

## **Abstract**

Chemicals containing SH-groups as sulfites and chlorine-based agents are commonly employed in the fresh-cut process of vegetables such as potatoes to prevent browning and to sanitize produce. However, there is a concern over the application of these compounds in fresh-cut commodities as they might affect human and environmental safety and this has created the need to investigate alternatives. In the present work, the effectiveness of different traditional and non-traditional sanitizers on the sensory and microbial quality of fresh-cut potatoes stored under passive modified atmosphere packaging (MAP) and vacuum packaging was investigated. Six different washing treatments consisting of water, sodium sulfite, sodium hypochlorite, Tsunami, ozone and the combination of ozone–Tsunami were evaluated. Browning and growth of aerobic mesophilic bacteria, psychrotrophic bacteria, coliforms, lactic acid bacteria (LAB), anaerobic bacteria, moulds and yeasts were studied. In general, vacuum packaging preserved the appearance better than MAP. Under MAP only sodium sulfite prevented browning although it conferred off-odors. After 14 days of storage, there was no evidence of browning in fresh-cut potatoes dipped in ozonated water or ozone–Tsunami and stored under vacuum and these treatments maintained initial texture and aroma. However, the use of ozonated water alone was not effective in reducing total microbial populations. Ozone–Tsunami resulted in the most effective treatment to control microbial growth achieving 3.3, 3.0 and 1.2 log-reductions for LAB, coliforms and anaerobic bacteria, respectively. Therefore, although microbial growth was not slowed down by ozone alone, the combination of ozone–Tsunami resulted an efficient and promising treatment for controlling microbial growth and maintaining sensory quality of potato strips under vacuum.