Title Development of Recycled Paper-based Ethylene Scavenging Packages for Tomatoes

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Abstract

Ethylene scavenger has proved to increase life of many ethylene sensitive fruits and vegetables. Potassium permanganate is a very effective ethylene scavenger but because of its toxicity it cannot be included in food contact material. Palm shell charcoal and activated carbon are good gas absorbents; thus, it has a good potential to be used as an ethylene scavenger. The objective of this research is to study the effect of corrugated board containing palm shell charcoal and activated carbon on the shelf life of cherry tomatoes. Single wall B-flute corrugated board was made of one liner from Kraft paper and the other liner and a medium made from recycled paper (control), recycled paper mixed with palm shell charcoal, or recycled paper mixed with activated carbon. The corrugated board was used to make a small corrugated box with the outer dimension of 13.5 × 5.5 × 6 cm for packing 5 green cherry tomatoes. Tomatoes contained in the box made of corrugated board containing palm shell charcoal ripened the last while those in control ripened first. It was observed that tomatoes packed in corrugated board containing activated carbon loosed excessive moisture. When the boxes were used to contain 3, 5, and 7 green cherry tomatoes, it was found that the box with 3 tomatoes can better delayed ripening than boxes containing 5 and 7 tomatoes.