

Title Effectiveness of nanosilver packaging related to health awareness of tomato (*Lycopersicon Esculentum* var. Leckat 139) grown organically

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Abstract

The effectiveness of nanosilver packaging materials compared with other packaging materials in maintaining the antioxidant activity of tomato variety Leckat 139 was studied. The experiment was carried out by packing the tomatoes at colour Index 4 (red colour) using nanosilver plastic in polystyrene tray (A), commercial cling wrap in polystyrene tray (B), imperforated 0.04 mm LDPE (C) and perforated 0.04 mm LDPE (D) as a control. Antioxidant activity, ascorbic acid content and total phenolic content were observed during storage at 5°C for 7 weeks. After 7 weeks of storage, the results showed that tomatoes packed in nanosilver packaging had lower antioxidant activity (72.8 % of inhibition) compared to control (74.3 % of inhibition), whilst tomato packed in commercial cling wrap in polystyrene tray had the highest antioxidant activity (75.9 % of inhibition). Samples packed in nanosilver packaging also had lower vitamin C content of around 22.2 mg/ 100g compared to control (24.5 mg/100g) and tomato packed in commercial cling wrap in polystyrene tray (24.7 mg/100g). However, tomatoes packed in nanosilver packaging and commercial cling wrap in polystyrene tray have high total phenolic content amount of 3.2 ~g/ml of gallic acid equivalent (GAE). Result shows that nanosilver packaging could not maintain the antioxidant activity during the storage period. However, tomato packed with commercial cling wrap in polystyrene tray had significantly higher in antioxidant activity, total phenolic and ascorbic acid content compared to other packages. The lowest antioxidant activity, total phenolic and ascorbic acid content were found in tomato packed in imperforated 0.04mm LDPE.