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### Effect of 1-MCP on quality and shelf life of winter Guava

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India is the largest producer of mango but the exported volume is still small due to short shelf life of the fruit that makes it difficult for ship transport. Delaying maturation and maintaining post harvest quality is of paramount importance for minimizing post harvest losses of this fruit. Therefore present investigation was aimed to investigate the effects of 1-MCP on ripening response and keeping quality of guava cv. Allahabad Safeda. The treatments were characterized by exposing the fruits to 250, 500 and 1000 nL L<sup>-1</sup> of 1-MCP in sealed container for 4, 8 and 16 hours of duration followed by subsequent storage of treated and untreated fruit at 20°C. Changes in various physico-chemical properties of fruit such as respiration rate, weight loss, fruit firmness, flesh colour, total soluble solid, acidity vitamin C and percentage of diseased fruits were assessed for a period of 20 days. It was found that application of 1-MCP delayed the colour development but did not exhibit any significant change in the physiological loss in weight of fruits. Respiration peak of treated fruit was delayed by 3 days with 1-MCP treatment. Its application at all concentration also reduced the fruit softening and loss of fruit acidity during their storage. However, the effectiveness of 1-MCP varied with exposer time of the fruit. Exposing the fruit to 4 hours was found to be ineffective when the fruits were treated with 250 nL L<sup>-1</sup> of 1-MCP. Whereas this compound had the greatest effect when it was applied at the rate of 500 nL L<sup>-1</sup> for 8 or 16 hrs or 1000 nL L<sup>-1</sup> for 4 hrs. of time. Increasing the duration of exposer had the increasing impact on fruit quality but exposer time beyond 8 hour appeared to reach saturation level when the fruits were treated with the highest concentration of 1-MCP. The fruits treated with 1-MCP at 1000 nL L<sup>-1</sup> for 4 hour can be stored for 12 days while untreated fruit can only be stored for 7 days. Thus the treatment with 1-MCP could be a viable alternative for long distance transportation of guava through shipment.

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### Characterization of germplasm of opium poppy (*Papaver somniferum* L.) based on biochemical analysis and association among different traits

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Opium poppy (*Papaver somniferum* L.) is a chief source of diverse physiologically active alkaloids which are of immense importance due to their medicinal value. Apart from being used mainly for pharmaceutical purposes, seeds of poppy are invaluable source of plant based protein supplement for human consumption which contains protein upto 24%. This research aimed to explore the genetic diversity based on seed storage protein pattern and to establish correlation between alkaloid and seed protein content among 124 germplasm lines of opium poppy (*Papaver somniferum* L.). Proteins are generally polymorphic, heritable and are direct products of active genes due to which they are widely used as genetic markers to resolve the inter or intra specific genetic diversity and their proper characterization. This study of seed storage proteins was performed through SDS-PAGE gel electrophoresis. 27 polypeptide bands in range of 6 to 205 kDa were recorded. Similarity index was calculated by using Jaccard's Similarity index and cluster analysis was performed using UPGMA model. Polymorphism was observed in three variable regions i.e., high, medium and low molecular weight, among which bands of 10.4, 20, 22, 24, 30, 32, 33, 49 and 205 kDa's were common in all the germplasms while other bands showed variation. All the 124 germplasms were broadly grouped into 13 clusters based on average linkage method. No trait showed significant correlation with seed protein content. The seed protein profile of the studied germplasms revealed wide variability and diversity among them which could be further used in different hybridization programmes to obtain maximum gain.

#### Biography

Nidhi Verma has completed her M.Sc. in Biotechnology from Jamia Millia Islamia University, New Delhi and presently pursuing Ph.D. in Dept. of Genetics and Plant Breeding, National Botanical Research Institute, Lucknow and is registered for Ph.D. degree in Dept. of Biochemistry, University of Lucknow, Lucknow.

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