Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Fusarium solani* Causing Soft Rot on *Sansevieria cylindrica* in the Republic of Korea

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Sansevieria cylindrica Bojer ex Hook. (cylindrical snake plant) is one of the most popular ornamental succulent plants in the Republic of Korea. It is highly tolerant to various stress conditions and, therefore, easy to take care of. Rigid and flat leaves come out from the basal part of the plant and become cylindrical in a mature plant, and cuttings of each cylindrical leaf are potted and sold on the market. In March 2019, we got four individual plants from a floriculture farm (37°41'36.0"N; 126°44'19.6"E) and observed soft rot symptom. Symptomatic tissues were cut to approximately 1 cm³ pieces, surface sterilized with 1% NaOCl, and placed on potato dextrose agar (PDA) at 25°C for 4 days. Two fungal isolates had a creamy white colony with rare aerial mycelium on PDA. Macroconidia were four- to five-septate, sickle-shaped, gently curved, measuring 28.1 to 49.1 × 3.7 to 5.8 µm. Microconidia, consisting of only one or two cells, were oval or reniform shaped and had varying dimensions of 3.0 to 19.8 × 1.4 to 5.0 µm. Based on the morphological characters, the isolates were identified as *Fusarium* sp. (Leslie et al. 2008). Genomic DNA was extracted from a single-spore isolate (JYR6), and the internal transcribed spacer (ITS) region

of the ribosomal DNA and transcription elongation factor 1- α (*TEF1*) were amplified and sequenced using primer pairs ITS1/ITS4 and EF1/EF2, respectively (Karlsson et al. 2016; White et al. 1990). The ITS and *TEF1* sequences of JYR6 were deposited in NCBI GenBank (MT261780 and MT274305, respectively). BLASTn analysis of the ITS sequence of JYR6 revealed 99 to 100% identities with those of *Fusarium solani* isolates (KX379166 and KP269017), and the *TEF1* sequence also showed 99 to 100% identities with those of *F. solani* isolates (JF740787 and KM580555). To fulfill Koch's postulate, cuttings of *S. cylindrica* were inoculated with JYR6. Fungal isolates were incubated in 50 ml of carboxymethyl cellulose medium on a rotary shaker (200 rpm) at 25°C for 5 days to produce conidia. The rhizomes including roots of healthy plants were cut and dipped into sterilized water or conidial suspension (5×10^7 conidia/ml) for 1 h and then replanted in sterilized soil. After 9 days postinoculation, infected plants started showing initial symptoms of rot from the cut region and spread upward, whereas the control plants remained healthy. Symptomatic regions looked water-soaked and were squashy. After infection, the color of the vascular bundle changed from white to reddish brown, as with those of intrinsic infected plants. Fungal strains reisolated from symptomatic tissues were revealed to be JYR6 based on both ITS and *TEF1* sequencing analyses. To our knowledge, this is the first report that *F. solani* causes soft rot on *S. cylindrica* in the Republic of Korea. This report expanded the host range of *F. solani* and offered a case of house plant disease.

References:

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