

Title High pressure carbon dioxide treatment for fresh-cut carrot slices
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Abstract

The effects of high pressure carbon dioxide (HPCD) treatment on natural microorganisms, indigenous enzyme activity, damage to cell membranes and hardness in fresh-cut carrot slices were investigated. 1.86 \log_{10} cycle reduction for aerobic bacteria (AB) and 1.25 for yeasts and molds (Y&M) were achieved at 5 MPa and 20 °C for 20 min. The residual activity (*RA*) of peroxidase (POD), polyphenol oxidase (PPO), and pectinmethylesterase (PME) exhibited initially increase and secondly decrease with treatment time and their minimum activity was 75.8%, 90.9% and 52.8% at 5 MPa and 20 C for 15 min, respectively. Membrane damage was evaluated by relative electrolyte leakage (REL) and malondialdehyde (MDA) content. HPCD caused a significant increase of REL in carrot slices and the REL of carrot slices treated at 5 MPa and 20 °C for 15 min was 5.7 times as much as that of the untreated, however, HPCD showed no effect on MDA content. The hardness was well retained after HPCD treatment and the largest loss was 7.9% at 5 MPa and 20 °C for 15 min.