

Title The anaerobic compensation point for fresh-cut watermelon and implications for postprocess handling.
Authors Fonseca, J. M., Rushing, J. W. and Testin, R. F.
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Abstract

The influence of temperature and O₂ concentration on respiration and shelf life of fresh-cut watermelon cv. Royal Sweet was investigated. Product stored at selected temperatures from 1 to 30 deg C showed increasing respiration and reduced shelf life with increasing temperature. Oxygen depletion and CO₂ evolution were measured using a closed system method and rates of O₂ consumption and CO₂ production were computed. A mathematical model found to predict the CO₂ production as function of temperature and O₂ showed an elevated rate of CO₂ production at about 14% O₂ or lower. A modified atmosphere trial that compared product stored at 7-9 deg C in air with product at either 14% or 8% O₂ revealed increased respiration in the latter treatments, suggesting a relatively high anaerobic compensation point at >14% O₂. Our results suggest limited applicability of modified atmosphere packaging for this product. Fresh-cut watermelon had extended shelf life and reduced respiration rate when stored at 1-3 deg Cand in >14% O₂ atmospheres.