

Title Disinfecting efficacy of a plastic container covered with photocatalyst for postharvest
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Abstract

The simplification of the cleaning process of plastic containers used in the storage and/or distribution of fruits or vegetables is important. We coated a plastic container with an apatite-coated titanium dioxide photocatalyst (TiO₂-Ap container), and examined its disinfecting efficacy under UV irradiation from black light. The disinfecting efficacy of the TiO₂-Ap container on diluted drops evaporated from spinach (suspension) was examined. Changes in the microbial populations of the total aerobic bacteria, coliform bacteria, and moulds and yeasts in the TiO₂-Ap container were assayed at 25 °C for 24 h (UV-A intensity of 0.2 and 0.4 mW cm⁻²). The results showed that all of the microbial populations in the TiO₂-Ap container decreased with irradiation time and then reduced to uncountable levels. It was found that the increase in UV-A intensity enhanced the disinfecting efficacy.