

Abstract

Strawberries (75% red color) were harvested and heat-treated at 45 °C, 3 h in an air oven. After treatment, fruit were stored at 20 °C for 2 days. Firmness, content of cell wall components and activity of enzymes related to cell wall degradation was determined in the external and internal fruit zones of control or heat-treated fruit. Therefore, the total content of pectins and hemicelluloses was measured, along with the water, EDTA and HCl soluble pectin fractions, and the enzyme activity of endo-1,4- β -D-glucanase (EGase), β -xylosidase (β -Xyl), polygalacturonase (PG), β -galactosidase (β -Gal), and pectin methylesterase (PME). Heat-treated fruit remained firmer than control fruit in both zones after 1 day of storage at 20 °C. After 2 days of storage, the difference was still observed in the external zone. Heat treatments reduced EGase and β -Xyl activity in both zones and delayed hemicellulose degradation. PG and β -Gal activity was also inhibited by the treatment. Heat-treated fruit maintained higher level of HCl soluble pectins while had lower amount of water-soluble pectins than control fruit. PME activity was increased by the treatments and heat-treated fruit showed higher amount of EDTA soluble pectins than the control. Results show that firmness, activity of assayed enzymes and cell wall composition are different in the external and internal zones of strawberry fruit. Furthermore, the application of heat treatment affected the solubilization of pectins and hemicelluloses.