Title Chitosan treatment on mungbean sprouts to enhance microbiological safety and shelf life

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Abstract

The quality of mungbean sprouts soaked for 20 min. in diluted acetic acid (625 and 1,250 ppm; pH 3.8 and 3.5 respectively) and 1,850 ppm chitosan solution (pH 4.8) was investigated. After placing the soaked mungbean sprouts at ambient condition (30°C) for 3 h, the sprouts were crispier compared to the unsoaked control. The browning score of mungbean sprouts soaked in 1,250 ppm acetic acid was the lowest, followed by 625 ppm acetic acid, 1,850 ppm chitosan, water, and the control. The shelf life of mungbean sprouts soaked in 1,250 ppm acetic acid, packed in polypropylene bags and stored at 13°C was 75 h and the sprouts were fresh-like, high quality and with less changes in yellowness (b* value) and low browning score of hypocotyls. These sprouts showed high crispiness and customers did not detect any quality degradation as indicated by off-odor, freshness, and overall appearance. A relatively high number of contamination by microorganism (4.8 log cfu/g) was observed in mungbean sprout samples before soaking. Chitosan at 1,850 ppm reduced the microbial load more effectively than acetic acid at 1,250 ppm after 75 h storage.