

Banana leaf spot *Mycosphaerella musicola*, the perfect stage of *Cercospora musae* Zimm.

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Journal article : [Tropical Agriculture, Trinidad and Tobago](#) 1941 Vol.18 No.5 pp.9

Abstract : During an examination of banana leaves infected with *Cercospora musae* in Jamaica the author observed two-celled spores, apparently ascospores, which developed germ-tubes and appressoria similar to those of *C. musae*. Perithecia and such spores were found without much difficulty and single ascospore isolations yielded cultures identical with those of *C. musae*, and yielding conidia of *C. musae*.

method of Meredith and Butler [*R.A.M.*, xix, p. 228]. Inoculations of heart leaf Michel plants with suspensions of conidia so obtained repeatedly gave rise to spot lesions on which the conidia of *C. musae* were abundantly produced. This stage, which is named *Mycosphaerella musicola* n.sp. [without a Latin diagnosis], is characterized by dark brown or black, amphigenous, erumpent perithecia, and mature leaf spots, having a short protruding ostiole, a well-defined dark wall, measuring 46.8 to 72 (mean 61.8) μ in diameter. The oblong-clavate asci measure 36 by 8 to 10.8 μ . The bicellular, hyaline, obtuse-ellipsoid ascospores measure (mean 16.7) by 3 to 4 μ , are slightly wider in the upper than in the lower cell, show a marked constriction at the septum except when dead. No paraphyses were observed. At 70° to 84° F. the most rapid ascospore germination occurred in 2 to 0.5 hours on agar. The germ-tubes nearly always grew out from both ends, though not simultaneously; they never developed from the sides. The robust hyphae, growing out in line with the long axis, no side branching occurring during the first 24 hours, the growth rate was not above 5 μ per hour. Evidence of ascospore infection of leaves was obtained experimentally.

Ascospore discharge is not dependent on the presence of surface moisture on leaf spots, and can take place from the lower leaves when their shaded position prevents the formation of dew, and thereby suppresses conidial production. The ascospores are essentially wind-borne, while the conidia are readily removed from the spots by water but not by wind. If there is a large population of heavily spotted leaves, the ascospores may reach the heart leaves in as great abundance as do the conidia. Naturally, a newly opened heart leaf may be as severe as that by conidia.

Ascospores may well reach the heart leaves without coming into contact with the leaf material, so that spraying cannot be relied upon to control this form of infection. Ascospore production and discharge appear, however, to be purely seasonal. It would therefore seem that control would be assisted by the collection and destruction of dead, spotted leaves before the season of ascospore discharge.

The disease was probably spread comparatively rapidly through Jamaica by ascospores, as bananas are generally taken to the coast packed with infected leaves from which ascospores might be more easily disseminated than conidia.

[A popular account of the discovery of the ascigerous stage of *C. musae* is given by the author in *J. Jamaica agric. Soc.*, xlv, 3, pp. 80-81, 1941.

Record Number : 19411100899

Language of text : not specified

Language of summary : not specified

Indexing terms for this abstract:

Organism descriptor(s) : Cercospora, fungi, Musa, Mycosphaerella, Mycosphaerella
Mycosphaerellaceae

Descriptor(s) : appressoria, ascospores, bananas, branching, conidia, dew, diameter, germination, growth rate, leaf spotting, leaves, methodology, new species, pathogen, pathogenic fungi, plant pathogens, spores, spraying, sprays, taxonomy, techniques

Identifier(s) : fungus, Hyphomycetes, methods, perithecia, phytopathogenic fungi, phytopathogens, plant-pathogenic fungi, Pseudocercospora musae, systematic

Geographical Location(s) : Jamaica

Broader term(s) : Mycosphaerellaceae, Capnodiales, Dothideomycetes, Pezizomycotina, Ascomycota, fungi, eukaryotes, Musaceae, Zingiberales, commelinids, monocots, angiosperms, Spermatophyta, plants, Mycosphaerella, ACP Countries, Caribbean Commonwealth of Nations, Developing Countries, Greater Antilles, Antilles, Caribbean Threshold Countries

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