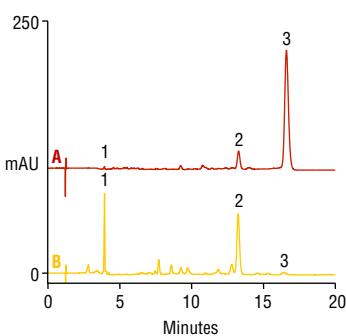
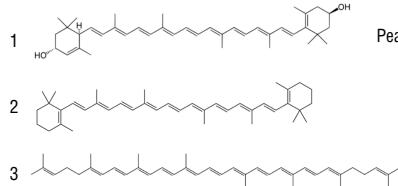


Carotenoid Profiles of Tomato Cultivars Using Acclaim C30



Column: Thermo Scientific™ Acclaim™ C30, 3 μ m
 Dimensions: 3.0 \times 150 mm
 LC System: Thermo Scientific™ Dionex™ UltiMate™ 3000 RSLC system
 Mobile Phases:
 A) Acetonitrile
 B) Methanol:Ethyl acetate 1:1 (v/v)
 C) 10 mM Formic acid in water
 Gradient Times (min): -8.0 0.0 1.0 21.0 25.0
 %A 95.0 95.0 95.0 54.5 54.5
 %B 4.5 4.5 4.5 45.0 45.0
 %C 0.5 0.5 0.5 0.5 0.5
 Flow: 0.64 mL/min
 Temperature: 30 °C
 Injection: 8 μ L
 Detector: DAD (260-800 nm); traces at 450 nm shown
 Sample Preparation: See reference 2.
 Samples:
 A. Red tomato, 0.20 g/mL
 B. Yellow tomato, 5.6 g/mL



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Carotenoids are responsible for the characteristic colors of many fruits and vegetables, including tomatoes, squash, yams, carrots and chilies. In yellow tomatoes, lycopene (red) is converted first to carotenes (orange) by cyclase enzymes, then to lutein (yellow) by hydroxylase enzymes. In red tomatoes, the expression of the cyclase and hydroxylase enzymes is reduced, leading to an accumulation of the red lycopene.¹ Various cultivars express these enzymes in characteristic ways, leading to a variety of red, orange, yellow and patterned fruits. The carotene content also affects the nutritional value of the crop, the principal ones of interest being lycopene, α - & β -carotene, and lutein.² The Acclaim C30 column provides desirable selectivity, making it the optimum choice for this application.

1. J. Hirschberg, M. Cohen, M. Harker, T. Lotan, V. Mann and I. Pecker, *Pure & Appl. Chem.*, Vol. 69, No. 10, pp. 2151-2158, 1997.
2. D.B.Rodriguez-Amaya and M. Kimura, "HarvestPlus Handbook for Carotenoid Analysis", International Food Policy Research Institute, 2004.