

## Abstract

During March to July 2003, a postharvest fruit rot was observed on 'Golden Delicious', 'Granny Smith', and 'Red Delicious' apples (*Malus × domestica* Borkh.) sampled from commercial packinghouses in Washington State. Losses as high as 24% in storage bins were observed in July on 'Red Delicious'. The disease started at the stem bowl area or the calyx end of the fruit. Decayed fruit was apparently not wounded. Decayed areas were brown and firm. Internal decayed flesh appeared yellowish brown. On 'Red Delicious' apples, decayed fruit was apparently discolored from red to brown. As the disease advanced, pycnidia of a fungus might form on the stem, sepals, or the surface of decayed fruit. Pycnidia were 0.3 to 0.7 mm in diameter, black, and partially immersed in decayed tissues. To isolate the causal agent, decayed fruit was lightly sprayed with 70% ethanol and air dried. Fragments of diseased tissue were removed from the margin of diseased and healthy tissue and plated on acidified potato dextrose agar (PDA). A fungus was consistently isolated from decayed fruit with the symptoms described above. On PDA, the colonies of the fungus first appeared with dense hyaline mycelium and later turned light yellow to yellow. Black pycnidia of the fungus formed on 2- to 3-week-old oatmeal agar cultures at 20°C under 12-h alternating cycles of fluorescent light and dark. The fungus was identified as *Sphaeropsis pyriputrescens* Xiao & J. D. Rogers, based on the description of the fungus (1). Voucher specimens were deposited at the WSU Mycological Herbarium. Two isolates of the fungus recovered from decayed apples were tested for pathogenicity on apple. Fruit of 'Golden Delicious' and 'Gala' were surface-disinfested for 5 min in 0.5% NaOCl, rinsed, and air dried. Fruit was wounded with a sterile 4-mm-diameter nail head. A 4-mm-diameter plug from the leading edge of a 3-day-old PDA culture or plain PDA (control) was placed in the wound of each of 10 replicate fruit for each isolate or control. Fruit was tray packed with polyethylene liners and stored in cardboard boxes in air at 3°C, and decay was evaluated 2 weeks after inoculation. Five decayed fruits from each treatment were selected for reisolation of the causal agent. The experiment was conducted twice. In a separate pathogenicity test, two isolates (one each from apple and pear) were included in the test. Fruit of 'Red Delicious' apple was prepared and inoculated as the same manner described above, but fruit was stored in air at 0°C. The experiment was conducted twice. All fruit that were inoculated with the fungus developed decay symptoms. No decay developed on fruit in the controls. The same fungus was reisolated from decayed fruit. This

indicates that isolates from apple and pear were pathogenic to apple. *S. pyriputrescens* is the causal agent of a newly reported postharvest disease on 'd'Anjou' pears (1). To our knowledge, this is the first report of this fungus causing postharvest fruit rot on apple. We propose 'Sphaeropsis rot' as the name of this new disease on apple and pear. Preliminary evidence suggests that infection of fruit by this fungus occurred in the orchard prior to storage.