

Bioprotective potential of lactic acid bacteria in freshcut jackfruit (*Artocarpus heterophyllus* Lam.)

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Abstract

Controlling microbial contamination of food products ensures a safe food supply and long product shelf life. Probiotic lactic acid bacteria (LAB) are increasingly used for industrial applications (e.g. biopreservation of various food products as alternative to chemical antimicrobials) and for promoting human health. This study determined the effects of LAB on microbial load and quality of freshcut jackfruit as a food model. LAB were applied as protective culture and included the commercial formulation Protexin (cell suspension of 10^8 colony forming units per gram, CFU.g⁻¹) and pure culture of *Lactobacillus acidophilus* and *Lb. plantarum* at 1% (v/w) using about 10^9 CFU.ml⁻¹ cell suspension. Two-min wash in 150 ppm chlorine solution or distilled water served as control treatments. The product samples were then packed in sterile resealable 50 μ m-thick polyethylene bag and stored at 7-10°C for 5 d. The three probiotic treatments had no significant effect on bacteria load after 3 h from treatment and on yeast and mold population. 5 d of storage, all probiotic treatments and chlorine had comparable inhibitory effect on total aerobic counts which decreased by 55-64% relative to water wash. All probiotic treatments also comparably reduced coliform counts but were less effective than chlorine. The physicochemical and sensory qualities of freshcut jackfruit did not significantly differ among treatments, except for the increased soluble solids contents of products treated with *Lb. plantarum* and *Lb. acidophilus*.