Susceptibility of Minimally Processed Vegetables to Chilling Injury as Observed by Apparent Respiration Rate

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Respiration rates of whole and minimally processed vegetables were measured to provide informations for their storage and packaging. Effect of cutting degree and storage temperature were analysed. The commodities studied include green pepper, cucumber, garlic and green onion. The commodities sensitive to chilling injury such as green pepper, cucumber were stored at 5 and 10 ℃ with being measured in respiration and microbial growth. Cutting vegetables increased the respiration rates by approximately 50% compared with intact vegetables. The respiration rate increased with severeness of cutting or minimal processing. At 5℃ minimal processed green pepper and cucumber was found to be more sensitive to chilling injury than intact produces when determined by sharp increase in respiration. The response of increased respiration to chilling temperature was noticed within 4 day storage, and the chilling injury determined the limit of shelf life rather than microbial spoilage. Due to increased susceptibility to chilling injury cut produces at 5℃ have shelf lives shorter than or equal to those at 10℃. Therefore storing cut vegetables below chilling injury temperature for lowering microbial and other quality changes is not recommended.