

NEW DISEASE REPORT OPEN ACCESS

First Report of *Diplodia mutila* Causing Canker and Dieback in the Service Tree in France

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Correspondence: P. Fernandez-Conradi (pilar.fernandez@inrae.fr)**Received:** 20 August 2025 | **Accepted:** 5 December 2025**Keywords:** *Botryosphaeria stevensii* | *Cormus domestica* | fungal plant disease

The service tree (*Cormus domestica*) is increasingly valued in agroforestry systems for its biodiversity benefits (Hrdousek et al., 2023). In autumn 2022, necrotic lesions were observed on the trunks and branches of several service trees at the Guémené-Penfao National Forest Genetic Resources Centre (47.63133725364935, -1.8913795189019276).

To identify the causal agent, 20 samples, comprising twigs and branches, were collected from seven diseased trees. From each sample, ten 5 mm² chips of inner bark and xylem tissue were aseptically excised from the margins of necrotic lesions and plated onto potato dextrose agar (PDA) supplemented with ampicillin. After 2 weeks at 25°C, circular colonies, flat to slightly raised, with dense aerial mycelium were observed. The colony surface appeared woolly to cottony, dark greyish-black with a whitish-grey centre, and black on the reverse side (Figure 1). No exudate droplets were observed. Microscopically, the hyphae were hyaline, septate, smooth-walled, and branched. Short conidiophores bore slightly swollen, flask-shaped to cylindrical conidiogenous cells. Mature conidia were not observed.

Genomic DNA of a typical culture was obtained following the protocol described by Mishra et al. (2008). PCR amplification was performed using primers ITS4 (5'-TCCTCCGCTTATTGATATGC-3') and ITS5 (5'-GGAAGTAAAGTCGTAACAAGG-3') targeting the internal transcribed spacer (ITS) region of ribosomal genes. The amplified ITS region was sequenced (isolate CORM031, GenBank Accession No. PX589421) and compared with accessions in GenBank. The sequence shared 99% identity with *Diplodia mutila* (JF271751.1).

Pathogenicity was evaluated using 64 two-year-old potted saplings. Each sapling was inoculated by inserting a 5 mm plug



FIGURE 1 | Morphology of *Diplodia mutila* isolate CORM031 colonies grown on potato dextrose agar at 25°C for 2 weeks.

of a *D. mutila* culture (grown on PDA) into a hole of matching diameter created with a sterile core borer. The inoculation site was immediately covered for 2 weeks with humidified sterile gauze and plastic film to prevent desiccation. Control plants were wounded in the same way but inoculated with sterile PDA plugs instead of fungal cultures. All wounds were sealed with

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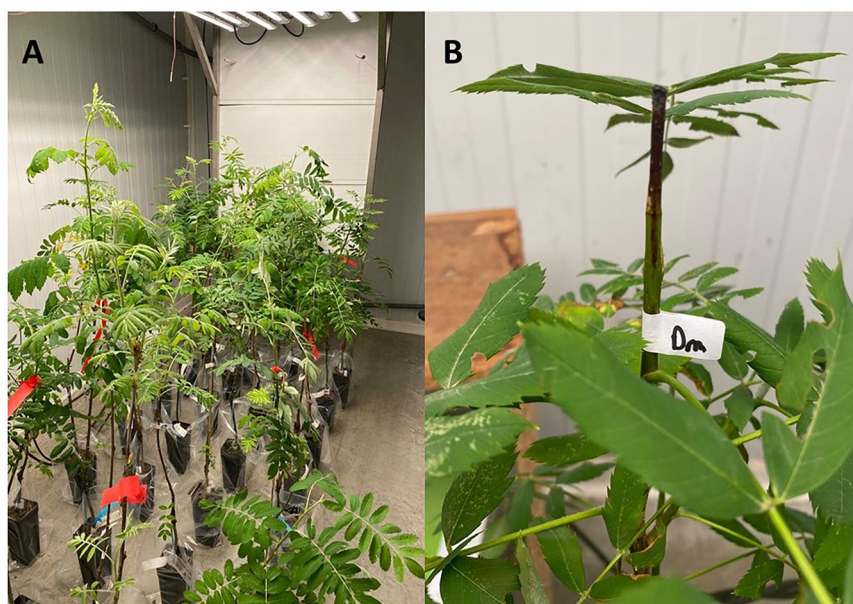


FIGURE 2 | Climatic chamber experiment: (A) a 2-year-old service tree (*Cormus domestica*) saplings and (B) symptoms of wood necrosis in a 2-year-old sapling artificially inoculated with *Diplodia mutila*, observed 2 weeks post-inoculation.

plastic film for 2 weeks post-inoculation. Saplings were grown for 2 months in two separate climate chambers, each containing 20 inoculated and 12 control saplings (Figure 2A). The climatic chambers simulated contrasting environmental conditions: (i) 15°C–20°C (night/day) with 80% relative humidity (RH), and (ii) 20°C–30°C with 50% RH, both under a 12-h light/dark photoperiod. Inoculated saplings in both conditions developed necrotic lesions similar to those observed in the field, with more rapid canker development under the warmer and drier conditions (Figure 2B). *D. mutila* was successfully re-isolated from symptomatic tissues, thereby fulfilling Koch's postulates. Control saplings remained asymptomatic throughout the experimental period.

D. mutila has previously been reported as a pathogen on various host species worldwide (Úrbez-Torres et al. 2016; Feng et al. 2019; Zhao et al. 2022). However, this is the first report of *D. mutila* causing necrotic lesions on *C. domestica* in France or elsewhere, raising concerns about its potential impact on service tree populations in agroforestry, especially under climate change scenarios favouring warmer and drier conditions.

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References

Feng, H., K. Hong, H. Xi, L. Song, C. Wen, and R. Zang. 2019. "First Report of Branch Canker on Chinese Date Caused by *Diplodia mutila* in China." *Journal of Plant Pathology* 101: 1251. <https://doi.org/10.1007/s42161-019-00313-7>.

Hrdousek, V. 2023. "The Service Tree." In *The Tree for a New Europe*. Prague, Czech Republic: Petr Brazda.

Mishra, A. K., K. Sharma, and R. S. Misra. 2008. "Rapid and Efficient Method for the Extraction of Fungal and Oomycetes Genomic DNA." *Genes, Genomes and Genomics* 2: 57–59.

Úrbez-Torres, J. R., J. Boulé, and D. T. O'Gorman. 2016. "First Report of *Diplodia seriata* and *D. mutila* Causing Apple Dieback in British Columbia." *Plant Disease* 100: 1243. <https://doi.org/10.1094/PDIS-11-15-1358-PDN>.

Zhao, X., C. Meng, X. Zeng, Z. Yang, and X. Pan. 2022. "First Report of *Diplodia mutila* Causing Leaf Blight on *Magnolia grandiflora* in China." *Plant Disease* 106: 2265. <https://doi.org/10.1094/PDIS-08-21-1787-PDN>.