

Title Effect of fungicides and storage conditions on postharvest development of citrus black spot and survival of *Guignardia citricarpa* in fruit tissues

Authors J. P. Agostini, N. A. Peres, S. J. Mackenzie, J. E. Adaskaveg, and L. W. Timmer

Citation Plant Disease 90 (11): 1419-1424. 2006.

Keywords benzimidazole fungicides; fludioxonil; imazalil; *Phyllosticta citricarpa*; pyrimethanil

Abstract

Citrus black spot (CBS) is caused by *Guignardia citricarpa*, which incites lesions on citrus fruit and can induce fruit drop. Quiescent infections occur during the spring and summer, and symptoms appear at fruit maturity or after harvest. Thus, fruit from citrus areas affected by CBS represent a risk for introduction of this pathogen into new areas. The effects of preventive field fungicide programs, postharvest fungicide drenches, packinghouse fungicide applications, and storage temperatures on postharvest symptom development and viability of *G. citricarpa* in lesions were evaluated in five experiments on Murcott tangor, Valencia oranges, and lemons. Preventive field treatments and fruit storage at 8°C consistently reduced postharvest CBS development, whereas a postharvest fungicide drench or packinghouse treatment with fungicides had no effect on postharvest symptom development. In a separate experiment, postharvest appearance of symptoms was related to the percentage of fruit with symptoms at harvest. The preventive field fungicide program also consistently reduced the percentage of isolation of *G. citricarpa* from affected fruit, whereas storage temperature and packinghouse fungicide treatment gave variable results. The viability of the fungus declined with storage time of fruit after harvest, but *G. citricarpa* could still be readily isolated regardless of treatment. In another experiment, the viability of the fungus in detached fruit or peel was minimally affected by temperature or moisture during storage. The frequency of successful isolation declined with time, but *G. citricarpa* was still recovered frequently from symptomatic tissue at later times. The most effective means to reduce postharvest development of symptoms is through preventive application of fungicides during the fruit growing season and storage of harvested fruit at cold temperatures. None of the measures evaluated substantially reduced viability of *G. citricarpa*, and the pathogen would likely be introduced on symptomatic fruit from citrus areas with CBS.