

# Effect of polypropylene packaging containing nano-hydroxyapatite and modified atmosphere on the physicochemical and microbial properties of cherry tomatoes

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## Abstract

The physicochemical and microbiological characteristics of cherry tomatoes, Red Takta and Gold Takta varieties were investigated in the current study. The effect of packaging pretreatments including polypropylene under Normal Atmosphere, polypropylene under Modified Atmosphere, polypropylene containing nano-hydroxyapatite (3%) accompanied with Modified Atmosphere during cold storage ( $4 \pm 1$  °C) were studied. Titratable acidity, pH, antioxidant activity, total phenol, ascorbic acid, carotenoids, lycopene, firmness and, color on 1, 4, 8, 12 and 16 days and microbiological population on 5, 10, and 15 days were determined. A completely randomized design in a factorial experiment was applied to analyze the data. Results illustrated that pH, titratable acidity, total soluble solids ( $P \leq 0.01$ ) and total phenol content, vitamin C, lycopene, microbial population have shown better performance in the polypropylene containing nano-hydroxyapatite under modified atmospheric conditions ( $P \leq 0.05$ ). Our findings revealed that using polypropylene containing nano-hydroxyapatite accompanied with modified atmosphere as a promising approach has maintained the physicochemical and microbial characteristics of cherry tomato during the storage period.