Cell Wall Enzymes Activities and Quality of Calcium Treated Fresh-cut Red Flesh Dragon Fruit (Hylocereus polyrhizus)

ABSTRACT

This study was aimed at evaluating the effect of post-cut application of CaCl2 on activity of polygalacturonase (PG) and pectin methylesterase (PME) and quality of fresh-cut dragon fruit (Hylocereus polyrhizus). Fruit slices were prepared from fully matured fruits before being dipped into three levels of calcium concentration (CaCl2: 0, 2.5 & 7.5 g L-1) at four durations of dipping (0, 4, 8 & 12 min). The activities of PG and PME enzymes of fruits extract were lower when treated with high concentration of CaCl2 for a longer duration of dipping. The Ca treatment did not cause any marked effects on colour, pH, titratable acidity and ascorbic acid content. Soluble solids content and Ca content in cut fruit were affected by duration of dipping. The firmness of fruit slices treated at the highest CaCl2 concentration (7.5 g L-1) increased at the beginning of the treatment but reduced as the durations of dipping were extended to 8 and 12 min. Lack of a linear increase in tissue firmness of fresh-cut dragon fruit in response to high concentrations of CaCl2 post-cut application showed that treatment should be administered with a great care to appropriate concentration of CaCl2 duration of exposure are applied.

Keyword: Pitaya, Fruit quality, Polygalacturonase, Pectin methylesterase, Minimally processed fruit