

Title Development of recycled paper-based ethylene scavenging packages for tomatoes
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Abstract

Ethylene scavenging can increase the postharvest 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 packaging material in contact with food. 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 with or without ethylene scavenger (palm shell charcoal and activated carbon). The corrugated board was used to make a small corrugated box with the outer dimension of 13.5 x 5.5 x 6 cm for packing 5 green cherry tomatoes. Tomatoes stored in the box made of corrugated board containing palm shell charcoal ripened more slowly than those in the box containing no ethylene scavenger. It was observed that the tomatoes packed in the corrugated board containing activated carbon lost excessive moisture. When the boxes were used to package 3, 5, and 7 green cherry tomatoes, it was found that the box with 3 tomatoes delayed ripening more than boxes containing 5 and 7 tomatoes. The results showed that the low cost wasted palm shell charcoal has potential to be applied as an ethylene absorber in corrugated board boxes for fruit to delay ripening.