

Abstract

In this work multivariate analysis was used to establish the relationship between quality parameters and brown heart incidence in pears during storage. The percentage of damage was related to the following maturity indexes: color, firmness, sugar concentration (SSC) and acidity. Direct counting clearly indicated that harvest date and CO₂ concentration were determining factors related to the incidence of brown heart. The multivariate analysis, and in a first step the PCA model used in this work, clearly distinguished two groups: the healthy and damaged fruits. In a second step, and in order to quantify the weight that each variable have on the variance, a PLS mode was also established. According to this model, brown heart negatively correlated with acidity but not with the others maturity indexes. Collectively these results showed that maturity indexes generally used to follow ripening in storage were unable to predict brown heart disorder. The only related factor was acidity, which appeared to be an important parameter to take into account when establishing a predictive mode of brown heart in controlled-atmosphere stored pears.