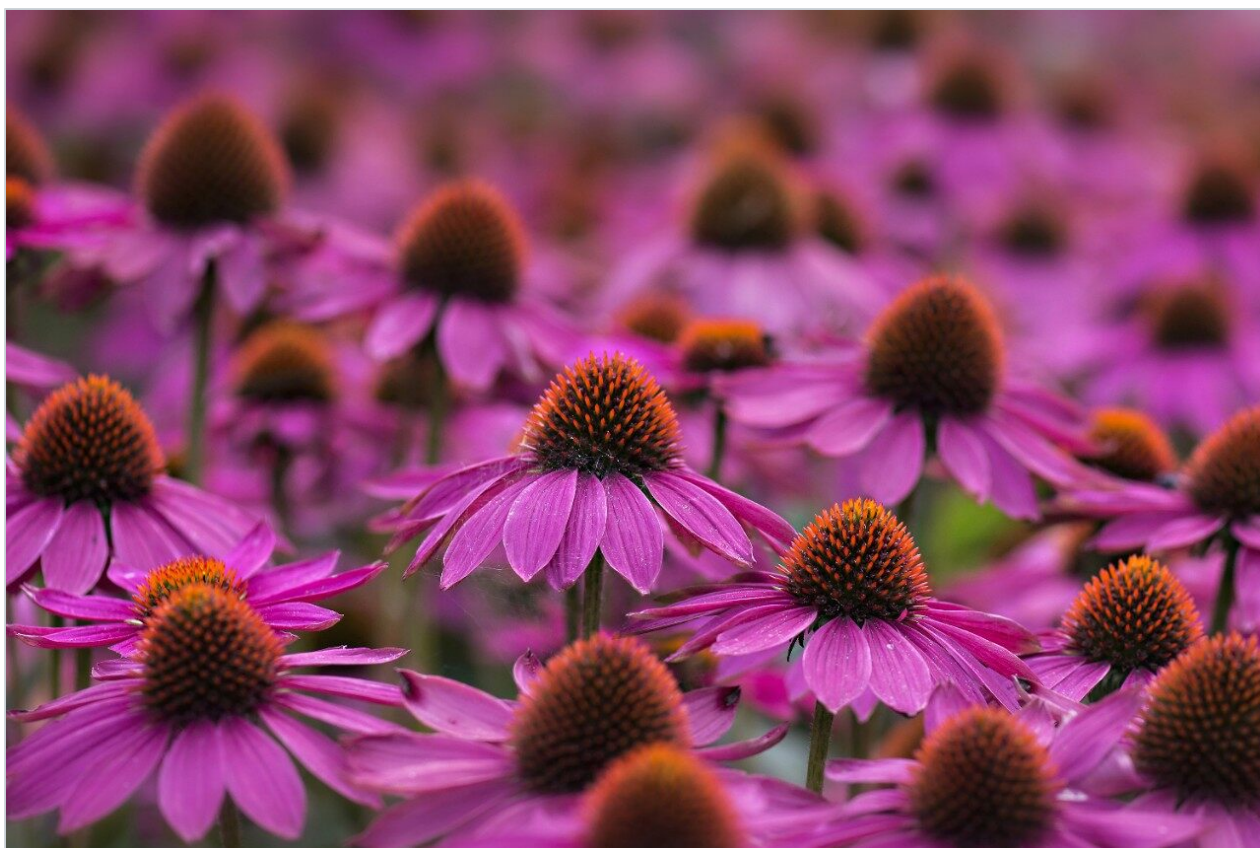


Phenolics in Echinacea, Commercial Products or Whole Leaf

Waters Corporation

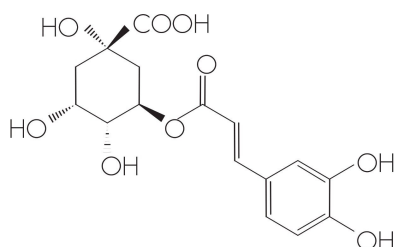


Abstract

This application brief highlights the analysis of phenolics using Oasis MAX method.

Introduction

Phenolic compounds in Echinacea, Commercial Products or Whole Leaf are analyzed in this application brief.



CHLOROGENIC ACID

Experimental

Sample Preparation

100 mg sample is extracted with 25 mL of ethanol:water (70:30)

1 mL of the ethanolic extract is diluted 1:3 with water (~ pH 7)

- Recovery, measured with certified standards at 100 ppm in reagent water, was greater than 85% for all compounds
- All analyses gave results within $\pm 35\%$ of the expected values with the exception of the liquid supplement (see goldenseal analysis)
- The selective SPE extraction and cleanup procedure provided a convenient analysis of echinacea phenolics in complex matrix such as in herbal tea



Herbal tea extract
before SPE cleanup



Herbal tea extract after SPE cleanup using
Oasis® MAX

HPLC Method

Column:	Symmetry C ₁₈ , 4.6 x 250 mm, 5 µm (p/n: WAT054275)
Mobile phase A:	0.1% phosphoric acid
Mobile phase B:	Acetonitrile
Gradient:	10% B initial, then linear gradient to 22% B in 13 min, to 40 % B in 40 min
Flow rate:	1.5 mL/min
Injection volume:	10 µL
Temperature:	35 °C
Detection:	UV @ 330 nm

Oasis MAX Method for Phenolics in Echinacea

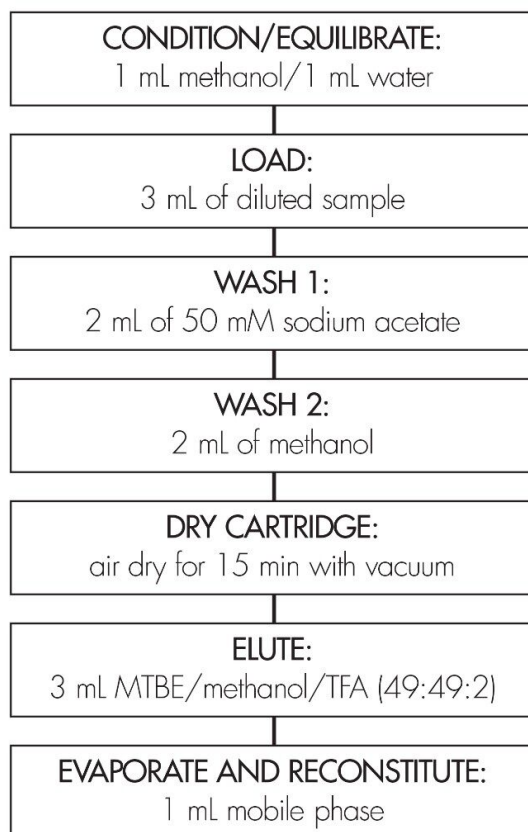
Conditions for Oasis MAX Cartridge, 3 cc/60 mg Part Number [186000367](#) <

<https://www.waters.com/nextgen/in/en/shop/sample-preparation--filtration/186000367-oasis-max-3-cc-vac-cartridge-60-mg-sorbent-per-cartridge-30--m-1.html>>

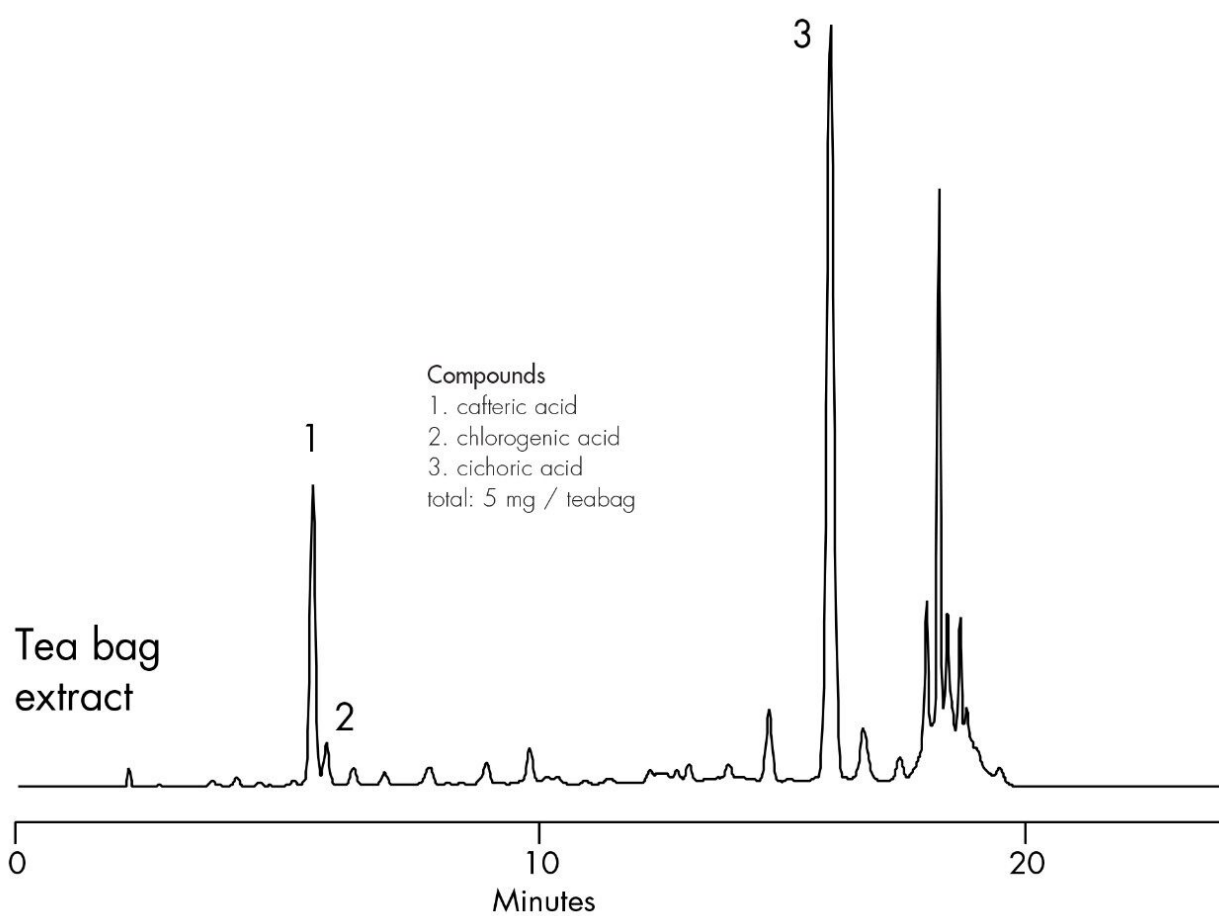
OASIS® MAX METHOD FOR PHENOLICS IN ECHINACEA

Conditions for Oasis® MAX Cartridge, 3 cc/60 mg

Part Number 186000367



Results and Discussion



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WA31764.121, June 2003