

**Title** Modified atmosphere packaging of table grapes in polymeric films under ambient conditions for increased storage life

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#### **Abstract**

Grapes occupy far more land in the world than any other single fruit and account for nearly half of the total world production of all fruits. Grapes are usually harvested in the months of March–April and August–September in central parts of Madhya Pradesh and Western Maharashtra region. Grapes being perishable and high moisture fruit start decaying after about 4 days of storage when kept under ambient conditions with about 28–30°C temperature and 65%–70% relative humidity. There are studies on grape storage in different packages with and without application of fungicidal spray; however, the studies related to the packaging of grapes in modified atmospheric conditions using polymeric packaging is lacking. As in the case of other fruits, if the grapes are stored under MAP conditions, shelf life could be enhanced due to the arrest in respiratory activity. Different commonly available polymeric films (especially LDPE and PP) could be used for storing the grapes in small pouches by vegetable sellers and consumers/users after the produce is brought to the fruit and vegetable mandi and prior to the actual consumption. The objective of the present investigation was to study the effects of two polymeric films in packaging garden fresh grapes to extend their post harvest storage life under ambient condition. In this study, two polymeric films were used for packaging of grapes for short-term storage under ambient conditions and protected from direct light. The films used were low-density polyethylene (LDPE) 25 $\mu$ , 50 $\mu$  and 75 $\mu$  and polypropylene (PP) 25 $\mu$  and 38 $\mu$ . At the end of 7th day of packaging, grapes kept under ambient condition in LDPE and PP bags had no colour change and no mould growth/fungal attack. At the end of packaging period, i.e., 10th day, samples in all bags turned brownish and mould growth was visible. The physiological loss in weight from the non-packaged grapes was 5.71% after 5 days and 9.87% after 7 days compared to 3.07% after 5 days and 5.91% after 7 days storage for the grapes packaged in PP films. Sensory evaluation studies indicated acceptability of grapes packaged under ambient conditions in LDPE and PP pouches up to the period of 7 days.