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Effects of moisture contents and storage temperatures on browning of non-sulfited sun dried apricots

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Uniformly distributed light brown color is desired for non-sulphited sun dried apricots (NSDAs). The color of NSDAs is affected by the moisture content and the storage temperature. Therefore, this study was undertaken to determine the effects of various moisture contents (13.7, 23.5, 27%) (MC) and storage temperatures (4, 10, 20, 30°C) on the color of NSDAs during 12 months of storage. To mimic the consumer packaging, half of the samples were rehydrated from 13.7% to 23.5 and 27% MC and placed in polystyrene containers wrapped with PVC film. To mimic the commercial storage conditions, rest of the samples at 13.7% MC were placed in storage in bulk. The changes in color of NSDAs during storage were determined by measuring absorbance values at 420 nm and reflectance color values. Initial browning values (BV) (3.5 to 5.0 A₄₂₀ g/dw) and L, a, b values (25.1, 5.8, 8.9, respectively) did not change considerably during storage at 4° and 10°C. Initial browning index (BI) (55–62) decreased by 26–34% after storage at 30°C. An increase in storage temperature from 20 to 30°C accelerated brown color formation by 3.5 times. Furthermore, an increase in MC from 13.7 to 23.5% accelerated brown color formation by 1.1–1.5 times. Due to strong negative correlations between BI and BV ($r=0.857-0.926$), BI might be an alternative to lengthy spectrophotometric measurement of brown pigments. Results from this study clearly showed that low storage temperatures (<10°C) and MC (<23%) are required to prevent formation of brown color in NSDAs.

Biography

Nihal Güzel is currently doing her PhD in the Department of Food Engineering at Ankara University. She has been working as a research assistant in the Department of Food Engineering at Hitit University since 2009. She has published two papers in SCI Journals.

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