

**Title** Effect of modified atmosphere packing on the keeping quality of fresh strawberry

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### **Abstract**

Effect of modified atmosphere packing (MAP) on the keeping quality was evaluated to the freshly harvested strawberry fruits during storage at 2°C for 16 days. The fruits were initially immersed in water to remove the extraneous matter from the field, followed by dipping in treatment solution for 1 min. Fruits were then exposed to mechanized dripdrying machine for another 1 min. MAP packing used in the study was clip on lid and seal on packing systems. Evaluations of the samples were conducted every 4 days by evaluating the changes in following parameters: weight loss, colour (L and b), total soluble solids (TSS), pH, TTA, ascorbic acid, gas accumulation in the package (CO<sub>2</sub>, O<sub>2</sub> and C<sub>2</sub>H<sub>4</sub>), antioxidant activity, total phenolic content and microbial growth (mesophilic aerobes, coli forms, yeast and mould). Quality of strawberry fruits packed by using seal on packing appeared to be better as compared to the clip on lid packing as the freshness was still maintained even after day 16. These was noted by the better red colour retention at the end of the storage period with lower L and b values (L-39.1 and 30.34 respectively). Higher weight loss (0.7%) was shown in strawberry fruits packed using the clip on packing as compared to only 0.2% in fruits packed using the seal on packing. Higher TSS values (5.3 °Brix), ascorbic acid (0.43 mg/100 samples) and antioxidant activity (17% inhibition) were also noted in strawberry packed using the seal on packing. No significant difference in the total phenolic content was observed eventhough higher values (6.2 µg/ml) was shown in strawberry fruits packed using the seal on packing. No ethylene gas accumulation was shown in the seal on packing on day 16, whilst consistent CO<sub>2</sub> (0.62.2%) and O<sub>2</sub> (14-12%) accumulations were exhibited throughout the storage period in the seal on packing. There was no significant difference in total coliforms (TC) and total plate count (TPC) was observed in both packing systems. However, lower in the total yeast and mould count (TYM) were shown in strawberry packed using the seal on packing.