Waters™

Applikationsbericht

Ephedra Alkaloids in Functional Foods

Waters Corporation

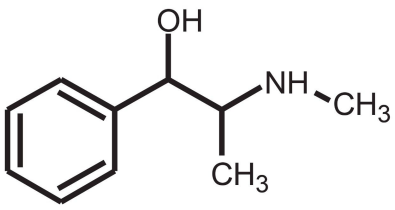
This is an Application Brief and does not contain a detailed Experimental section.

Abstract

This application brief highlights about analysis of ephedra alkaloids in functional food.

Introduction

The compound analyzed in this study is ephedrine.



EPHEDRINE

Experimental

HPLC Method

Column:	XTerra Phenyl, 2.1 x 150 mm, 3.5 µm
Part number:	186001181
Mobile phase A:	10 mM NH_4HCO_3, pH 9.5
Mobile phase B:	ACN
Flow rate:	0.23 mL/min
Isocratic mobile phase composition:	90% A; 10% B
Injection volume:	5 µL
Temperature:	40 °C

Detection:	UV @ 254 nm
Instrument:	Alliance 2695, 2996 PDA

Sample Preparation

- Accurately weigh 1 gram of ephedra sample into a 100 mL volumetric flask, add 20 mL water and mix. Add 50 mL of MeOH and 1 ml of Internal Standard.

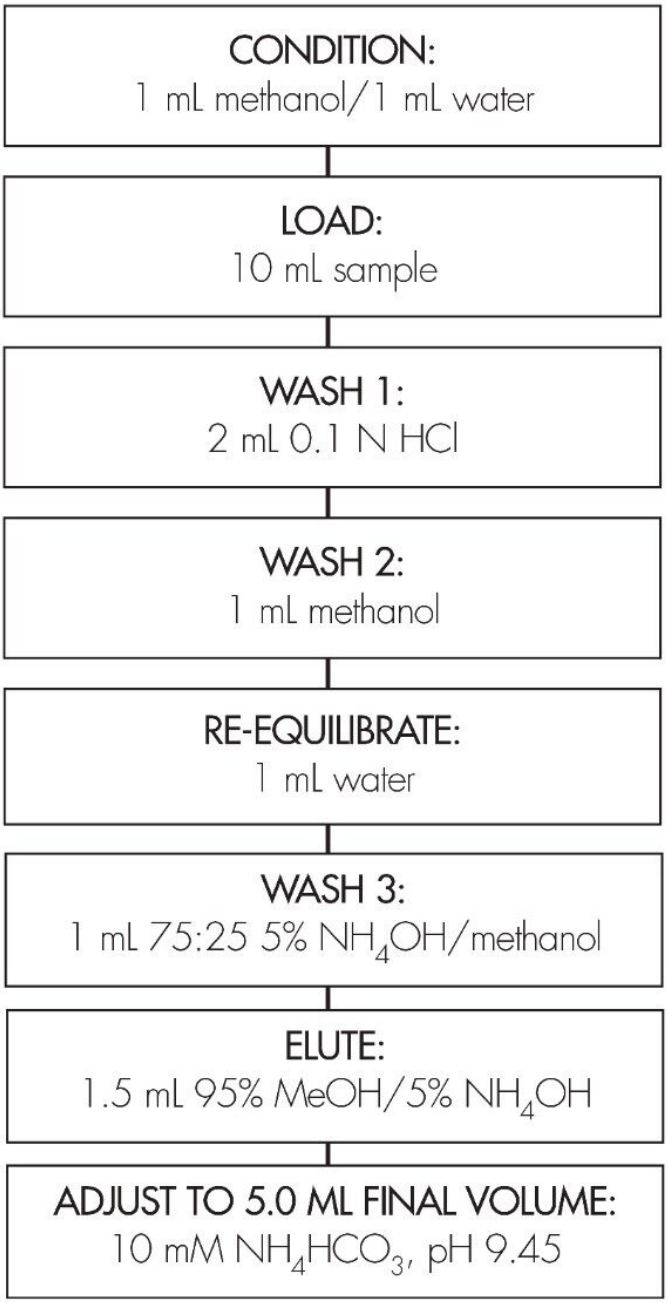
  Use 0.5 g sample for ephedra extracts

  Use 10 g sample weight for High Protein Powdered Drinks and other functional foods

