

Surface Sterilization Retain Postharvest Quality and Shelf Life of Strawberry and Cherry Tomato during Modified Atmosphere Packaging

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Abstract : Strawberry and tomato fruits were harvested at the red ripens maturity stage in the Republic of Korea. The fruits were dipped in fungi solution and afterwards were sterilized with sodium hypochlorite (NaOCl) and chlorine dioxide (ClO₂) gas. Some fruits were dipped in 150µL/L NaOCl solution for 10 minutes, and others were treated with 5µL/L ClO₂ gas for 12 hours and packed with 20,000 cc OTR (oxygen transmission rate) film, the rest were packed in 10,000 cc OTR film inserted with 5µL/L ClO₂ gas. 5µL/L ClO₂ gas insert treatment showed the lowest carbon dioxide and ethylene, and the highest oxygen concentration was on the final storage day (15th day) in both strawberry and tomato fruits. Tomato fruits showed the lowest fresh weight loss in 5µL/L ClO₂ gas insert treatment. The visual quality as well as shelf life showed the highest in 5µL/L ClO₂ gas insert treatment of both strawberry and tomato fruits. In addition, the fungal incidence of strawberry and tomato fruits were the most suppressed in 5µL/L ClO₂ gas insert treatment. 5µL/L ClO₂ gas insert treatment showed higher firmness and soluble solids in both strawberry and tomato fruits. So, 5µL/L ClO₂ gas insert treatment may be useful to prevent the fungal incidence as well as retaining the postharvest quality, and increase the shelf life of strawberry and tomato fruits for long term storage. This study was supported by Export Promotion Technology Development Program (314027-03), IPET, Ministry of Agriculture, Food and Rural Affairs, Republic of Korea.

Keywords : chlorine dioxide, ethylene, fungi, sodium hypochlorite

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