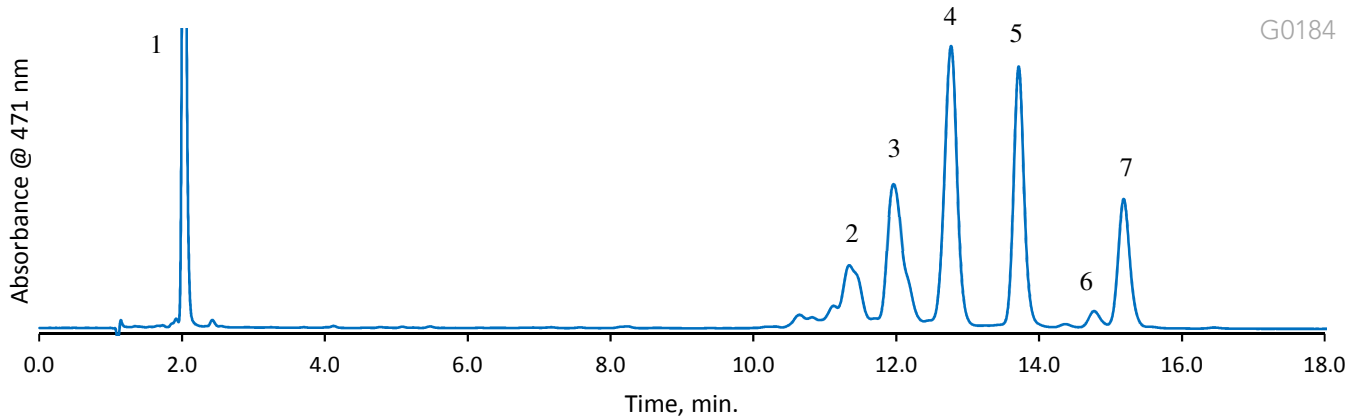


Separation of Carotenoids on HALO® C30



G0184

TEST CONDITIONS:

Columns: HALO 160 Å C30, 2.7 µm, 3.0 x 150mm
Part Number: 92113-730

Mobile Phase A: Methanol

Mobile Phase B: Ethanol

Gradient:

Time	% B
0.0	0
20.0	40

Flow Rate: 0.65 mL/min

Temperature: 38°C

Detection: UV 471 nm, PDA

Injection Volume: 0.6 µL

Data Rate: 2.5 Hz

Response Time: 2 sec.

Flow Cell: 13 µL

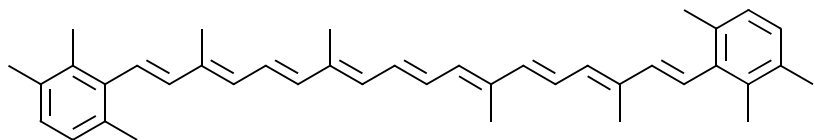
LC System: Agilent 1100

Data Courtesy of Nature's Sunshine Products

PEAK IDENTITIES:

