

The influence of roasting, pasteurisation, and storage on the polyphenol content and antioxidant capacity of California almond skins.

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Abstract:

Polyphenols and antioxidant activity of skins from California almonds subjected to roasting, pasteurisation, and storage were determined by LC-MS quantification, total phenols (TP), and ferric reducing antioxidant power (FRAP). Pasteurisation did not significantly change TP, FRAP, or flavonoids and phenolic acids (FP). Roasted almonds had 26% less TP and 34% less FRAP than raw, but equivalent FP (n = 12). Storing almonds at 4 and 23 °C for 15 mo resulted in gradual increases in FP, up to 177% and 200%, respectively (n = 13). At 4 °C and 15 mo, polyphenols increased 18-fold for p-hydroxybenzoic acid, whilst others were 45–200% higher compared to baseline values. Isorhamnetin-3-O-rutinoside accounted for 48% of the increase in FP. After 15 mo, FRAP and TP increased to 200% and 190% of initial values. Accelerated ageing of whole almonds increased FP content by 10% after 3 days, but TP and FRAP values were not significantly different from baseline to day 10. Thus, in almond skins, roasting decreases TP and FRAP but not FP, whilst storage for up to 15 mo doubles FP.