

Title Infection of cantaloupe rind with *Cladosporium cladosporioides* and *Penicillium expansum*, and associated migration of *Salmonella poona* into edible tissues

Author Glenner M. Richards and Larry R. Beuchat

Citation International Journal of Food Microbiology, Volume 103, Issue 1 , 15 August 2005, Pages 1-10

Keywords Cantaloupes; *Salmonella*; Postharvest fungal rots; *Cladosporium*; *Penicillium*

Abstract

study was undertaken to determine if the growth of two phytopathogens, *Cladosporium cladosporioides* and *Penicillium expansum*, in wounds on cantaloupe rinds facilitates migration of *Salmonella poona* into subsurface mesocarp tissues. Wounded sites in cantaloupe rind were inoculated with *S. poona* only, *S. poona* and mold simultaneously, or mold followed by *S. poona* 3 days later. A cylindrical plug (ca. 3 cm diameter and 4 cm deep) of inoculated tissue extending from the rind surface into edible tissues was removed and cut transversely into four segments (0–1, 1–2, 2–3, and 3–4 cm) representing distances from the rind surface. Regardless of the type of inoculum or the time of storage subsequent to inoculation, the pH of the tissues was significantly higher ($P \leq 0.05$) as the distance from the rind surface increased. Test microorganisms and naturally occurring microorganisms on the rind surface which were introduced into internal tissues during wounding, as well as physiological changes in cantaloupe tissue, contributed to these changes. *C. cladosporioides* and *P. expansum* were recovered from the inoculated rind and underlying tissues throughout storage at 20 °C for 10 days. *S. poona* persisted and grew in wounds on rinds on inoculated cantaloupe incubated at 20 °C. Recovery of *S. poona* from tissues 3–4 cm below the inoculated wound supports the hypothesis that it can migrate from the site of inoculation into adjacent mesocarp tissues. Survival and migration of *S. poona* into the internal tissues of cantaloupes were enhanced by co-inoculation with *C. cladosporioides* and, to a lesser extent, *P. expansum*. Consumption of cantaloupes from which diseased tissue has been removed is not advisable because *S. poona* and perhaps other enteric pathogens may still be present in remaining tissues.