

Title Effect of temperature and humidity on germination of *Monilinia laxa*, *M. fructigena* and *M. fructicola*

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Citation Journal of Plant Pathology Volume 90 (2, Supplement) August 2008, Book of Abstract, 9th International Congress of Plant Pathology, August 24-29, 2008 Torino, Italy,. 507 pages.

Keywords peach; nectarine; Monilinia; postharvest disease

Abstract

Monilinia spp. are the most important cause of post-harvest decay in peaches and nectarines in the Ebro Valley, Spain. Postharvest losses are typically more severe when relative humidity and temperature are favourable for disease development. The main *Monilinia* species affecting post-harvest stone fruit around the world are *M. laxa*, *M. fructigena* and *M. fructicola*. To evaluate the effect of temperature (0-38°C) and humidity (*aw*: 0.99-0.87) on the lag times prior to germination and germination rates, the three *Monilinia* species were evaluated. The optimum germination conditions were 25°C and 0.99 relative humidity, respectively, for all the species studied. At 38°C no species was able to germinate but when the spores were incubated at 0°C all of them could germinate. In the driest condition studied (0.87 *aw*), no species was able to germinate at any temperature, whereas at a 0.90 *aw*, spores only germinated at 15, 25 and 30°C depending on the species studied. In contrast, at 0.95, 0.97 and 0.99 *aw* it was possible to find spores germinated for all temperatures tested. Generally, lag times were longer and germination rates were slower when conditions of temperature and *aw* were far from the optimum. Knowledge of the germination requirements of this fungus are important in order to understand its behaviour in natural situations, and to predict and to control fungal disease on stone fruits in the field.