



## First report of *Fusarium oxysporum* causing potato dry rot in *Solanum tuberosum* in Colombia

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*Fusarium oxysporum* has a worldwide distribution and is responsible for vascular wilt or root rot in many plants. Strains are classified into *formae speciales* based on their high degree of host specificity, for which multilocus sequence typing provides a good estimate (Lievens *et al.*, 2008). In August 2008, potato tubers (*Solanum tuberosum* subsp. *andigena*) showing symptoms of extensive dry rot were bought at a supermarket in Bogota, Colombia. They were surface sterilised and pieces of the lesion leading edge were incubated on potato dextrose agar (PDA) for one week in the dark at 27°C. Two different isolates (single spore cultures) were recovered, which were named FoSt01 and FoSt02. Both isolates showed macroscopic and microscopic morphologies consistent with the type description for *F. oxysporum* but had distinct colony morphologies. On PDA FoSt01 produced sparse white aerial mycelium with a strong dark purple pigment diffusing into agar, visible from both sides of the petri dish. By contrast, isolate FoSt02 produced abundant light purple aerial mycelium and the underside of colonies varied from pale tan to light purple. On carnation leaf agar (Fisher *et al.*, 1982), both isolates produced abundant single or two-celled oval (FoSt02) or kidney shaped (FoSt01) microconidia.

For each isolate, 12 sterile tubers were wounded, inoculated with agar plugs from a one-week-old PDA culture, and incubated at 25°C and 95 percent RH for 30 days in the dark. Both isolates induced moderate dry rot in all the tubers (between 0.3 and 3.5 cm<sup>3</sup> rot volume) (Peters *et al.*, 2008), but FoSt01 produced larger lesions than FoSt02 (one-way ANOVA,  $p < 0.001$ ). The pathogen was then recovered from the inoculated tubers. In comparison, no lesions were observed in tubers inoculated with sterile agar plugs or a *F. oxysporum* strain pathogenic to *Passiflora ligularis*. Ribosomal internal transcribed spacer (ITS) and a 650 bp section from the intergenic spacer region (IGS) were amplified by PCR using the primer combinations ITS1/ITS 4 and FIGS11/FIGS12 respectively (Kawabe *et al.*, 2005). Sequences of both loci were identical for both isolates (GenBank Accession Nos. GU132455, GU132456). Homology searches with the IGS sequence in the nr database from GenBank and the Fusarium ID database (<http://isolate.fusariumdb.org/index.php>), showed that both isolates are included in the species complex 2 and are most similar (99 percent) to two non-pathogenic *Fusarium oxysporum* isolates,

obtained from birdsfoot trefoil (*Lotus corniculatus*) and *Lycopersicon sp.* rhizosphere, and to an isolate pathogenic to red clover (*Trifolium pratense*). The isolates induced wilt after one week in eight red clover plants that were artificially wounded in the roots and submerged in a suspension of conidia (1x10<sup>4</sup> microconidia/ml). To the best of our knowledge, there are no previous reports on the occurrence of dry rot on tubers in Colombia caused by *F. oxysporum*. Potato dry rot is mainly a post harvest disease and could become a problem in Colombia since this country is the fourth-largest potato producer in South America.

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