Effects of calcium lactate on postharvest quality of bitter gourd fruit during cold storage

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Abstract

This study was aimed to assess the effects of calcium lactate (CL) on quality, shelf-life and storage physiology of bitter gourd. Fruits were dipped in the aqueous solution of CL (50, 75, and 100 mM) and stored at 10 °C and 85–95% relative humidity (RH). The changes in physical, biochemical and enzymological parameters were recorded at five days interval. The results showed that in CL@100 mM treated fruit, physiological loss in weight (PLW) and decay incidence were minimized. Conversely, their firmness, total phenolics, antioxidants and total chlorophyll retained at higher side. The CL @ 75 mM was able to retain higher ascorbic acid up to 20 days while CL@100 mM was effective in controlling pectin methylesterase (PME) activity and increasing the inhibitory activity of α-amylase and α-glucosidase. Therefore, our observations suggested that by applying CL@100 mM, 5 days extra (20 days) shelf-life of bitter gourd fruit can be achieved with notable retention of biochemical compounds over untreated fruit (15 days with poor retention of important nutrients).