

# 1. PaDIL Species Factsheet



## Scientific Name:

*Mycosphaerella eumusae* Crous & Mour.

Dothideomycetes, Capnodiales

## Common Name

Eumusae leaf spot

Live link: <http://www.padil.gov.au/pests-and-diseases/Pest/Main/136640>

## Image Library

Australian Biosecurity

Live link: <http://www.padil.gov.au/pests-and-diseases/>

## Partners for Australian Biosecurity image library



Australian Government  
Department of Agriculture,  
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Department of Agriculture, Water and the Environment

<https://www.awe.gov.au/>



Department of  
Primary Industries and  
Regional Development

Department of Primary Industries and Regional Development,

Western Australia

<https://dpird.wa.gov.au/>



Plant Health Australia

<https://www.planthealthaustralia.com.au/>



Museums Victoria

<https://museumsvictoria.com.au/>

## 2. Species Information

### 2.1. Details

**Specimen Contact:** -

**Author:** Thangavelu R, Carlier J, Henderson J & McTaggart AR

**Citation:** Thangavelu R, Carlier J, Henderson J & McTaggart AR (2007) Eumusae leaf spot (*Mycosphaerella eumusae*) Updated on 10/16/2007 Available online: PaDIL - <http://www.padil.gov.au>

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### 2.2. URL

Live link: <http://www.padil.gov.au/pests-and-diseases/Pest/Main/136640>

### 2.3. Facets

**Status:** Exotic species - absent from Australia

**Group:** Fungi

**Commodity Overview:** Field Crops and Pastures

**Commodity Type:** Fresh Fruit, Leaves

**Distribution:** South and South-East Asia

### 2.4. Other Names

*Septoria eumusae* Carlier, M.F. Zapater, Lapeyre, D.R. Jones & Mour

### 2.5. Diagnostic Notes

Symptoms

*Mycosphaerella eumusae* has similar leaf spot characteristics to *M. fijiensis* and *M. musicola*. Primary lesions are brown streaks that expand to form large brown spots. This stage of the disease is the most recognisable and can be used to distinguish between the three *Mycosphaerella* leaf spot diseases. As the disease progresses, spots become grey in the centre but keep a brown border (Crous & Mourichon 2002).

The fungus:

Leaf spots amphigenous, initially visible as faint brown streaks, developing into oval or elliptical light brown lesions with grey centres and dark brown borders, coalescing to form large, brown necrotic areas under favourable conditions. Grey spots and patches are visible in necrotic areas, and lesions are surrounded by a chlorotic yellow zone. Pseudothecia amphigenous, predominantly hypophyllous, black, subepidermal, becoming slightly erumpent, globose, up to 80 µm diam., apical ostiole 10–15 µm wide; wall consisting of 2–3 layers of medium brown textura angularis. Asci paraphysate, fasciculate, bitunicate, subsessile, obovoid, straight or slightly incurved, 8-spored, 30–50 × 9–15 µm. Ascospores tri- to multiseriate, overlapping, hyaline, guttulate, thick-walled, straight, obovoid with obtuse ends, widest in the middle of apical cell, medianly 1-spertate or basal cell slightly longer than apical cell, tapering towards both ends, but with more prominent taper towards lower end, (11–)12–13(–16.5) × (3–)3.5–4(–4.5) µm. Spermogonia predominately hypophyllous, subepidermal, substomatal, globose, dark brown, up to 75 µm diam. Spermata hyaline, rod-shaped, 3–6 × 1–2 µm. Mycelium internal, pale brown, consisting of septate, branched, smooth hyphae, 1.5–2.5 µm wide.

