Shelf Life Extension of Minimally Processed Lettuce Leaves (Lectuca sativa)

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Cold storage is one of the best methods to maintain the qualitative and quantitative properties of Minimally Processed lettuce (*Lectuca sativa*). The study was conducted to optimize the shelf life of minimally processed lettuce which were stored in three different packing materials. Lettuce which was obtained from same cultivation with similar maturity level was stored in Biaxially-oriented polypropylene (BOPP) Antifog 35 micron, Polypropylene (PP) Micro Perforated and Biaxially-oriented polypropylene (BOPP) Antifog Breathable 40 micron at 12°C were evaluated separately for Physiological Loss in Weight, pH, Total Soluble Solids, Total Chlorophyll Content, Ascorbic Acid Content, Total Phenolic Content, Total Anthocyanin Content, Visual Quality Assessment, Total Plate Count and sensory evaluation at the one-day interval. The minimally processed lettuce stored in BOPP Antifog Breathable 40 micron, BOPP Antifog 35 micron, and PP Micro Perforated had shelflife of ten days, eight days, and three days respectively. Lettuce from both BOPP Antifog Breathable 40 micron, and BOPP Antifog 35 micron packs reported a significantly lower physiological loss in weight throughout the storage period. In the tenth day of storage, the lowest total soluble solid (3.7±0.09) was with the BOPP Antifog Breathable 40 micron pack. The highest pH value (6.61±0.03) and total chlorophyll content (2.22±0.04) were recorded in the BOPP Antifog Breathable 40 micron pack on the last day of storage. PP Micro Perforated pack, BOPP Antifog 35-micron pack, and BOPP Antifog Breathable 40-micron pack failed the visual quality assessment on the third day, the seventh day, and the tenth day of storage respectively. The results indicate that BOPP Antifog Breathable 40 micron film is the most suitable packaging material for minimally processed lettuce.

Keywords: Lettuce, Minimally processing, Cold storage, Packaging materials