

## Alkaloids in Goldenseal - Commercial Products or Whole Leaf

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Waters Corporation



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

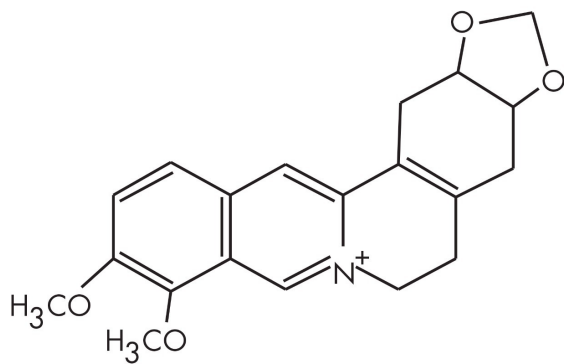
### Abstract

This application brief demonstrates analysis of alkaloids in goldenseal.

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## Introduction

The compound analyzed in this study is berberine.



**BERBERINE**

## Experimental

### HPLC Conditions

Column:	Symmetry C <sub>18</sub> , 4.6 x 250 mm, 5 µm
Part number:	WAT054275
Mobile phase A:	0.1% phosphoric acid
Mobile phase B:	Acetonitrile
Flow rate:	1.5 mL/min
Injection volume:	10 µL
Temperature:	35 °C

Detection:

UV @ 330 nm

## Gradient

Time (min)	Profile	
	%A	%B
0	90	10
13	78	22
40	60	40

## OASIS® HLB METHOD FOR ALKALOIDS IN GOLDENSEAL

Conditions for Oasis® HLB Cartridge, 3 cc/60 mg  
Part Number WAT094226

### CONDITION/EQUILIBRATE:

1 mL methanol/1 mL 150 mM  $K_2HPO_4$

### LOAD:

3 mL of diluted sample

### WASH:

1 mL 30% methanol/ 150 mM  $K_2HPO_4$

### ELUTE:

3 mL methanol



Herbal tea extract  
before SPE cleanup



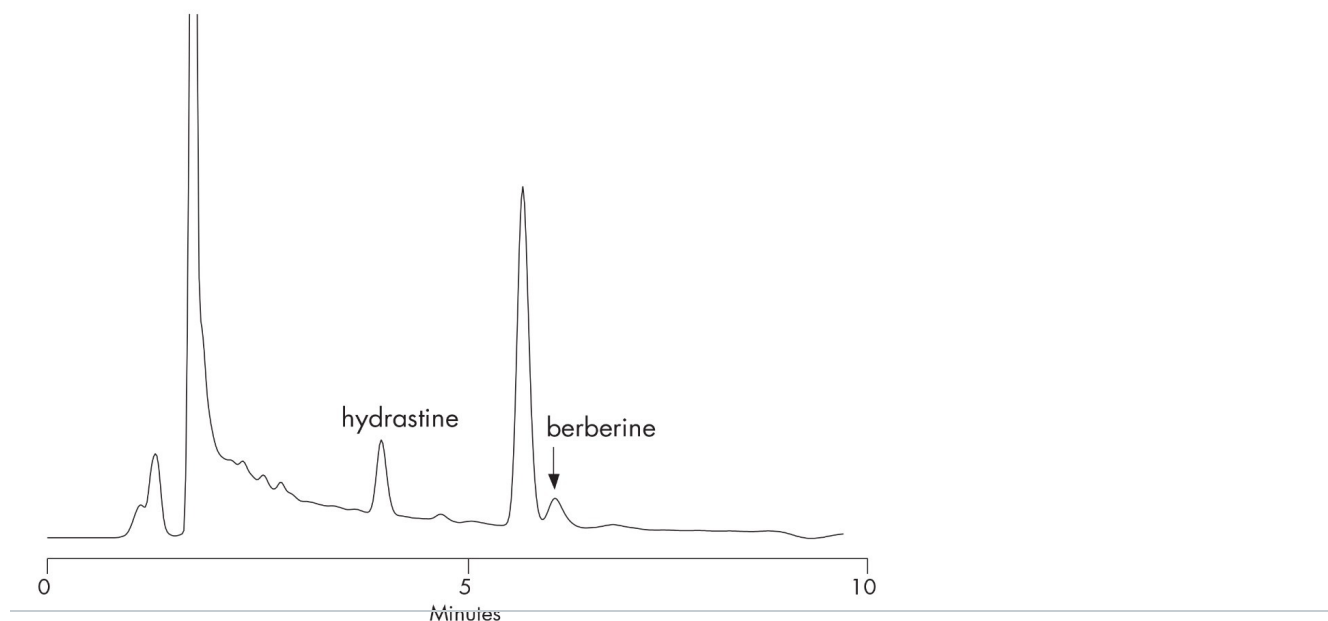
Herbal tea extract after SPE cleanup using  
Oasis® MAX

## Sample Pre-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

## Results and Discussion



## Featured Products

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