



# First report of *Ceratocystis fimbriata* causing wilt on *Khaya senegalensis*

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Brazil has an active forestry sector, including production for both wood pulp and timber. The species *Khaya senegalensis* (African mahogany) has been introduced into the country because it produces good quality timber and its wood is valued for furniture making. It is estimated that more than 100,000 ha of African mahogany has been planted in Brazil. In July 2016, about 25 seven-year-old *K. senegalensis* trees in an area of approximately 1 ha were found with wilt symptoms in the region of Gloria de Dourados, Mato Grosso State, Brazil.

Stem fragments, approximately 1 cm<sup>2</sup> in size, with characteristic symptoms were collected, surface-sterilised with 1% NaOCl for 1 min, rinsed twice in sterilised distilled water, and placed on carrot baits (Moller & DeVay, 1968). The carrot disks were taped together and incubated in a moist chamber at 25 ±2°C for one week. After sporulation of the fungus on the carrot tissue, the ascospore masses formed at the tip of the perithecia were transferred to malt extract agar (MEA). After 10 days, black, globose perithecia (137.1 × 133.52 µm) with a long rostrum (577.43 µm) were observed (Fig. 1). Ascospores were hat-shaped, measuring 3.98 × 5.26 µm. Asexual aleurioconidia were brown (12.8 × 8.94 µm) and two types of endoconidia were observed: cylindrical (21.18 × 4.77 µm) and doliiform (9.07 × 8.23 µm), in chains (Figs. 2-3). The morphological characteristics indicated that the fungal isolate was of the genus *Ceratocystis*. DNA from mycelium grown on MEA was collected, extracted and used to amplify the ITS-5.8S rDNA region based on the protocol described by Johnson *et al.* (2005). The ITS sequence of the nuclear rDNA (GenBank Accession No. MF280402) was 99% identical to that of *C. fimbriata* isolate CBS115173 (KC493168) isolated from *Gmelina arborea* in Brazil (Luchi *et al.*, 2013).

Inoculation of plants was performed using a method modified from Silveira *et al.* (2006). One-centimetre mycelial discs of the fungus (from ten-day-old colonies on MEA) were placed onto injured stems of six-month-old healthy *K. senegalensis* saplings. The inoculation site was wrapped with cotton cloth (moistened with sterile distilled water) and plastic film. Plants were inoculated with a sterile MEA disc as a negative control. Ten plants were inoculated for each treatment. The inoculated plants were kept in the greenhouse with an average temperature of 30°C. Wilt symptoms caused by *C. fimbriata* were observed 60 days after inoculation and plant death at 90 days (Fig. 4). The fungus was re-isolated in culture from the stem of the inoculated African mahogany, confirming pathogenicity. Control plants were symptomless.

*Ceratocystis fimbriata* occurs commonly on eucalyptus and mango in Brazil and has been reported recently on *G. arborea* (Luchi *et al.*, 2013) and *Passiflora edulis* (Firmino *et al.*, 2013). There is also a report of a *Ceratocystis* sp. occurring on *K. senegalensis* in Brazil (Benso *et al.*, 2016) but few details were recorded. This is the first confirmed report of *C. fimbriata* on *K. senegalensis*. Knowing that mahogany takes about 30 years to be harvested and that control of this pathogen is difficult, it can be concluded that this disease is a threat to African mahogany in Brazil.

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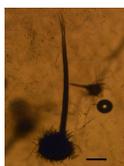


Figure 1



Figure 2

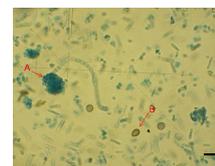


Figure 3



Figure 4

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