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Effect of putrescine and packaging on storage of mango (*Mangifera indica*)

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Mango is a perishable fruit and its ripening period coincides with the summer months under north Indian conditions. It has very short life at ambient temperature and high post-harvest losses. Keeping it in view, an experiment was planned to study the effect of putrescine and LDPE packaging on storage life and quality of mango fruits cv. Langra. Physiologically mature and uniform fruits of mango were treated with putrescine @0.0, 1.0, 2.0 and 3.0 mmolL^{-1}. Treated fruits were air dried in shade and packed individually in perforated LDPE bags before storage at 13^{0} C and 85-90 per cent RH for 4 weeks. Results revealed that fruits treated with putrescine @2.0 mmolL^{-1} alongwith LDPE packaging retained best quality in terms of high palatability rating, good blend of TSS and acidity and low physiological loss in weight and spoilage percentage

Key words : Polyamine, *Mangifera indica*, Palatability rating, Spoilage, Quality

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INTRODUCTION

Mango (*Mangifera indica*), the king of fruits is grown in tropical and sub-tropical regions of the India. It occupies the prime position due to its rich bio-diversity, wider adaptability, higher returns and excellent taste. However, heavy post-harvest losses in sub-tropical conditions is a major constraint in its export. Rapid ripening process is responsible for short life of mango fruit and it represents a serious constraint for efficient handling and transportation. Therefore, techniques for storage of mango fruit have to be standardized and employed to enhance the storage life. Polyamines, packaging and low temperature are known to improve shelf-life of fruits by delaying ripening process. Reduction in physiological loss in weight (PLW), better fruit quality and low occurrence of fruit decay was observed in fruits packed in perforated film than non wrapped and fruits packed in non-perforated film (Ben-Yehoshua *et al.,* 1996). Polyamines and ethylene has opposite effects on fruit ripening and senescence. Balance between the two is important to enhance and retard the ripening process of fruits. Usually the concentration of polyamines decreases during tissue senescence with accelerated ethylene production (Valero *et al.,* 2002). Pre and post harvest application of putrescine increased fruit firmness and also retarded colour development (Malik *et al.,* 2003). Treatment with exogenous putrescine (PUT) inhibited ethylene production, thus retarding the increase of MDA (malondialdehyde) content and membrane permeability and delaying the occurrence of chilling injury (Zhang *et al.,* 2000). In Hayward kiwi fruit, 1mM putrescine treatment resulted in inhibition of ethylene production, low respiration rate and higher flesh firmness (Wen *et al.,* 2003). Exogenous application of polyamines was also found effective in many other fruits to reduce the ripening processes. But, no such information is available on effect of polyamines on mango cv. Langra. So the present studies were aimed to extend the storage life of 'Langra' mango fruit with putrescine and LDPE packaging under low temperature storage conditions.

RESEARCH METHODOLOGY

Physiologically mature and uniform fruits of mango cv. Langra were harvested from Fruit Research Station Gangian, Punjab Agricultural University, Ludhiana in July, 2010. Selected fruits were treated with an aqueous solution containing different concentrations of putrescine @1.0 (T_1), 2.0 (T_2), 3.0 (T_3) and 0.0 (T_4) mmolL^{-1}. Each treatment was replicated thrice and comprised of 2.0 kg fruit/ replication.