

Concentrations and characteristics of procyanidins and other phenolics in apples during fruit growth.

Phytochemistry. 2007 Apr;68(8):1128-38. Epub 2007 Apr 2

[Renard CM](#), [Dupont N](#), [Guillermin P](#).

Unité de Recherches Cidricoles, Biotransformation des Fruits et Légumes, INRA, Centre de Rennes, Domaine de la Motte, BP 35627, 35653 Le Rheu Cedex, France. catherine.renard@avignon.inra.fr

Apples (*Malus domestica* Borkh.) of two table and two cider cultivars were collected during fruit growth and maturation from the end of cell proliferation. Concentrations of flavonoids (flavan-3-ols, dihydrochalcones and flavonols) in the fruit flesh decreased sharply between circa 35 and circa 100 days after flowering. For hydroxycinnamic acids, the decrease appeared slower. In a second experiments apples of the cider cultivars Kermerrien and Avrolles were sampled every 2 weeks from 40 days after flowering to overripeness for a detailed characterisation of polyphenol accumulation kinetics in the fruit flesh. Most polyphenol synthesis had occurred at 40 days after full bloom, though it persisted at a low (Kermerrien) to very low (Avrolles) level during all the fruit growth. All qualitative characteristics of the polyphenols were remarkably stable. The degree of polymerisation of the procyanidins increased slightly in Avrolles and decreased in Kermerrien. This was accompanied by a relative increase in procyanidin B2, while size-exclusion chromatography of Kermerrien polyphenol extracts showed the disappearance of a highly polymerised fraction.