



Fusarium oxysporum causes *Paris polyphylla* var. *Chinensis* stem rot in Chongren (North Fujian, China)

Xianzhi Zhou¹ · Min Li² · Sufang Huang¹ · Hui Gao¹ · Jianyang Tang¹ · Yang Chen¹ · Minjian Chen³

Published online: 20 March 2018

© Società Italiana di Patologia Vegetale (S.I.Pa.V.) 2018

Keywords *Fusarium oxysporum* · *Paris polyphylla* var. *chinensis* · Stem rot · Microconidia

Rhizoma Paridis *Paris polyphylla* var. *chinensis* is an economically important medicinal plant in China. In May 2014, stem rot on Rhizoma Paridis caused by a *Fusarium* species was observed in Chongren (North Fujian, China). Plants in the early infection stages exhibited brown, water-soaked stem lesions near the ground, which elongated and enlarged. Later, leaves turned yellow and the plants wilted. Disease incidence was 10–30%. Fungal isolates with fluffy, white mycelia and pale purple pigments were obtained on potato saccharose agar (PSA). Microconidia were single-celled and oval to reniform, $4.8\text{--}9.4 \times 1.8\text{--}3.5 \mu\text{m}$ in size. Macroconidia were 1–4-septate, falciform or fusiform, and slightly curved, ranging from 31.7 to 48.7×2.5 to $4.9 \mu\text{m}$. Chlamydospores were both terminal and intercalary, either solitary or in short chains. Conidiogenous cells were short and monophialidic. These morphological characteristics accorded with the description of *F. oxysporum* (Burgess et al. 1994). The internal transcribed spacer (ITS) region sequences of the ribosomal DNA of 13 fungal isolates obtained using ITS5a and ITS4 primers produced a nucleotide sequence about 520 bp long (accession Nos. KU931542–53); when compared with sequences from database, all 13 fungal

isolates and three *F. oxysporum* isolates (JF439473, EU839370, and EU839398) formed a distinct lineage with a bootstrap value of 88.0%. Moreover, the thirteen fungal isolates, using species-specific FOF1/FOR1 *F. oxysporum* primers, produced 340 bp target fragments. Five 18-month-old seedlings of Rhizoma Paridis were incubated with a conidial suspension ($10^6/\text{ml}$), at 28 °C and 80–90% humidity with a 12-h photoperiod. The controls were roots immersed in sterile deionized water. Fifteen to 18 days after inoculation, brown spots appeared on the stems of 60% of inoculated plants, and parts of the leaves turned from green to yellow. The fungus was successfully reisolated from the decayed stems of inoculated plants. To our knowledge, this is first report of *F. oxysporum* as a pathogen of *P. polyphylla* var. *chinensis* in Chongren, North Fujian, China, or worldwide.

Reference

- Burgess LW, Summerell BA, Bullock S, Gott KP, Backhouse D (1994) Laboratory manual for *Fusarium* research, 3rd edn. University of Sydney, Australia

X. Zhou and M. Li contributed equally to this work.

✉ Xianzhi Zhou
xianzhizhou@126.com

¹ Agricultural Bio-resources Research Institute, Fujian Academy of Agricultural Sciences, Fuzhou 350003, People's Republic of China

² Inspection & Quarantine Technology Center, Fujian Entry-Exit Inspection and Quarantine Bureau, Fuzhou 350001, China

³ Agricultural Ecology Institute, Fujian Academy of Agricultural Sciences, Fuzhou 350003, People's Republic of China