

The effect of different doses of ozone treatments on the postharvest quality and biodiversity of cantaloupes

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Abstract

Although cantaloupes are extremely popular fruits, they are prone to easy decay and present potential vehicles for foodborne disease transmission. This study examined the effects of different doses of ozone treatments on the postharvest quality of cantaloupes during storage. These results revealed that cantaloupe subjected to the appropriate dose of ozone (15.008 mg m^{-3}) displayed lower respiration rate, ethylene production rate, and the number of microorganisms, as well as higher levels of firmness, pectin content, reducing sugar and titratable acidity of both the sarcocarp and exocarp. Next-generation sequencing results showed that this particular ozone dose inhibited most genera responsible for cantaloupe decay and human pathogenicity to a certain extent. Principal component analysis, as well as the analysis of co-occurrence network patterns further confirmed that an ozone dose of 15.008 mg m^{-3} , improved and prolonged the postharvest quality of cantaloupe.