Thesis Title	Effects of packaging and UV-B radiation on postharvest changes of organic cherry tomatoes (*Solanum lycopersicum*)
Thesis Credits	12
Candidate	Miss Paweena Jindaruang
Thesis Advisors	Asst. Prof. Dr. Apiradee Uthairatanakij
	Asst. Prof. Dr. Pongphen Jitareerat
Program	Master of Science
Field of Study	Postharvest Technology
Division	Postharvest Technology
Faculty	School of Bioresources and Technology
Academic Year	2013

Abstract

At present, Thai people have given more attention to the consumption of organic vegetables, including organic tomatoes, which have vitamins and antioxidants. A storage method for maintaining quality as long as the market needs is necessary. This research work is a study on the effect of growing systems on the quality of the harvest of cherry tomatoes. The cherry tomatoes grown on traditional farms have higher ethylene production than cherry tomatoes on organic farms, since the cherry tomatoes from traditional farms encourage early ripening. The ripening of cherry tomatoes is related to lycopene and a* value (red color). The cherry tomatoes from traditional farming have significantly higher lycopene content and a* value than the cherry tomatoes from organic farming during storage. The farming system has no effect on firmness, carotenoid content, ascorbic acid content and antioxidant activity DPPH. This work also studied the effect of UV-B radiation and packaging on quality change of organic cherry tomatoes fruits after harvest. The organic cherry tomatoes were packed in 3 types of packaging: active ethylene removing film bags (AER), perforated polypropylene film bags (PPP) and ethylene removing window film bags (ERW), and stored at 10 °C. The AER film bag maintains higher postharvest quality in organic cherry tomatoes than ERW film bags and PPP film bags. The AER film bags extended the shelf life of cherry tomatoes (45 days), the AER film bags were able to delay color (a*) change, maintain weight loss (0.62%), firmness and total soluble solid (7.10 to 6.33° Brix). In addition,

the AER film bags maintain the level of ascorbic acid, antioxidant capacity by DPPH, total carotenoids content. Moreover, the postharvest UV-B irradiation at 0, 5, 15 and 30 kJ, in combination with packaging AER film bags, was able to delay the accumulation of total carotenoid content and lycopene content significantly more than with no treatment UV-B. Organic cherry tomatoes treated with UV-B irradiation showed significant less color development and weight loss. The optimum dose of UV-B for cherry tomato was 15 kJ concentration, which maintained firmness during storage. UV-B at 15 kJ had significantly higher levels of ascorbic acid, total soluble solid and antioxidant activity DPPH.

Keywords: Active Film Packaging/ Antioxidant/ Cherry Tomato/ Organic/ Quality/ UV-B