *D. balearicum*, which is a pale yellow species related to *D. squamulosum*, was found in Mallorca and *D. canariense*, a long-stalked species with a thin, yellow, discoid columella is related to the *D. iridis* complex. It is found in Gomera, La Palma and Tenerife in the Canary Islands.

During visits of the British Mycological Society to Gomera and Tenerife in 1990 six gatherings were made of a long-stalked *Didymium* with a distinctive columella. Additional material was collected in Tenerife in 1996 by J. MOSQUERA and, again during a visit of the Society, in La Palma, in 1999. In 1992 the Society visited Mallorca and a large collection was made of a pale yellow, short-stalked species. Both of these species appear to be undescribed.

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Didymium balearicum ING spec. nov.
(Fig. 1)

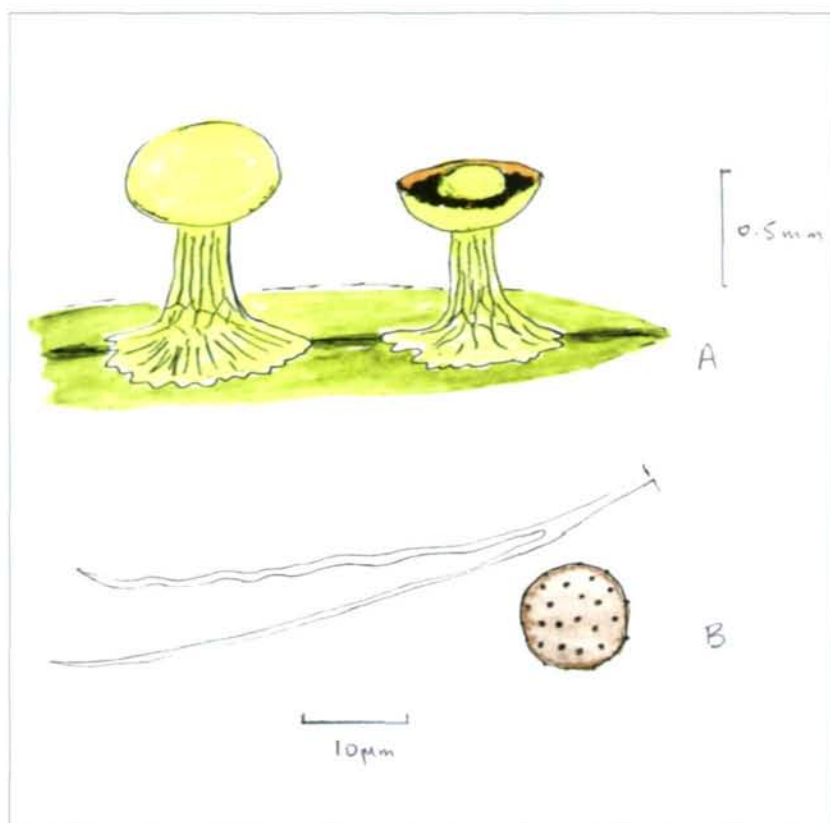


Fig. 1: *Didymium balearicum*.
A: two sporangia, the righthand example partly dehiscent, showing columella and inner peridium;
B: spore and capillitial threads.

Sporangia stipitata, subglobosa, citrina cum umbilico humile sed lato, 0.8 mm in diam., 0.8-1.0 mm tota in alta. Hypothallus discoideus, calcareus, sulcatus, pallido-citrinus, pallescens ad albus. Stipes citrinus vel pallido-ochraceus, as 0.6 mm altus, crassus, sulcatus, reticulatus ad basem, coartans as apicem, confertim crustatus cum materia calcarea, lumine stipitis pleno materia crystallina. Peridium pelucidum, brunneum, obtectum cum farina crassa crystallis stellatis flavisque, crystallis cum multis radiis, 16-18 µm in diam. Columella subglobosa, citrina, calcarea. Capillitium cum filis flexuosis hyalinis, pauce furcatis, cum paucis connectionibus transversis. Sporae globosae, nigro-brunneae in cumulo, obscuro-flavobrunneae per lucem transmissum, regulariter verrucosae, 10-11 µm in diam. Plasmodium ignotum.

Holotypus: San Prohom, Soller, Mallorca, 13-11-1992, B. ING, in foliis putridis *Oleae europaeae*, depositus in Hb. B. ING, No. 92092.

