

Title Shelf life evaluation of fresh-cut pineapple by using an electronic nose
Author Luisa Torri, Nicoletta Sinelli and Sara Limbo
Citation Postharvest Biology and Technology, Volume 56, Issue 3, June 2010, Pages 239-245
Keywords Electronic nose; Fresh-cut fruit; Freshness; Pineapple; Shelf life; Temperature

Abstract

The aim of this work was to investigate the applicability of a commercial electronic nose in monitoring freshness of minimally processed fruit (packaged pineapple slices) during storage. The pineapple samples were taken at the beginning of their commercial life and stored at three different temperatures (4–5, 7–8, and 15–16 °C) for 6–10 days. The measurements were performed by applying two analytical approaches using an electronic nose: a discontinuous method being a series of analyses on samples taken at various stages of storage, and a continuous method where the headspace around the fruit was automatically monitored by the electronic nose probe during the preservation of slices in a storage cell. The results obtained by the discontinuous approach showed that the electronic nose was able to discriminate between several samples and to monitor the changes in volatile compounds correlated with quality decay. The second derivative of the transition function, used to interpolate the PC1 score trend versus the storage time at each temperature, was calculated to estimate the stability time. Results revealed that fruit freshness was maintained for about 5 days at 5.3 °C, 3 days at 8.6 °C and 1 day at 15.8 °C. Moreover, from the time–temperature tolerance chart, a Q_{10} value of 4.48 was derived. These data were confirmed applying the continuous method: the fruit freshness was maintained for about 5 days at 4 °C, 2 days at 7.6 °C and 1 day at 16 °C. An interesting future development could be an application in-line of the continuous electronic nose method.