- Sonicate for 1 hour at ambient temperature
- Cool and bring to volume with MeOH
- Allow the suspended solids to settle, preferably certrifuge
- Filter a 3 mL aliqout through a 0.45 mm filter before a sample preperation
- This step is critical to good SPE recovery
- For SPE, dilute 2 mL of filtered sample extract to 10 mL with 0.1% formic acid (aqueous)

OASIS® MCX EXTRACTION METHOD

Oasis® MCX Extraction Cartridge, 3 cc/60 mg

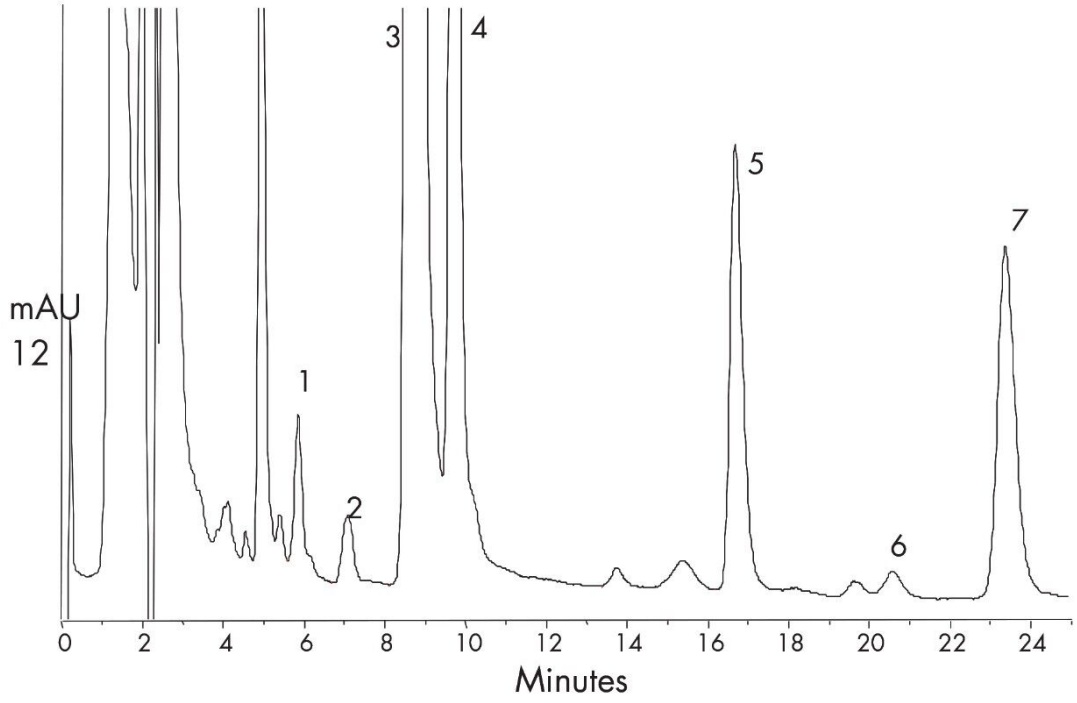


Results and Discussion

100% Level

1. norephedrine (NE) 0.24mg/g
2. norpseudoephedrine (NPE) 0.40mg/g
3. ephedrine (E) 20.0mg/g
4. pseudoephedrine (PE) 5.0mg/g
5. methylephedrine (ME) 0.70mg/g
6. methylpseudoephedrine (MPE) 0.17mg/g

	50% Level % Recovery % RSD	100% Level % Recovery % RSD	150% Level % Recovery % RSD
1 NE	81.9 ± 6.7 8.12%	74.7 ± 5.9 7.95%	66.7 ± 3.7 4.46%
2 NPE 1 occasion	77.6 ± 1.8 2.25%	66.2 ± 0.8 1.26%	63.9 ± 0.73 1.15%
3 E	101.9 ± 2.5 8.12%	102.3 ± 3.7 3.60%	98.0 ± 5.5 5.60%
4 PE	89.0 ± 1.2 8.12%	92.3 ± 3.4 3.61%	92.8 ± 5.3 5.70%
5 ME	94.7 ± 4.2 4.46%	98.7 ± 3.3 3.34%	81.9 ± 1.8 1.88%
6 MPE	99.8 ± 16.3 16.4%	85.4 ± 13.3 15.6%	88.0 ± 7.7 8.73%



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