

Effects of Low Temperature and Modified Atmosphere Packaging on Minimally Processed Fruits and Vegetables

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Convenience and health concern of nowadays consumers are the major reasons of the increasing demand on ready-to-eat and ready-to-use fruits and vegetables with like-fresh quality. Minimal processing combined with the use of modified atmosphere packaging and low temperature storage creates the freshness and safety of fruit and vegetable products, which are value added. Modified atmosphere packaging uses the product's respiration and the permeability of the packaging film to create a beneficial gaseous environment within the package that helps shelf life extension of the product. The present investigation was carried out to know the effect of minimal processing, temperature, and O₂ concentration on the respiration rate and quality of shelled broad bean seed. Respiration rate of the shelled seed is higher than the whole pod. A drastic increase of the CO₂ production rate of the seed stored at 25 °C was observed within 1 day after shelling. On the contrary, there was little increase in CO₂ production of the seed stored at 5 and 15 °C. 2.1% O₂ effectively reduced the yellowing of the shelled seed but was less effective on the reduction of browning. Data obtained from the respiration and quality evaluation on the broad bean seed indicated that storing shelled seeds at 5 and 15 °C under the 2.1% O₂ condition is able to maintain its good quality.