

First Report of *Fusarium petroliphilum* Causing Fruit Rot of Butternut Squash in Spain

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DISEASE NOTES

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Severe fruit rot of butternut squash (*Cucurbita moschata* Duchesne), a fruit widely consumed and cultivated in Spain, was observed in 2016 in cultivated fields and at storage conditions in Valencia Province (southeast Spain). Fruits exhibited sunken lesions that eventually extended into the flesh and led to 10 to 20% postharvest losses. Small (3 to 4 mm) pieces of rotted tissues were surface disinfected for 1 min in 1.5% NaOCl, washed twice with sterilized distilled water, and plated onto potato dextrose agar (PDA) amended with streptomycin sulfate (0.5 g liter⁻¹). Plates were incubated at 25°C in the dark for 3 to 5 days. *Fusarium* colonies were consistently isolated, transferred to PDA and Spezieller Nährstoffarmer Agar (SNA) culture media for morphological identification, and identified as belonging to the *Fusarium solani* species complex (FSSC) based on morphology on SNA. Sporodochial macroconidia were 3 to 4 septate in average, slender and slightly curved, 45 (34 to 51) × 4.2 (3.5 to 5) μm; aerial microconidia were abundant, borne on short monophialides, ovoid to reniform, and 8.6 (4.9 to 16.4) × 3.4 (2.7 to 4) μm. The internal transcribed spacer region and elongation factor-1α gene of isolate GIHF-146 were sequenced (using ITS1/ITS4 and EF1-728F/EF1-986R primer pairs) and deposited in GenBank with accession numbers MF535516 (ITS) and MF580776 (EF-1α), respectively. BLASTn comparison of the two sequences showed a 99% homology with those of *F. petroliphilum* (Q.T. Chen & X.H. Fu) D. Geiser, O'Donnell, Short & Zhang: e.g., LC184243 (ITS) and LC177308 (EF-1α). Comparison of these sequences in the *Fusarium* ID database (<http://www.westerdijkinstitute.nl/fusarium/>) exhibited similar levels of similarity. For pathogenicity tests, isolate GIHF-146 was transferred to flasks containing potato sucrose (PS) medium and maintained in agitation (130 rpm) for 2 to 3 days at 25°C in the dark. Twelve 13-day-old squash seedlings (*Cucurbita ficifolia* Bouché cv. Cabello de Ángel) grown in trays containing sterilized substrate (Projar, Spain) were removed and dipped into a suspension of conidia (3 × 10⁶ conidia/ml) for 2 min, and transferred to plastic pots (Teku-tainer, Pöppelmann) with sterilized substrate. Three noninoculated plants dipped in sterile water were disposed as controls. Simultaneously, five *C. moschata* fruits were inoculated by direct injection of 1 ml of the same conidial suspension, and one control fruit was injected with 1 ml of sterilized distilled water. Plants and fruits were placed in a growth chamber at 25°C in 16/8 h photoperiod for 20 days. Large sunken areas densely covered by a grayish mycelium surrounding the point of injection appeared 6 days post inoculation on inoculated fruits. Inoculated seedlings and control fruits remained asymptomatic. The fungus was reisolated, fulfilling Koch's postulates. Short et al. (2013) erected *F. petroliphilum* to accommodate certain *Fusaria* from both plumbing drain biofilms and human mycotic keratitis, and is also the accepted epithet to name a group of pathogenic fungi on cucurbits (formerly named as *F. solani* f. sp. *cucurbitae* race 2) defined by its tissue specificity, causing only fruit rot on cucurbits (Tousson and Snyder 1961). To date, only *Fsc* race 1 had been reported from different cucurbits in Spain (Armengol et al. 2000; Gómez et al. 2008, 2014) and, to our knowledge, this is the first report of *F. petroliphilum* causing fruit rot of butternut squash in Spain, a species widely cultivated and employed as watermelon rootstock.

References:

Armengol, J., et al. 2000. OEPP Bull. 30:179. <https://doi.org/10.1111/j.1365-2338.2000.tb00875.x> [Google Scholar]

Gómez, J., et al. 2008. Plant Dis. 92:1137. <https://doi.org/10.1094/PDIS-92-7-1137B> [Abstract] [Google Scholar]

Gómez, J., et al. 2014. Australas. Plant Dis. Notes 9:136. <https://doi.org/10.1007/s13314-014-0136-z> [Google Scholar]

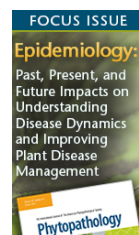
Short, D. P., et al. 2013. Fung. Gen. Biol. 53:59. <https://doi.org/10.1016/j.fgb.2013.01.004> [Google Scholar]

Tousson, T. A., and Snyder, W. C. 1961. Phytopathology 51:17. [Google Scholar]

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