

Abstract

In early July 2001, samples of nectarine and peach fruit were brought from orchards in northern Tulare County or from packinghouses to our laboratory for diagnosis of an unusual decay. When the decay lesions originated close to the stylar end, leaking juice streamed from it. When the decay lesion was on the stem end of the fruit and touched the packing box, it developed a decay consisting of a ring of 0.5 to 2.0 cm (inner diameter) and 1.0 to 3.0 cm (outer diameter). The leaking juice dissolved the cuticle, epidermis, and some of the flesh, creating distinct furrows in the tissue. Samples with similar decay lesions were examined in 2001, 2002, and 2003. In each year, isolations from these fruit consistently yielded two or three different yeasts that were identified as *Geotrichum candidum* Link, *Issatchenkia scutulata* (Phaff et al.) Kurtzman et al., and *Kloeckera apiculata* (Reess emend. Klocker) Janke. All three yeasts were isolated from most of the samples, although sometimes, different combinations of two of the yeasts recovered. To complete Koch's postulates, each yeast was single spored and cultured on acidified potato dextrose agar at 25°C to prepare a dense (10⁸) cell suspension. Eight, mature, 'Elegant Lady' peach fruit were surface disinfested in 0.1% sodium hypochlorite for 3 min, allowed to dry, and wounded once with a sterile nail (3 × 5 mm) on the fruit cheek. A 50-µl drop of the cell suspension was placed in each wound, and the peaches were incubated in containers with >95% relative humidity at 27°C. Fruit inoculated similarly with a 50-µl drop of sterile water served as controls. In 2001, two containers containing eight fruit each were used for each yeast, and lesions started developing within 1 week after inoculation. The diameter of the decay lesion was measured after 10 days of incubation of the fruit. The diameter of decay lesions ranged from 21 to 68 mm for *G. candidum*, 30 to 55 mm for *I. scutulata*, and 9 to 39 mm for *K. apiculata* inoculations. The inoculation experiment was repeated with two containers of eight 'Red Glo' nectarine fruit per treatment yeast, under the same conditions as described above. Organisms recovered from the decay lesions were the same yeasts used for inoculating the peaches or nectarines. All three yeasts caused similar decay lesions in peaches, and the leaking effect was reproduced in both types of fruit. Symptoms were similar to those observed on fruit samples brought to our laboratory. Control fruit did not develop the characteristic decay lesions, although brown rot caused by *Monilinia fructicola* developed on a few of the control fruit. We concluded that each isolated yeast had the capacity to cause sour rot decay on stone fruit. From samples and reports, the disease has

been found on 'Red Glo', 'Ruby Diamond', 'Zee Grand', 'Spring Bright', and 'Honey Blaze' nectarines and 'Elegant Lady' and 'Fire Red' peaches. *G. candidum* was isolated from peaches and other fruit in California and incited rot of 'Paloro' peach in 1960 (2) and caused postharvest sour rot of peaches originating from Georgia, Pennsylvania, New Jersey, and North Carolina (1). However, to our knowledge, this is the first report of *G. candidum*, *I. scutulata*, or *K. apiculata* causing sour rot of commercial peaches and nectarines in the field and postharvest situations in California.