

Abstract

Apple texture can deteriorate during cold storage, resulting in softness and mealiness. The purpose of this work was to estimate shelf-life and to study the behavior of 'Fuji' apples kept at 20 °C in a normal atmosphere until consumption following 7 months refrigerated storage (1 °C) in a controlled atmosphere (2% O₂, 2% CO₂). Survival analysis methodology was used to estimate shelf-life. Its key concept is to focus the shelf-life hazard on the consumer rejecting the product rather than on the product deteriorating. The shelf-life estimated of 'Fuji' apples was 23 days with a 50% rejection probability and 17 days with a 25% rejection probability. Consumer acceptability and descriptive sensory analyses for storage periods of up to 28 days at 20 °C indicated that the greatest quality loss was associated with increased mealiness, ripe taste and alcoholic taste and odor. Texture instrumental compression measures reflected the loss of rigidity of the apple tissue. The Thiault index and acceptability test results showed that the quality of the apples recently removed from cold storage was barely acceptable.