1. Lutein
2. *cis*- carotenoid 1
3. *cis*- carotenoid 2
4. α- Carotene
5. β- Carotene
6. *cis*- Lycopene
7. Lycopene

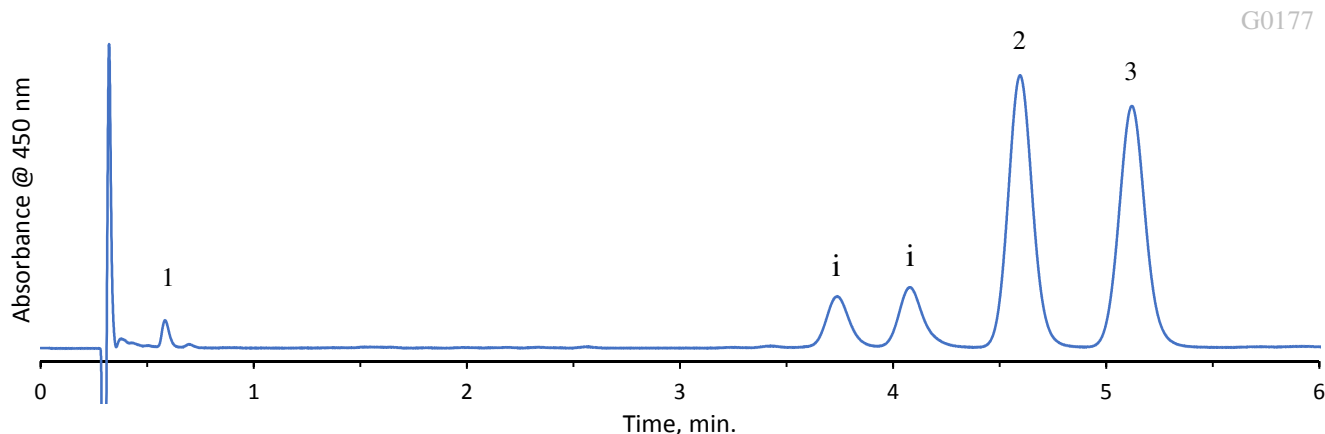
STRUCTURE:



-General structure of a carotenoid

Carotenoids can be split into two main classes called xanthophylls and carotenes. They are responsible for absorbing light for photosynthesis and protecting chlorophyll from photodamage. A separation done by Nature's Sunshine Products shows excellent resolution of carotenoids on a HALO® C30 column.

Carotenoids Extracted from Carrot Juice Analyzed using HALO® C30



TEST CONDITIONS:

Column: HALO 160 Å C30, 2.7 µm, 2.1 x 50 mm

Part Number: 92112-430

Isocratic: 100 % Methanol

Flow Rate: 0.4 mL/min

Pressure: 100 bar

Temperature: 30°C

Detection: UV 450 nm, PDA

Injection Volume: 2.5 µL

Sample Solvent: Methanol/ Isopropyl alcohol

Data Rate: 40 Hz

Response Time: 0.025 sec.

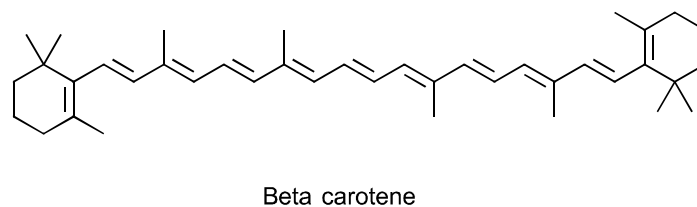
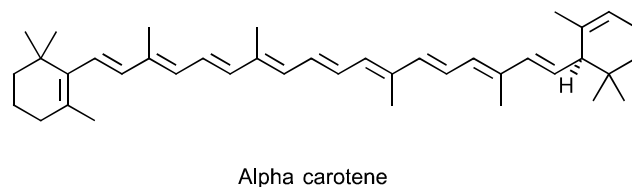
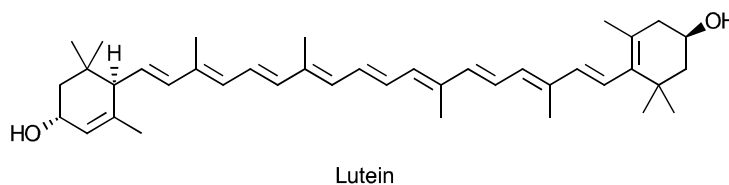
Flow Cell: 1 µL

LC System: Shimadzu Nexera X2

PEAK IDENTITIES:

1. Lutein
2. α-carotene
3. β-carotene
- i. unidentified isomers

STRUCTURES:

