

A New Species of *Gonatobotryum* from South Africa

by

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ABSTRACT

An isolate of *Gonatobotryum* from barley kernels is described as a new species, *Gonatobotryum sclerotigenum*.

Early in 1969 a fungus was isolated from partially sterilized barley kernels received from Stellenbosch. The isolate proved to be an unknown species of *Gonatobotryum* Sacc. and is here described as new. Type specimens in the form of dried-down cultures on agar have been deposited in the National Herbarium (PRE) (Mycological Herbarium), Department of Agricultural Technical Services, P.O. Box 994, Pretoria, South Africa.

This appears to be the first record of this genus in South Africa. *Gonatobotryum sclerotigenum* van Warmelo, sp. nov.

Fig. 1, 2, 3, 4, 5.

Hyphae fuscae, erectae, ramosae, septatae. *Conidiophora* ex substrato aut hyphis vegetatis enata, ramosa, septata, 10 μ in diametro, spicula hyalina. *Conidia* in greges aliquando conferta, acatenulata, septata aut perraro uniseptata, ellipsoidea vel ovata, brevi pedicellata, pallide olivaceo-brunnea, 11 — 19 x 6 — 8 μ . *Sclerotia* praesentia, pervariabilia, fere globosa, nigra.

Specimen examined: Van Warmelo, PRE 44252, (Holotype), on *Hordeum* spp. kernels, from Stellenbosch, Cape, May 1969. Cultures have also been deposited in the Centraalbureau voor Schimmelcultures, Baarn, Netherlands.

Colonies on corn-meal agar at 25°C covering the plate in approximately five days, loosely textured and woolly, at first hyaline but eventually darkening to light olivaceous brown, aerial mycelium abundant, reverse pale red. *Mycelium* hyaline at first, darkening eventually but remaining hyaline in parts, branched, septate, 10 μ in diameter. *Conidiophores* arising from the substrate or from aerial vegetative hyphae, branched, becoming olivaceous brown, septate, 10 μ in diameter, giving rise to hyaline spicules on which the conidia are borne. *Conidia* borne in clusters at intervals along the conidiophores, non-catenate, aseptate or only very rarely uniseptate, ellipsoid to ovate, briefly pedicellate, light olivaceous brown, 11 — 19 x 6 — 8 μ . *Sclerotia* variable in shape and size, usually globose, black, irregularly distributed through the colony, up to 2 mm in diameter.

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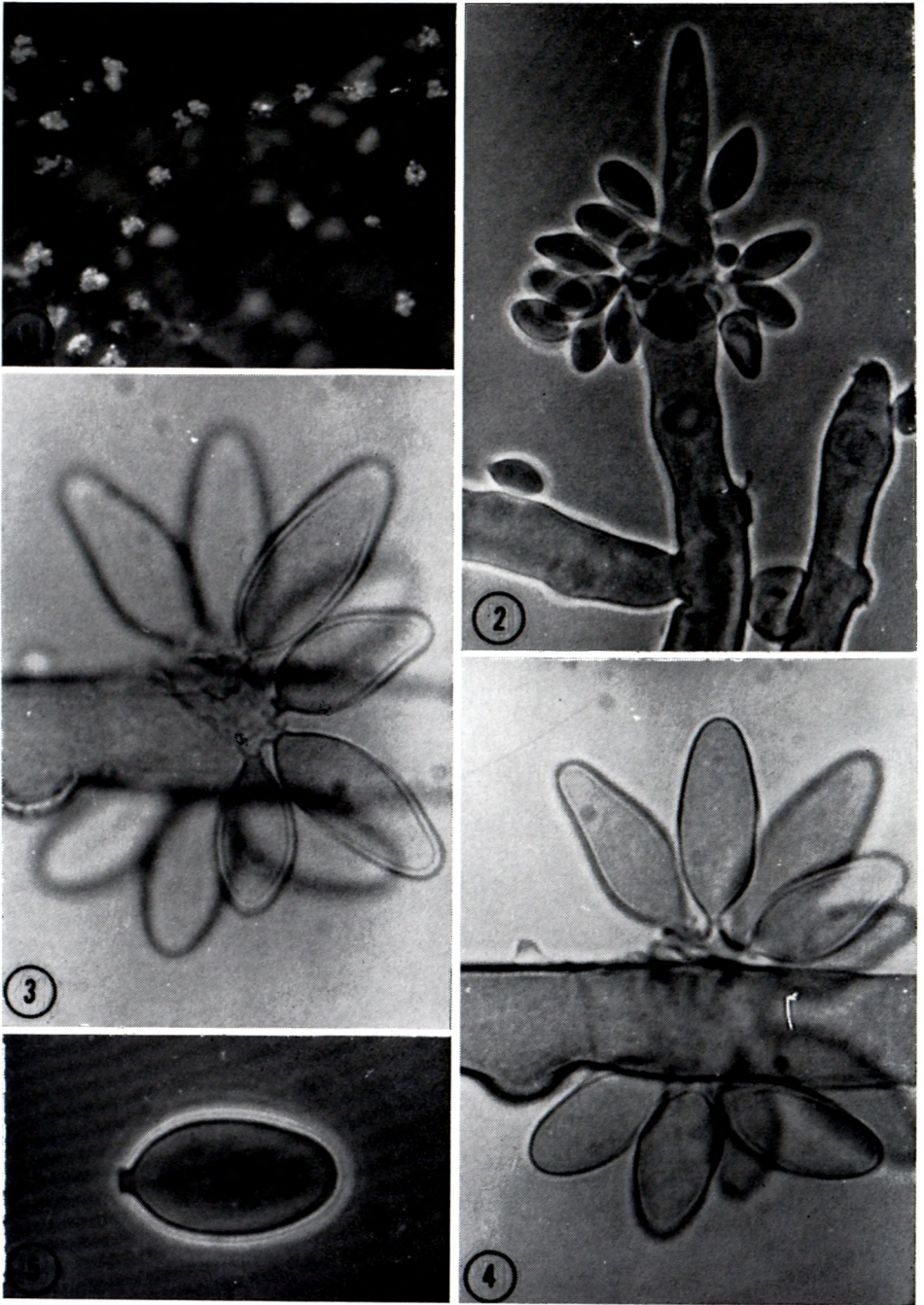


