Abstract

Multivariate analysis was used to establish the relationship between quality parameters and two post harvest disorders (brown heart and core browning) that occurred during pear storage. The damage percentage for each disorder was related to length of storage and values of maturity indexes: firmness, sugar concentration (SSC) and acidity. The Principal Component Analysis model (PCA) distinguished two groups: healthy and damaged fruits. Within the damaged group, the model also clearly discriminated between fruit with brown heart and fruit with core browning. We also established a complementary Partial Least Squares model (PLS) that quantified the importance of each variable and predict the percentage of disorder. According to this model, brown heart negatively correlated with acidity, while core browning correlated with firmness and to a lesser extent with acidity. We conclude that core browning and brown heart are two different disorders related to specific changes in quality parameters.