Effects of heat treatment and carbohydrate polymer coating on texture, cell structure, cell wall ultrastructure and activities of softening enzymes, α- and β-galactosidases during storage and through ripening were studied. During 28 days at 10°C, firmness, cell structure and cell wall ultrastructure were still intact. Concomitantly, activities of both galactosidases were markedly suppressed. However, upon transferring the chilled papaya to ambient temperature, drastic decrease in firmness and several ultrastructure changes were noted. The most obvious changes were the loosening and eventual breakdown of the cell wall as well as an increase in the number of mitochondria and chromoplast. Activities of β-galactosidase were also increased. Combination of heat treatment and coating seemed to be effective in reducing chilling injury symptoms, thereby was capable to extend the storage life and maintaining the quality of papaya fruit.