Fig. 1. Conidiophores with spore clusters (46x).
 Fig. 2. Branched conidiophore showing spore cluster and growing tip (750x).
 Fig. 3 and 4. Sporogenous spicule showing conidia borne at different heights on the same spicule (1500x).
 Fig. 5. Mature conidium (2000x).

This species was compared with the other species of *Gonatobotryum* and was found to differ from them as detailed below. The conidia of *G. fuscum* Sacc. (Syll. Fung. 4 : 278, 1886), *G. maculicolum* (Wint.) Sacc. (Saccardo, Syll. Fung. 4 : 278, 1886), *G. bahiense* Batista (Ann. Soc. Biol. Pernambuco 13 : 154, 1955) and *G. indicum* Munjal & Gill (Ind. Phytopath. 16 : 62, 1963) are all considerably smaller than in *G. sclerotigenum*. The conidia of *G. dichotomum* Cooke & Mass. (Saccardo, Syll. Fung. 10 : 579, 1892) are not very different from those of *G. sclerotigenum* which, however, differs from *G. dichotomum* in having non-dichotomously branched conidiophores. The conidia of *G. apiculatum* (Peck) Hughes (Can. J. Bot. 31 : 594, 1953) are similar in size to those of *G. sclerotigenum* but differ by being borne in chains.

An additional important difference is the absence of sclerotia in all the previously described species of *Gonatobotryum*.

The sporogenous spicules are extremely delicate structures which degenerate and disappear after producing a variable number of conidia in different planes, leaving only a raised pad-like structure on the surface of the conidiophore, around which the spores remain clustered. The spicules can only be seen on developing portions of the conidiophore, and then only with some difficulty.

The placing of this species in the genus *Gonatobotryum* justifies some comment. The genus *Gonatobotryum* Sacc. (Saccardo, Syll. Fung. 4: 278, 1886) was described as being a dark or pigmented *Gonatobotrys* Corda (Saccardo, Syll. Fung. 4: 169, 1886). These two genera are morphologically similar and can thus be separated only on the basis of colour. Barron (Mycologia 56: 313 — 316, 1964) discussed the value of colour as a distinguishing criterion between the genera *Stachybotrys* Corda and *Hyalostachybotrys* Srinivasan, and concluded that the presence of colour as the sole difference between these two genera is unacceptable.

On the basis of the pigmented conidia and conidiophores this new fungus is correctly placed in *Gonatobotryum* Sacc. It is, however, felt that, following the same reasoning as Barron (loc. cit.), the genus *Gonatobotryum* Sacc. should be reduced to synonymy with *Gonatobotrys* Corda. As no authentic material of either genus was examined, however, this change is not made here.

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