

Gelatin-TiO₂-coated expanded polyethylene foam nets as ethylene scavengers for fruit postharvest application

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Abstract

The efficacy of polyethylene foam nets coated with gelatin-TiO₂ photocatalytic nanocomposite to postpone the climacteric fruit ripening was evaluated. The gelatin-TiO₂ nanocomposite was deposited on the foam nets by dip-coating and used to degrade ethylene produced by papayas. Fruit treated with TiO₂ photocatalysis showed an ethylene accumulation 60 % less than the control experiment fruit after four days under UV-A light. The photocatalytic degradation of ethylene produced by papayas over four days caused an effective delay of their ripening. It was characterized by the respiration rate reduction during the climacteric peak, absence of scalds and superficial fungi growth and more remarkable preservation of green color and firmness than control samples. The results showed that nanocomposite foam nets degraded ethylene under UV-A light and postponed the fruit ripeness and quality changes.