Title	Biology, Bources of inoculum, and characterization of Geotrichum candidum causing
	sour rot of peaches and nectarines in california
Author	Mohammad Yaghmour, Themis J. Michailides, James E. Adaskaveg and Richard M.
	Bostock
Citation	Thesis, Doctor of Philosophy (Plant Pathology), University of California. 112 pages.
	2010.
Keywords	Geotrichum candidum: Postharvest: Sour rot: Inoculum

Abstract

Geotrichum candidum causes sour rot of fresh-market fruits such as peaches and nectarines. Since 2001, the incidence of sour rot decay has increased in California. In this study, significantly more sour rot developed on wounded fruit as compared to unwounded fruit, and disease severity increased as fruit matured. The main source of inoculum appears to be the soil of peach and nectarine orchards. Spores can reach the tree canopy and are deposited on leaves and fruits. Sour rot decay can develop in the orchard if fruit are wounded and environmental conditions are favorable. Packing lines can be contaminated by spores of *G. candidum* on decayed fruit from the orchard as well as spores on nonsymptomatic fruit, leaves, and infested soil. Contaminated packing lines thus can become sources of inoculum for postharvest decay caused by *G. candidum*. During the packing process, fungicide-treated but unmarketable fruit (cull fruit) are disposed between tree rows of stone fruit orchards. These cull fruit develop sour rot and were identified as a source of inoculum for *G. candidum*. Since August 2006, the demethylation inhibitor fungicide propiconazole has been used as a postharvest treatment to protect stone fruits against *G. candidum*. *G. candidum* collected from decaying fruit showed a shift toward insensitivity to propiconazole when these isolates were compared to a sensitive baseline population.

In another study, all *G. candidum* isolates obtained from different substrates reproduced the symptoms of sour rot on nectarines, and some exhibited differences in virulence. Mating type testers of *Galactomyces geotrichum*, generally considered the teleomorphic stage of *G. candidum*, were found to be weakly pathogenic. While none of the *G. candidum* isolates mated with the two testers, three-locus phylogeny analyses revealed that isolates collected from the different substrates can be resolved into different groups. There is considerable variation among *G. candidum* isolates causing sour rot in California with incongruence among the phylogenies. Sequence analysis of the *elongation factor1- beta* (*ef1 -* β) gene did not show as much variation as the β -*tubulin (tub)* gene and ITS region. The group comprising *G. geotrichum* was not congruent among the three genes and was only monophyletic in ef1- β

and ITS. These results suggest that *G. candidum* causing sour rot in California is different from the species *G. geotrichum*.