Sporangia stalked, subglobose, lemon yellow, with a wide but shallow umbilicus, 0.8 mm in diam., 0.8-1.0 mm in total height. Hypothallus calcareous, furrowed, pale lemon fading to white. Stalk lemon to pale ochraceous, up to 0.6 mm high, thick, furrowed, netted at the base, tapering to the apex, thickly encrusted with calcareous material, the lumen filled with crystalline material. Peridium brown, transparent, covered with a thick powder of yellow, stellate crystals, with numerous rays, 16-18 µm in diam. Columella subglobose, calcareous, lemon yellow. Capillitium of hyaline, flexuous threads with few branches or cross-connections. Spores blackish brown in mass, dark yellow-brown in transmitted light, globose, evenly warted, 10-11 µm in diam. Plasmodium not seen.

Distribution: only known from the original collection, which was of considerable size.

Etymology: from the Balearic Islands.

The material was found in a thick pile of leaf litter inside the hollow trunk of an ancient olive-tree in an old grove. The distinctive colour suggests immediately that it

Undescribed. However, it is very close to *D. squamulosum* (ALB. & FR.) SCHW. and, apart from the colour, would fit into the very broad concept of this species, which has a wide range of spore size and markings but usually has a colourless peridium (NANNENGA-BREMEKAMP 1991). Moreover, *D. squamulosum* is now known to be a complex of mainly agamic species and consists of several biological species sharing many of the characteristics of a single, variable morphospecies (CLARK et al. 1999). This new taxon differs from the usual concept of *D. squamulosum* in the larger, evenly warted spores, the brown peridium, the colouration of the calcareous material and the large peridial crystals. Specimens of 'normal' *D. squamulosum* on *Olea* litter at the same site were white and had smaller spores with clustered warts. Several other taxa, with differences in peridial covering, spore markings, etc. have been noted and the complex is in need of a thorough revision.

Didymium canariense ING spec. nov.
(Fig. 2)

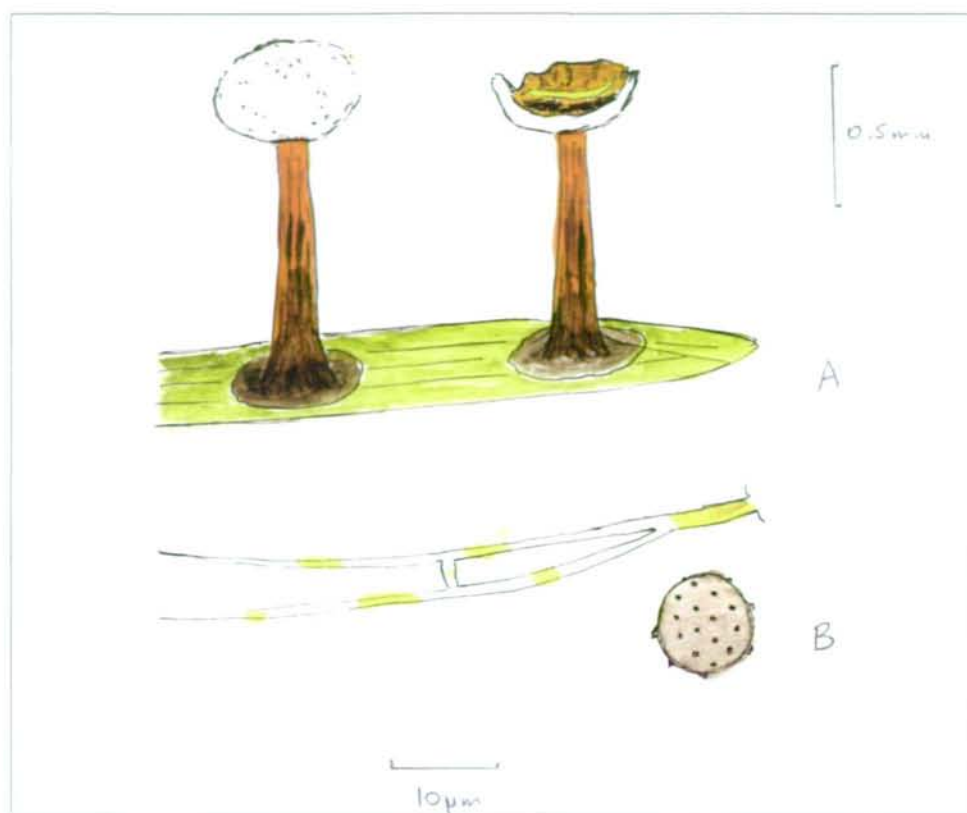


Fig. 2. *Didymium canariense*. A: two sporangia, the right-hand example dehiscent, showing columella and inner peridium; B: spore and capillitial threads.

