

[← Previous](#)

Disease Notes

# First Report of Fusarium Wilt of Strawberry Caused by *Fusarium oxysporum* in Serbia

I. Stanković, D. Ristić, A. Vučurović, K. Milojević, D. Nikolić, B. Krstić, and A. Bulajić

**Affiliations** ▾**Authors and Affiliations**

I. Stanković, Institute of Phytomedicine, Department of Phytopathology, University of Belgrade-Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Serbia

D. Ristić, Institute for Plant Protection and Environment, Department of Plant Pathology, Teodora Drajzera 9, 11000 Belgrade, Serbia

A. Vučurović

K. Milojević

D. Nikolić

B. Krstić

A. Bulajić, Institute of Phytomedicine, Department of Phytopathology, University of Belgrade-Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Serbia. This research was supported by grants III-43001 of the Ministry of Education, Science, and Technological Development, Republic of Serbia and FP7- REGPOT-AREA-316004

**Published Online:** 9 Sep 2014 | <https://doi.org/10.1094/PDIS-04-14-0346-PDN>


## Abstract

Strawberry (*Fragaria × ananassa* Duch.) is the third most important berry crop in Serbia with average production ranging from 30,000 to 35,000 t on approximately 5,000 ha (2). In June 2013, symptoms of wilt and whole plant collapse were observed on approximately 25% plants growing in commercial strawberry crop of cv. Alba in the locality of Zablacé (Moravica district). Initial symptoms included leaf chlorosis and wilt, followed by withering and necrosis of older leaves and reduced fruit production, eventually leading to plant collapse and desiccations. Internal vascular tissues of the crown showed distinct brown reddish discoloration. Three small pieces of infected roots, petioles, or crown vascular tissues were surface disinfested with 2% NaOCl and


placed on five potato dextrose agars (PDA) per sample. After 7 days incubation at 23°C under 12 h of fluorescent light, nine monoconidial isolates were obtained (1) forming colonies with light purple mycelia. Colonies produced numerous hyaline, oval to ellipsoid microconidia (5 to 15 × 2.5 to 4.5 μm, average 8.45 × 2.25 μm), 3 to 5 septate fusoid macroconidia with pedicellate bases (20 to 50 × 2.70 to 6 μm, average 32.35 × 3.25 μm from 100 measured) and chlamydospores. Morphological and growth features were similar to the descriptions of *Fusarium oxysporum* Schlecht. emend. Snyder & Hansen (1). Pathogenicity of one selected isolate (97-13) was tested by dipping for 15 min the roots of five plants of each cultivar: Alba, Arosa, Clery, and Roxana into a conidial suspension (1 × 10<sup>6</sup> conidia/ml) harvested from a 7-day-old culture on PDA. Control plants were dipped in sterile distilled water. The inoculated plants were transplanted into pots containing sterilized peat and maintained in the greenhouse at 25°C. Thirty to thirty-five days post-inoculation, all plants developed wilt symptoms and vascular discoloration of crown tissues from which *F. oxysporum* was successfully re-isolated using the same method as for isolation. No symptoms were observed on any of the control plants. Morphological identification was confirmed by amplification and sequencing of a portion of the translation elongation factor-1 alpha (EF-1α) gene. Total DNA was extracted directly from fungal mycelium with a DNeasy Plant Mini Kit (Qiagen, Hilden, Germany) and PCR amplification performed with primers EF-1/EF-2 (4). Sequence analysis of EF-1α region revealed that Serbian isolate 97-13 (GenBank Accession No. KJ647280) shared 99 to 100% identity with the *F. oxysporum* sequences in GenBank. To our knowledge, this is the first report of Fusarium wilt on strawberry in Serbia. The presence of a new and potentially harmful disease may represent a serious constraint for strawberry production in Serbia.

**References:** (1) J. F. Leslie and B. A. Summerell. The Fusarium Laboratory Manual, Blackwell Publishing, London, UK, 2006. (2) M. Nikolić et al. Acta Hort. 842:615, 2009. (3) K. O'Donnell et al. Proc. Natl. Acad. Sci. USA 95:2044, 1998.

**The American Phytopathological  
Society (APS)**

 3340 Pilot Knob Road, St. Paul, MN 55121

USA

 +1.651.454.7250

**FAX** +1.651.454.0766



© 2020 The American Phytopathological Society. Powered by Atypon® Literatum.