Ayse Navruz et al., J Food Process Technol 2017, 8:9(Suppl)
DOI: 10.4172/2157-7110-C1-069

Changes in anthocyanins and color of strawberry juice concentrates during storage

Ayse Navruz, Damla Oyku Halici, Elif Semerci, Nazan Gulmez, Betul Erkan Koc, Meltem Turkyilmaz and **Mehmet Ozkan**
Ankara University, Turkey

Color is the most important quality criteria in strawberry juice concentrates (SJC). The attractive red color of strawberries is due to the anthocyanins (ACN). The most important factors affecting the stability of ACNs are processing and storage temperatures. Therefore, this study was conducted to determine the effects of various storage temperatures (–18°, 4°, 10° and 20°C) on ACNs and polymeric color of SJC. Total monomeric ACN, polymeric color and reflectance color analyses were carried out. Stability of ACNs in SJCs decreased significantly as the storage temperature and time increased. For example, ACN losses of 1, 56, 72 ve 74% were detected in SCJs stored at –18°, 4°, 10° and 20°C for 50, 50, 36 and 16 days. The degradation of ACNs in SJC during storage was fitted to first-order reaction model. Kinetic data showed that half-life periods for anthocyanin degradation in SJCs were 41, 21 and 8 days at 4°, 10° and 20°C, respectively. Polymeric color substantially increased as the storage temperature increased. Zero-order reaction rate constants for polymeric color ratio were 0.76, 1.21 and 2.86% days–1 at 4°, 10° and 20°C, respectively. Reflectance color values were also determined for color changes in SJCs during storage. As the storage temperature and time increased, redness decreased up to 5 units. High correlations were found between a* (r=0.934 and 0.997 at 4° and 10°C, respectively) and ACN content of SJC during storage. Results from all color measurements also revealed that the color of SJC stored at –18°C almost unchanged during 50 days of storage. Therefore, SJCs should be kept at subfreezing temperatures to minimize anthocyanin degradation and formation of brown color.

Biography

Ayse Navruz completed her undergraduate studies in the Department of Food Engineering at Ankara University in 2012 and obtained Master of Science degree in the same department in April 2017. She is currently working in wine processing plant in Nigde, Turkey.

navruzayse@gmail.com

Notes: