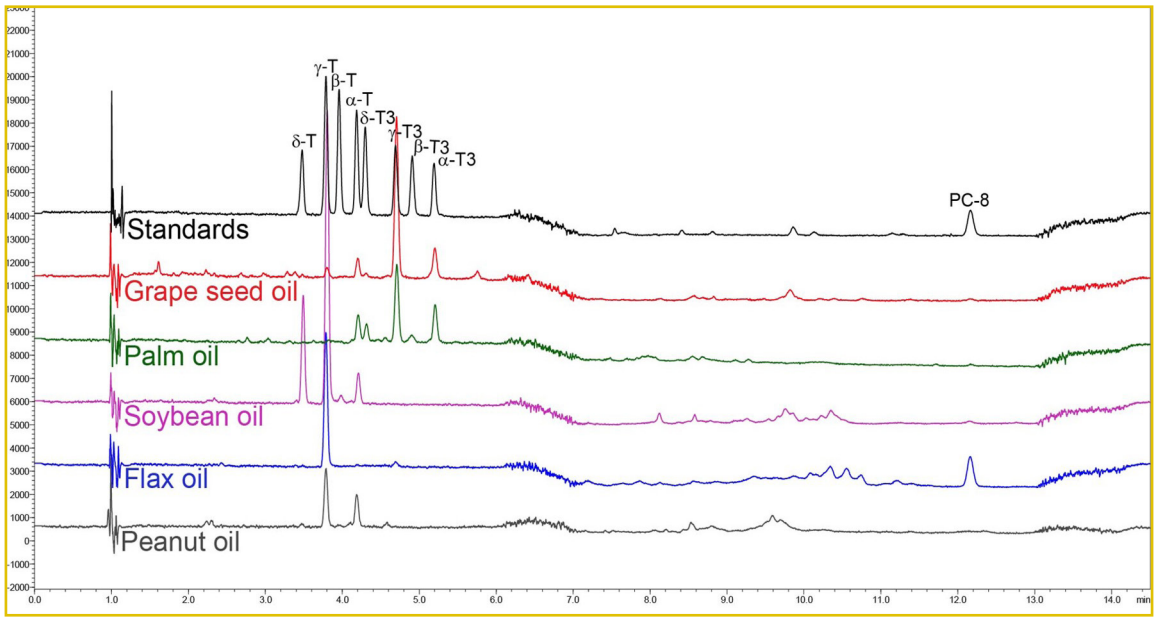
HALO®

FOOD / BEVERAGE

Optimization of Tocochromanols Separation Using Supercritical Fluid Chromatography and HALO® Biphenyl



PEAK IDENTITIES

Labeled on chromatogram

TEST CONDITIONS:

Column: HALO 90 Å Biphenyl, 2.7 µm, 4.6 × 250 mm
Part Number: 92814-911
Mobile Phase A: CO_2
Mobile Phase B: MeOH
Gradient:

Time	%B
0.00	5
5.00	10
6.00	25
12.00	25
13.00	5
14.50	5

Flow Rate: 3.0 mL/min
Back-pressure regulator: 10.0 MPa
Back-pressure: 25.0-31.5 MPa
Temperature: 25 °C
Detection: DAD at 295 nm
Injection Volume: 5.0 µL
Sample Solvent: 2-propanol
Sample/Solvent ratio: 1:9-3:7, w/v

Tocopherols, tocotrienols, and plastochromanol-8 (PC-8), commonly named tocochromanols/tocols/vitamin E, are fat-soluble antioxidants that play an important role in human health. Applying supercritical fluid chromatography (SFC) and a HALO 90 Å Biphenyl, 2.7 µm, 4.6 × 250 mm column for tocochromanols separation the run time can be shortened by three times in comparison to NPLC to 14.5 min. Additionally, the benefit of SFC is that it has green character due to its use of carbon dioxide (CO_2) as the main mobile phase component, which is both non-toxic and readily available. In turn, the HALO® Fused-Core® technology allows for injection of high volume (up to 7-8 µL) of only diluted plant oils in 2-propanol in a ratio 1:9-3:7, w/v, to the SFC system. The combination of the SFC-DAD and HALO® column technology enabled a rapid and green determination method of nine tocochromanols.

Data courtesy of Latvian Science Council prepared under project No. lzp-2021/1-0651.

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