

Abstract

Novel effects of TiO₂ photocatalytic ozonation (a combination of TiO₂ photocatalytic oxidation and ozonation) were investigated for the control of postharvest storage rots in kiwifruit and on the decomposition of residual fungicides. The TiO₂ photocatalytic ozonation process synergistically degraded organic compounds and inhibited conidial germination of the fungal pathogen, when compared to a single treatment of ozonation or TiO₂ photocatalytic oxidation. TiO₂ photocatalytic ozonation was not effective in controlling latent infections in kiwifruit tissue, but apparently retarded the disease development during cold storage. It also effectively degraded the fungicide flusilazole commonly used for disease control in Korea. These findings suggest that TiO₂ photocatalytic ozonation can be a very attractive method for postharvest disease control of kiwifruit with an emphasis on food safety.