Title First report of a new postharvest disease of pear fruit caused by *Sphaeropsis pyriputrescens* in Canada

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Abstract

A survey of stored d'Anjou pears was conducted in British Columbia (BC), Canada in January 2006 to determine if Sphaeropsis rot was present in BC as had been reported previously for apples and pears in Washington (1,2). *Sphaeropsis pyriputrescens* Xiao & J.D. Rogers produces decay similar to *Botrytis cinerea* that originates from the stem or calyx end. Of 3,614 pears sampled, 55 (1.5%) had symptoms similar to those described for Sphaeropsis rot. Isolations were made from each infected pear onto acidified potato dextrose agar (APDA) dishes and incubated at 20°C for 5 to 7 days. Twenty-seven cultures resembling *S. pyriputrescens* were induced to produce pycnidia by exposing them to 12-h cycles of alternating light and dark periods at 20°C (1). Conidia extracted from pycnidia were then streaked onto PDA dishes and incubated at 20°C for 12 to 24 h from which single-spore cultures were made. These isolates developed a dense, white-to-cream mycelium that turned yellow over time; black pycnidia were formed on the culture dishes after 4 weeks. Conidia were brown, clavate to subglobose to irregular, and similar in size (16 × 10 μm) to previous descriptions (1). Identification of *S. pyriputrescens* was confirmed by using DNA sequence data from the β-tubulin and ribosomal genes. Sequences from *S. pyriputrescens* from Washington (1) were compared with those from BC, Canada. Isolates from Canada shared 99 to 100% sequence homology with those from Washington. Two of the BC isolates (DAOM 238917 and 238918) were deposited in the Canadian Culture Collection, Ottawa, ON and their corresponding sequences were placed in the GenBank database (NCBI, Bethesda, MD) with accession nos. EU156037 and EU156040 (ribosomal gene) and EU156048 and EU 156050 (β-tubulin gene), respectively. Five isolates from different locations in BC and two isolates from Washington were tested for pathogenicity on d'Anjou pears and four apple cultivars (Ambrosia, Fuji, Gala, and Granny Smith). Plugs (3 mm in diameter) removed from 2-week-old cultures were placed into two corresponding wounds on each of five fruit per cultivar. The fruit were then placed at 1 or 20°C for 22 or 7 days, respectively, when the diameters of the decay areas were recorded. All isolates were pathogenic on pears

(P = <0.05). Decay lesion diameter was greater at 1°C, ranging from 46.8 to 57.9 mm, than at 20°C, ranging from 32.6 to 44.2 mm. All BC isolates were also pathogenic on the fruit of each apple cultivar (P = <0.05), although at 20°C, decay areas were smaller than on pears, and at 1°C, very little rot developed. Koch's postulates were completed by reisolating *S. pyriputrescens* from the inoculated pears and apples and identifying the isolates as above. Although *S. pyriputrescens* was only observed on pears in BC, research in Washington indicates that it is a more serious problem on apples (2). To our knowledge, this is the first documented report of the occurrence of *S. pyriputrescens* in Canada.