

Title Shortwave ultraviolet irradiation for control of decay caused by *Botrytis cinerea* in bell pepper: induced resistance and germicidal effects.

Authors Reddy, B.

Citation Journal of the American Society for Horticultural Science Vol: 126 (2001); 128-133

Abstract

Shortwave ultraviolet radiation (UV-C) was tested for controlling natural infections and inducing resistance to fungal decay caused by *Botrytis cinerea* Pers.: Fr. (gray mold rot) in bell pepper [*Capsicum annuum* L. var. *annuum* (Grossum Group)] fruit. All UV-C doses tested (0.22, 0.44, 0.88, or 2.20 kJ.m⁻²) caused a reduction in the number of natural infections occurring during storage at 13 deg C. A UV-C dose of 0.88 kJ.m⁻² controlled most effectively natural infections in peppers stored at both 13 or 20 deg C. Although UV-C was found to be highly germicidal to *B. cinerea* conidia exposed on agar or on fruit wounds, it did not prevent infection of fruit inoculated with the pathogen 24 hours before exposure to UV-C. However, fruit which were exposed to UV-C 24 hours before inoculation with *B. cinerea* had a lower percentage of infections. For this reason, UV-C appears to act mainly as an inducer of disease resistance in this crop rather than a sanitizing agent. UV-C was effective in inducing resistance to *B. cinerea* in fruit at various stages of maturity, from green to red. Disease resistance was also induced in fruit which had been stored for 7 days before UV-C treatment. The effect of UV-C doses was found to be additive as two successive exposures at 0.44 kJ.m⁻² had an equivalent effect as one exposure to the optimal dose of 0.88 kJ.m⁻². However, two successive exposures to 0.88 kJ.m⁻² were less effective than one exposure to this dose.