

**THE EFFECT OF MODIFIED ATMOSPHERE PACKAGING ON
POSTHARVEST SHELF LIFE OF MANGO FRUITS, *Mangifera
indica* L, CULTIVAR TOMMY ATKINS**

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Modified atmosphere packaging (MAP) is a simple technology whose optimization can minimize high postharvest losses in perishable commodities. In this study, the efficacy of active bag® a recently introduced MAP product in Kenya in prolonging the postharvest shelf of mango fruits, cultivar Tommy Atkins was evaluated. Mango fruits harvested at commercial maturity stage were selected for uniformity and randomly separated into five batches. The five experimental treatments included three different active bags of varying permeability (A35, A45 and A75), the ordinary polythene bag used commercially and unpackaged control. A random sample of five fruits was taken every three days from each of the treatments and evaluated for ripening related physiological changes including respiration, ethylene evolution, cumulative weight loss, changes in hue angle, firmness and °brix. All the MAP treatments significantly enhanced postharvest longevity of the fruits compared to the unpackaged fruits. Active bag packaging gave better response compared to the ordinary bag, with active bag A35 showing the best response for all the parameters measured. Fruits packaged in active bag A35 retained firmness (five fold) and hue angle (60%), while cumulative weight loss was reduced almost three fold relative to the unpackaged control. Additionally, ethylene evolution and respiration rates were significantly suppressed by all the active bag treatments. Higher °brix levels in unpackaged fruits were indicative of faster ripening compared to MAP treated fruits. These findings show that active bag can potentially prolong the postharvest shelf life and extend the marketing period of mango fruits, thereby reducing postharvest losses. For commercial application of active bag products, more research on their effect on other fruit quality attributes is recommended.

Key Words: Mango, postharvest, shelf life, quality, MAP