Caespituli sporodochial, subepidermal, substomatal, predominantly epiphyllous, grey, up to 100 µm wide. Conidiophores aggregated in dense fascicles arising from the upper cells of a brown stroma up to 70 µm wide; conidiophores subcylindrical, smooth, hyaline or pale brown below, 0–3-septate, straight to geniculate-sinuous, unbranched or branched below, 10–25 × 3–5 µm. Conidiogenous cells terminal, unbranched, hyaline, smooth, tapering to flat-tipped apical loci, proliferating sympodially, or 1–4 times percurrently near the apex, 10–20 × 3–4 µm; scars inconspicuous. Conidia solitary, subhyaline to pale olivaceous, thick-walled, smooth, subcylindrical, apex obtuse, base subtruncate, straight to variously curved, 3–8-septate, (18–)30–50(–65) × (2–)2.5–3 µm; hila inconspicuous (Crous & Mourichon 2002).

#### Notes:

Two other virulent *Mycosphaerella* leaf spot diseases of banana are known. *M. fijiensis* Morelet (anamorph: *Pseudocercospora fijiensis* (Morelet) Deighton; black Sigatoka) and *M. musicola* R. Leach (anamorph: *Pseudocercospora musae* (Zimm.) Deighton; Sigatoka disease).

The teleomorphic stages of the *Mycosphaerella* leaf spot diseases on banana are morphologically similar and cannot yet be used as a method of diagnosis (Carlier et al. 2000). The anamorphic forms are distinctive and can be used for morphologic identification (Crous & Mourichon 2002):

#### Morphology

*P. eumusae*

*P. fijiensis*

*P. musae*

#### Sporodochia

epiphyllous

hypophyllous

amphigenous

#### Conidiophores

septa

0 to 3

0 to 5

aseptate

colour

sub-hyaline to pale brown

pale brown

pale brown

shape

subcylindrical

subcylindrical

ampulliform

size

10-25 x 3-5  $\mu\text{m}$

16.5-62.5 x 4-7  $\mu\text{m}$

5-25  $\mu\text{m}$

conidiogenic loci

truncate ends

minutely thickened scars

lacking visible scars

Conidia

shape

subcylindrical

obclavate to cylindric-obclavate

cylindrical to cylindric-obclavate

septa

3 to 8

1 to 10; commonly 5 to 7

0 to 8; commonly 2 to 5

size

(18-)30-50(-65) x (2-)2.5-3  $\mu\text{m}$

10-120 x 2.5-5  $\mu\text{m}$

6.5-22 x 2.5-4  $\mu\text{m}$

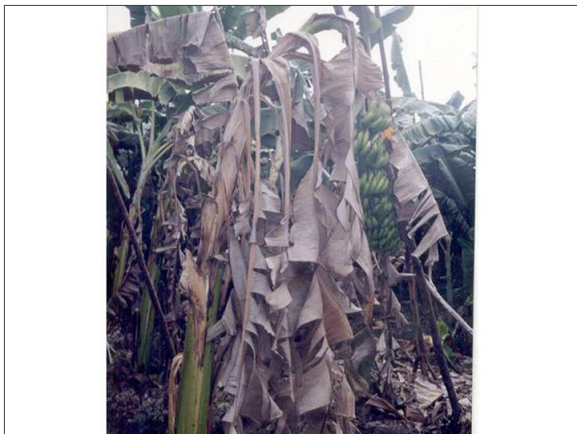
Table: Anamorphic characteristics of Musa leaf spot fungi.

## 2.6. References

Carlier J, Zapater M-F, Lapeyre F, Jones DR & Mourichon X. (2000) Septoria leaf spot of banana: A newly discovered disease caused by *Mycosphaerella eumusae* (anamorph *Septoria eumusae*). *Phytopathology* 90: 884-890. Crous PW & Mourichon X (2002) *Mycosphaerella eumusae* and its anamorph *Pseudocercopsora eumusae* spp. nov.: casual agent of eumusae leaf spot disease of banana. *Sydowia* 54:35-43.

## 2.7. Web Links

### 3. Diagnostic Images



for use contact  
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**Defoliation caused by Eumusae disease :** R. Thangavelu National Research Centre for Banana



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**Early ripening of fruits due to Eumusae leaf spot disease:** R. Thangavelu National Research Centre for Banana



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