

Title Microbial decay of fresh and peeled chestnuts and its control in Michigan
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Abstract

Edible chestnuts (*Castanea* spp.) represent a worldwide growing commodity. Worldwide including Michigan, postharvest losses due to microbial activity, including several filamentous fungi are problematic for the industry. To determine the organisms involved with shell mold and kernel decay, a survey for microorganisms associated with fresh chestnut was performed. Eleven species of molds were found to negatively impact fresh chestnuts; two species had never been found on chestnut prior to this study. Microbial populations were dependent on harvest methods and the farms from which the chestnuts were collected. A survey of peeling equipment to determine the source of contaminants on peeled chestnuts showed that the skin separator and the sorting belt were sources of contamination by two bacterial species and one species of yeast. To reduce microbial growth on fresh and peeled chestnut, several sanitizers were evaluated. Hydrogen peroxide and trifloxystrobin significantly reduced shell mold severity and kernel incidence on fresh chestnuts. X-ray irradiation, hydrogen peroxide and hot water immersion significantly reduced spoilage on peeled chestnuts. Information from this study adds levels of protection against postharvest chestnut mold, decay and spoilage when combined with other good manufacturing and agricultural practices.