Title Effect of active modified atmosphere with non convencional gas on watercress (*Nasturtium ojficinale*) quality

Author C. Araneda, A. Hinojosa, A. Machuca, V.H. Escalona

Citation Abstracts of 7th International Postharvest Symposium 2012 (IPS2012). 25-29 June, 2012. Putra World Trade Centre (PWTC), Kuala Lumpur, Malaysia. 238 pages.

Keywords watercress; MAP

Abstract

Consumer trends for healthier food products have generated an increment of demand for minimally processed fresh product (MPF). Among these products, watercress is considered as an ideal product due to its high content of functional compounds. The MPF requires an optimal conservation atmosphere in order to keep the sensorial and nutritional quality, as well as the microbiological safety. Recent researches have considered using non conventional gases due to its unique qualities that might reduce the food perishability. The aim of this work was to evaluate the effect of active modified atmosphere with high nitrogen (90% N_2 + 10% O_2), high argon (90% Ar + 10% O_2), high helium (90% He + 10% O_2) and high nitrous oxide concentration (90% N_2O+10% O_2) on watercress leaves. Before packaging under active modified atmosphere, the watercress leaves were sanitized with sodium hypochlorite (100 mglL). All treatments were stored for 13 days at 5°C. All treatments, except air (21 % O_2 + 79% N_2) treatment, generated a reduction on the respiratory rate and the ethylene production, keeping it low and constant, showing an average of 26 mg CO_2 $kg^{-1}h^{-1}$ and 1,9 μL C_2H_4 $kg^{-1}h^{-1}$ respectively. In the microbiological analysis, the raw material showed initial counts of 5.46, 5.19 and 4.67 log CFU/g values for aerobic mesophiles, psychrotrophs and enterobacteria, respectively, all treatments had an effect on the microbial load of watercress leaves. Ar and N_2 treatment, kept a high score values in sensorial quality during 13 days of storage; on the other hand N_2O treatment was the worst evaluated. None of the evaluated gases, generated off flavours. Besides, the treatments with a high concentration of non conventional gases and low oxygen, gave a better functional quality (phenolic compounds and antioxidant capacity) than the air treatment.