Sporangia stipitata, globosa vel depressoglobosa, alba, umbilicata, 0.7-0.9 mm in diam., 1-1.2 mm in alto. Hypothallus discoideus, fuscus, obscurus. Stipes cylindricus, parce coarctans, parce deplanatus, ad 0.8 mm in alto; per luteum repercussum claro-rubrobrunneus ad apicem, obscurior brunneus ad basem, per luteum transmissum aurantiacus, obscurior ad basem, sine depositis calcariis. Peridium translucens, pallido-rufum, specialiter in superficiem internam, lucente, irregulariter dehiscens in lobis, adhaerente ad apicem stipitis similiter fimbriae latae; farinosum cum crystallis stellatis hyalinisque, 3-5 radii tenuibus, 5-8 μ m in diam., parce parvioribus sporis. Columella discoidea, tenuis, parce lata ut sporangium, aut recens claro-flava, pallidescens ad pallido-ochracea, spicata cum bases filorum capillitii adhaerentes. Capillitium cum filis tenuibus, flexuosis, cum furcis paucis dichotomis et paucis connectionibus transversis;

hyalinum sed cum basibus obscurioribus et sectoribus pigmentatis irregulariter locatis. Sporae globosae, in cumulo nigrae, fuscae per lucem transmissum, regulariter verrucosae, 8-9 μ m in diam. Plasmodium pallido-fuscum.

Holotypus: Degollado Perazo, Gomera, Islas Canarias, 13-01-1990, B. ING, in foliis putridis *Cistus monspeliensis*, depositus in Hb. B. ING, No. 90017.

Etymology: from the Canary Islands.

Sporangia stalked, globose or slightly flattened from the top, white, with a deep, narrow umbilicus, 0.7-0.9 mm in diam., total height 1-1.2 mm. Hypothallus brown, discoid, inconspicuous. Stalk cylindrical or slightly tapering upwards, slightly flattened, up to 0.8 mm high, in reflected light bright reddish brown above, darker brown below; by transmitted light orange, darker below, without enclosed calcareous material. Peridium translucent, pale rufous, especially on the inner surface, shining, dehis-

cing with irregular lobes which remain attached to the apex of the stalk as a broad fringe. Peridial covering is a thin powder of colourless, stellate crystals, each with 3-5 slender rays, 5-8 µm in diam., i.e. slightly smaller than the spores. Columella thin, discoid, almost as wide as the sporangium, bright canary-yellow when fresh, fading to pale ochraceous, with thin spikes which are the broken bases of the capillitium threads. Capillitium of narrow, very flexuous threads, colourless but with darker bases and with irregularly spaced pigmented sectors, occasionally branching dichotomously, with few cross-connections. Spores black in mass, dull brown in transmitted light, globose, 8-9 µm in diam, evenly warted. Plasmodium pale brown.

Other material examined: La Laguna Grande, Parque Nacional Garajonay, Gomera, 11 January 1990, J.T. PALMER, in litter of *Castanea sativa*, 90004; Cumbres Tunnel, Gomera, 12 January 1990, J.T. PALMER, in litter of *Myrica faya*, 90010; Pinar Esperanza, Tenerife, Islas Canarias, 17 January 1990, J.T. PALMER, in litter of *Eucalyptus* sp., 90051; Agua Mansa, Tenerife, 18 January 1990, B. ING, in litter of *Eucalyptus* sp., 90063; Agua Mansa, Tenerife, 18 January 1990, B. ING, in litter of *Pinus canariensis*, 90064; Las Mercedes, Tenerife, 12 February 1996, J. MOSQUERA, in litter of *Eucalyptus* sp., JFC 7516; Cumbre Nueva, La Palma, Islas Canarias, 25 November 1999, B. ING, on dead herbaceous stem of *Gonospermum canariense* (all in Hb. B. ING.).

Habitat: in litter, mostly of sclerophyllous trees and shrubs in semi-arid vegetation.

Distribution: known from three sites in Gomera, one in La Palma and three in Tenerife, Canary Islands.

This taxon clearly belongs within the broad concept of *Didymium iridis* (DITM.) FR. which is known to include several biological species and is frequently represented as a large group of morphospecies (NANNENGA-BREMEKAMP 1972). Unfortunately the traditional morphological species concepts and the boundaries of the biological species do not coincide (CLARK & LANDOLT 1993). The new species resembles *D. eximium* PECK em. NANN.-BREMEK. but differs in its coloured peridium, larger peridial crystals and the structure of the columella. This appear to be a true columella, rather than the pseudocolumella of *D. eximium*, and is continuous with the stalk. The stalk in *D. canariense* is also nearly cylindrical whereas in *D. eximium* it is clearly tapering.

Many of the *D. iridis* genotypes which are genetically distinct are also geographically isolated, especially on islands. The presence of *D. canariense* at seven sites in an archipelago well known for its tendency to produce rapid speciation, supports its recognition as a distinct species.

Acknowledgements

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References

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