

Title Performance of TiO₂-coated film in decomposition of durian flavor volatiles
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Abstract

Durian fruit has a strong flavor. Its odor emits into surrounding atmosphere even when the husk is intact or when stored in film packaging. A TiO₂-coated film was studied as an active packaging for decomposition of durian flavor volatiles in package atmosphere. Research showed TiO₂-coated film worked during UVA light illumination and that it was effective in decomposition of durian flavor volatiles. After 1 h of light illumination, the durian volatile compounds in a package atmosphere was extracted by solid-phase microextraction (SPME) with PDMS/DVB fiber coating for 30 min. and analyzed by GC-MS. The results showed that TiO₂-coated film decreased the concentration of headspace total volatile compounds of durian compared to uncoated film. Sulfur compounds such as ethanethiol and s-ethyl ethanethioate, including major ester compounds of durian flavor were decomposed by the photocatalytic reaction of TiO₂-coated film. Sniffing of durian flavor in headspace packaging by panelists revealed that durian flavor was undetectable in TiO₂-coated film after 1 h of UVA light illumination, while strong odors were detected in headspace packaging of uncoated film treatment regardless of light illumination.