Changes in flavonoids of sliced and fried yellow onions (Allium cepa L. var. zittauer) during storage at different atmospheric, temperature and light conditions

Changes in flavonoids of sliced and fried yellow onions (Allium cepa L. var. zittauer) during storage at different atmospheric, temperature and light conditions

Flavonoid changes in sliced and fried onions which were packed and stored at different atmospheric conditions (air, nitrogen and vacuum), temperatures (ambient, +5 and -18°C) and light (dark or light) were investigated. Flavonoids were extracted using accelerated solvent extraction and analyzed using ultra performance liquid chromatography coupled with photodiode array detector. Total flavonoid content, quercetin-3,4’-O-diglucoside and quercetin-4’-O-monoglucoside contents in sliced reference onion samples were found as 1,570±176, 926±105 and 564±64μg q.e./g d.w., respectively. Frying did not result in significant losses of flavonoids. At room temperature, total flavonoid losses were significant, besides conversion of quercetin glycosides into aglycons. Dark conditions better retained flavonoids of sliced onions at all atmospheric conditions. For sliced onions; +5°C, air or vacuum atmosphere, or -18°C, vacuum or nitrogen atmosphere, under dark, preserved flavonoids for 21 days, whereas for fried onions, 7 days of storage at +5°C, vacuum atmosphere under dark resulted in highest flavonoid content. © 2014 Wiley Periodicals, Inc.

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