

**Activity and concentration of polyphenolic antioxidants in apple juice. 3.
Stability during storage.**

J Agric Food Chem. 2005 Feb 23;53(4):1073-80

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Kinetic data are reported describing the stability of various classes of polyphenolic antioxidants in an apple juice enriched in these compounds as a function of storage temperature and oxygen concentration. The most thermally sensitive compounds were the various quercetin glycosides and epicatechin, whereas phloridzin and chlorogenic acid were more stable. The quercetin glycosides showed differences in their stability: quercetin galactoside approximately quercetin rhamnoside > quercetin glucoside/rutinoside > quercetin arabinoside. The effect of the presence of oxygen on the degradation rates was clear for only quercetin and to a lesser extent for epicatechin. Accelerated shelf-life testing of enriched apple juice during 4 days at 80 degrees C showed decreases in the antioxidant activity of 20-40%. The parameters obtained were used to predict the stability at different storage conditions. Calculations showed that polyphenolic antioxidants and antioxidant activity of enriched apple juice will be quite stable at ambient or refrigerated storage conditions up to half a year.