Title Quality attributes and cell wall properties of strawberries (*Fragaria annanassa* Duch.) under calcium chloride treatment

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Abstract

Effects of $CaCl_2$ (0%, 1% and 4%) treatment on quality attributes and cell wall pectins of strawberry fruits stored at 4 °C for 15 d were investigated. Strawberry firmness was not significantly affected by $CaCl_2$ treatment. Compared to the other groups, the 1% $CaCl_2$ group had better quality attributes, including decay rate, weight loss and soluble solids content. The treatment with 4% $CaCl_2$ inhibited weight loss but caused phytotoxicity. During storage, the chain widths and lengths of water-soluble pectin (WSP), chelate-soluble pectin (CSP) and sodium carbonate-soluble pectin (SSP) decreased. Strawberry softening seemed to be due to modifications of CSP and SSP, especially the side chains. $CaCl_2$ treatment significantly slowed the breakdown of CSP and SSP chains by strengthening the ionic crosslinkages among these pectin molecules. These results illustrate the fundamental $CaCl_2$ effects and will help improve the application of $CaCl_2$ to postharvest fruits.