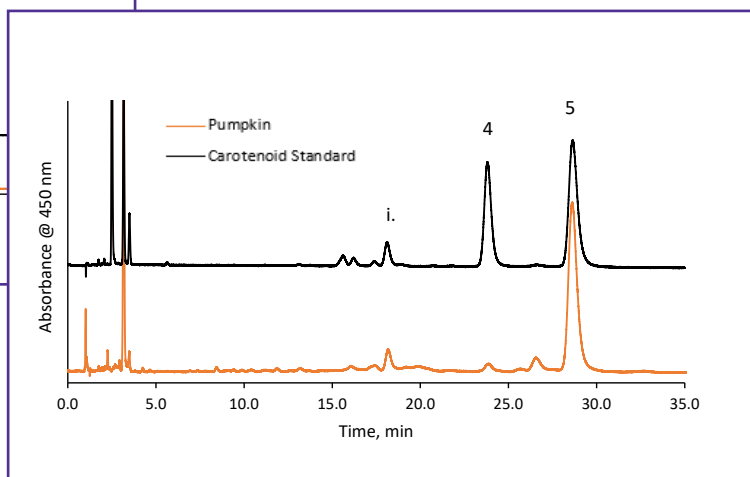
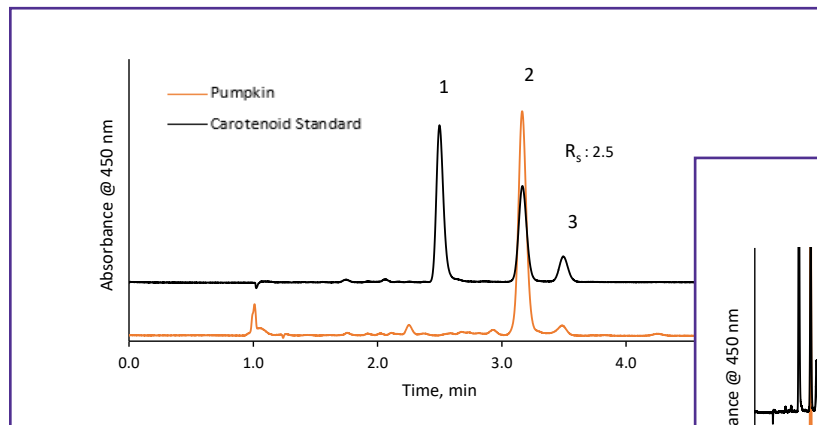


The carotenoids lutein, α-carotene, and β-carotene were isolated from a commercially available carrot juice using liquid liquid extraction. Carotenes are responsible for the orange color in vegetables such as carrots and are considered antioxidants. The separation was performed on a HALO C30 column with high resolution between the α- and β-carotene peaks.



Carotenoid Analysis in Pumpkin

250-V



PEAK IDENTITIES

1. Astaxanthin
2. Lutein
3. Zeaxanthin
4. α - Carotene
5. β -Carotene
- i. unidentified isomers

TEST CONDITIONS:

Column: HALO® C30, 2.7 μ m, 4.6 x 150 mm

Part Number: 92114-730

Competitor: FPP C30, 3.0 μ m, 4.6 x 150 mm

Isocratic: 100% Methanol

Flow Rate: 1.5 mL/min

Initial HALO® Pressure: 277 bar

Temperature: 15 °C

Detection: 450 nm,

Injection Volume: 20.0 μ L

Sample Solvent: Methanol

Data Rate: 14 Hz

Response Time: 0.12 sec.

Flow Cell: 5 μ L semi-micro

LC System: LC System: Agilent 1100

Pumpkins contain high amounts of carotenoids, especially beta carotene. Carotenoids are fat-soluble compounds that can be split into two main groups called xanthophylls and carotenes. These compounds both contain anti-oxidant properties and some can be converted into vitamin A when released into the body. A liquid-liquid extraction is performed with 0.2g of pumpkin pulp. Carotenoids are extracted from the pumpkin and analyzed on a HALO® C30 column. The HPLC oven set at sub-ambient temperature enables optimum resolution of early eluting peaks.

