

**Title** Effect of ethylene degreening on the development of citrus postharvest green and blue molds

**Author** P.A. Moscoso-Ramírez, L. Palou

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#### **Abstract**

Research was conducted to elucidate the effect of commercial degreening with ethylene gas on the development of postharvest green (GM) and blue (BM) molds on artificially inoculated 'Clemenules' mandarins. Fruit were harvested with three different rind color index (CI=-6.5, -3.6, 2.2) and wound inoculated in the fruit equator with conidial suspensions of *Penicillium digitatum* or *P. italicum* at a concentration of  $10^5$  spores/mL. Each fungus was inoculated in different lots of fruit. Inoculated fruit were degreened for 3 days in a local packinghouse (exposure to 2  $\mu$ L/L ethylene at 21°C and 95-100% RH) or kept at the same environmental conditions in a control room without ethylene. Four replicates of 10 fruit each were used per treatment. Then, degreened and non-degreened (control) fruit were stored at either 20°C and 90% RH for 7 days or 5°C and 90% RH for 14 days. Incidence (%) and severity (diameter of lesion in rom) of the molds and pathogen sporulation (%) were assessed after storage. No significant effect of commercial degreening was observed on the incidence of both GM and BM. In contrast, degreening significantly increased the severity of these molds with the exception of mandarins with an initial CI of -6.5. On fruit with a CI of -3.6 incubated at 20°C for 7 days, GM severity was 146 and 118 rom and BM severity was 56 and 46 rom on degreened and nondegreened fruit, respectively. Likewise, these values were 105 and 90 mm for GM and 40 and 35 mm for BM, respectively, on mandarins with an initial CI of 2.2. On mandarins cold-stored at 5°C for 14 days, disease severity was also significantly higher on degreened than on control fruit.