First report of *Fusarium tricinctum* species complex causing leaf spot on *Hosta fortunei* in Italy

Angelo Garibaldi¹ · Giulia Tabone¹ · Vladimiro Guarnaccia^{1,2} · Incoronata Luongo² · Maria Lodovica Gullino¹

Received: 1 February 2021 / Accepted: 31 May 2021 / Published online: 14 June 2021
© Società Italiana di Patologia Vegetale (S.I.Pa.V.) 2021

Keywords Ornamentals · Gardens · Leaf spots

In the autumn of 2019, punctiform light-brown leaf spots were observed on 10% of about one hundred 5 to 6-year old *Hosta fortunei* (Liliaceae family) plants grown in a private garden near Biella (Piedmont, Northern Italy). The spots progressively enlarged with a dark-brown color and an irregular shape. Small leaf fragments were collected, disinfected in 1% hypochlorite for 30 s, rinsed in sterilized water and plated onto potato dextrose agar (PDA) containing 25 mg/l of streptomycin sulfate. After seven days at a temperature of 22–24 °C, colonies characterized by an abundant, cottony, white to light-pink mycelium were consistently isolated. A pure culture, grown on carnation leaf agar (CLA), showed 8.2–22.5 × 2.0–4.9 µm (average 16.8 × 3.3) oval–pyriform microconidia with 0–2 septa and 5.6–12.5 × 3.2–6.8 µm (average 9.9 × 5.1) napiform microconidia. The macroconidia were straight to curved, 3-septate, with tapering apical cells, and 21.9–35.8 × 2.8–5.1 µm (average 27.6 × 3.7) notched basal cells, resembling those of the *Fusarium* genus (Leslie and Summerell 2006). The DNA of the isolate coded 19/66 was amplified for the *tef* and *rpb2* regions (MW323451; MW323452) using the EF-1/EF-2 and Rpb2-5f2/Rpb2-7cr primer sets (Torbaty et al. 2019). Sequences were blasted in the FUSARIUM-ID database and showed 96.62% of similarity for *tef* (MH582379) and 98.51% for *rpb2* (JX171629) with the NRRL 25,481 strain (O'Donnell et al. 2013) of *F. tricinctum*, thus revealing a putative novel species of

the *F. tricinctum* species complex, as also suggested by a preliminary phylogenetic analysis. The pathogenicity test was conducted by spraying a conidial suspension (1×10^5 conidia/ml) onto the leaves of three *H. Fortunei* plants. Three plants were sprayed with deionized water and considered as controls. The plants were kept in a greenhouse at 20–25 °C. Leaf spots developed on the inoculated plants after fourteen days. The controls remained healthy. The pathogen was recovered from the infected leaves. This is the first report of the *F. tricinctum* species complex on *H. fortunei* in Italy.

References

- Leslie JF, Summerell BA (2006) The *Fusarium* Laboratory Manual. Blackwell Professional, Ames, Iowa, USA, 388 pp
- O'Donnell K, Rooney AP, Proctor RH, Brown DW, McCormick SP, Ward TJ, Frandsen RJN, Lysøe E, Rehner SA, Aoki T, Robert VARG, Crous PW, Groenewald JZ, Kang S, Geiser DM (2013) Phylogenetic analyses of RPB1 and RPB2 support a middle Cretaceous origin for a clade comprising all agriculturally and medically important fusaria. Fungal Genet Biol 52:20–31
- Torbaty M, Arzanlou M, Sandoval-Denis M, Crous PW (2019) Multi-gene phylogeny reveals new fungicolous species in the *Fusarium tricinctum* species complex and novel hosts in the genus *Fusarium* from Iran. Mycol Prog 18:119–133

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

✉ Giulia Tabone
giulia.tabone@unito.it

¹ Centre of Competence for the Innovation in the Agro-Environmental Sector (AGROINNOVA), University of Torino, Largo Paolo Braccini 2, 10095 Grugliasco, Torino, Italy

² University of Torino, Largo Paolo Braccini 2, 10095 Grugliasco, Torino, Italy