

Nota applicativa

## Patulin in Apple Juice

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Waters Corporation



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

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### Abstract

Patulin is a mycotoxin that is produced by certain species of *Penicillium*, *Aspergillus*, and *Byssochlamys* molds that may grow on a variety of foods including fruit, grains, and cheese. Patulin is a safety concern in

apple juice.

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## Introduction

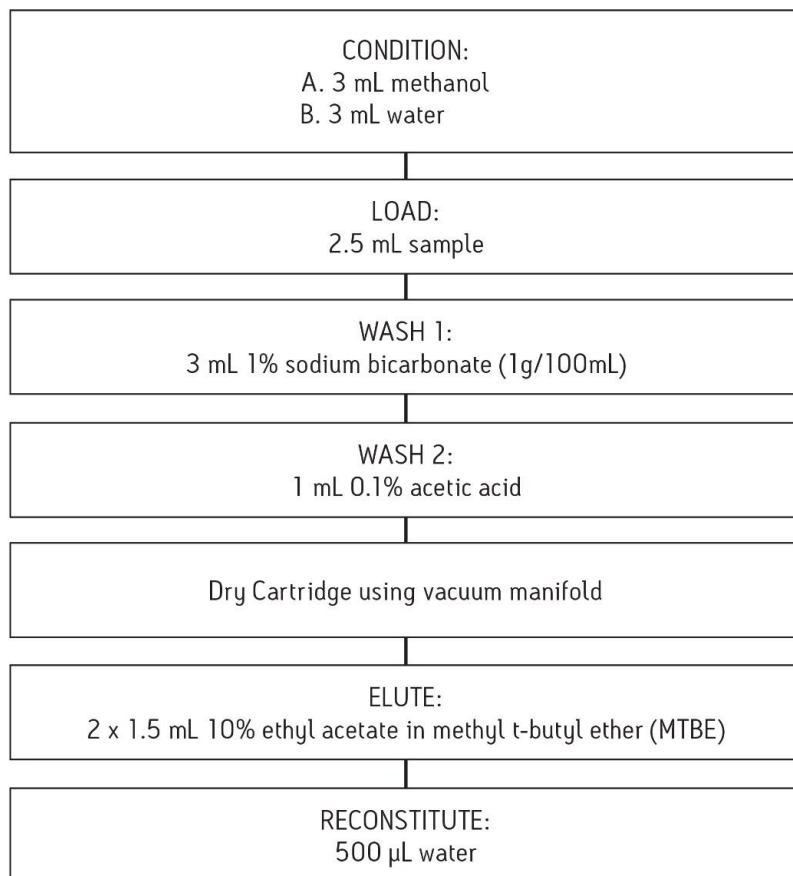
Patulin is a mycotoxin that is produced by certain species of *Penicillium*, *Aspergillus*, and *Byssochlamys* molds that may grow on a variety of foods including fruit, grains, and cheese. Patulin is a safety concern in apple juice.

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## Experimental

## SPE Procedure

Oasis® HLB 3cc /60mg



## LC Conditions

System:	ACQUITY UPLC
Column:	ACQUITY UPLC BEH Shield RP18, 1.7 µm, 2.1 x 100 mm
Flow rate:	600 µL/min
Mobile phase A:	0.1% aqueous ammonium hydroxide
Mobile phase B:	0.1% ammonium hydroxide in acetonitrile

Injection volume: 20 µL, Full loop injection

Column temp.: 40 °C

Sample temp.: 4 °C

Detector: ACQUITY UPLC PDA

Detection: 276 nm

## Gradient

Time (min)	%A	%B
0	99	1
1.8	99	1
2.3	10	90
2.8	10	90
2.81	99	1

## MS Conditions

MS System: ACQUITY TQ Detector

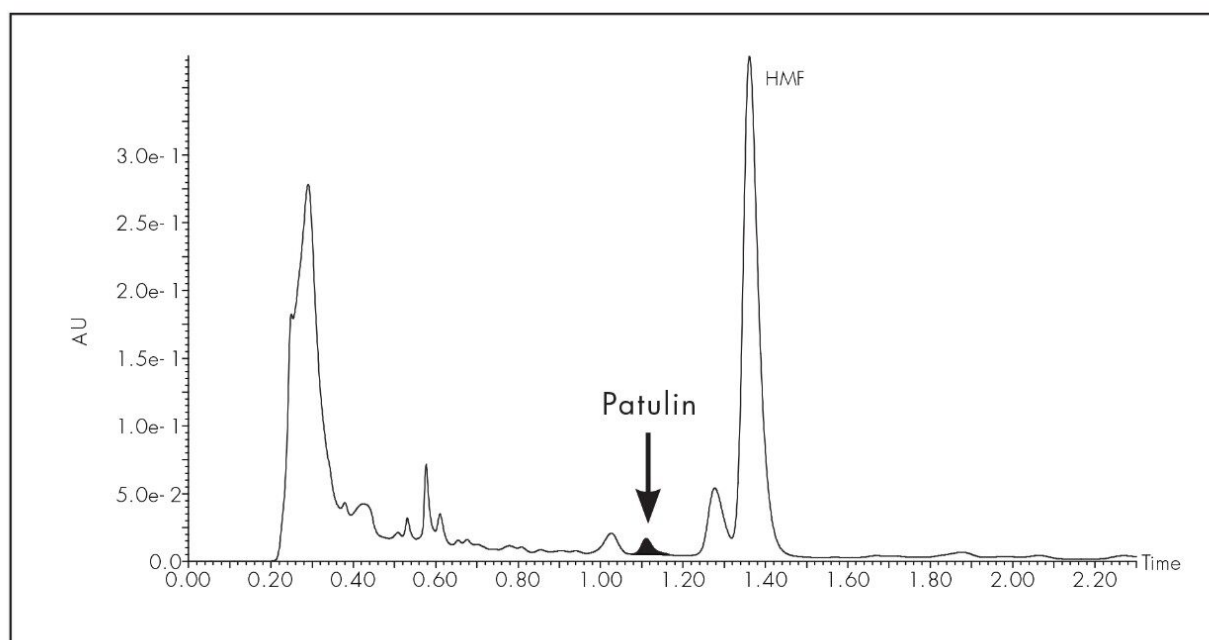
Ionization mode: Negative electrospray (ESI<sup>-</sup>)

Multiple reaction monitoring

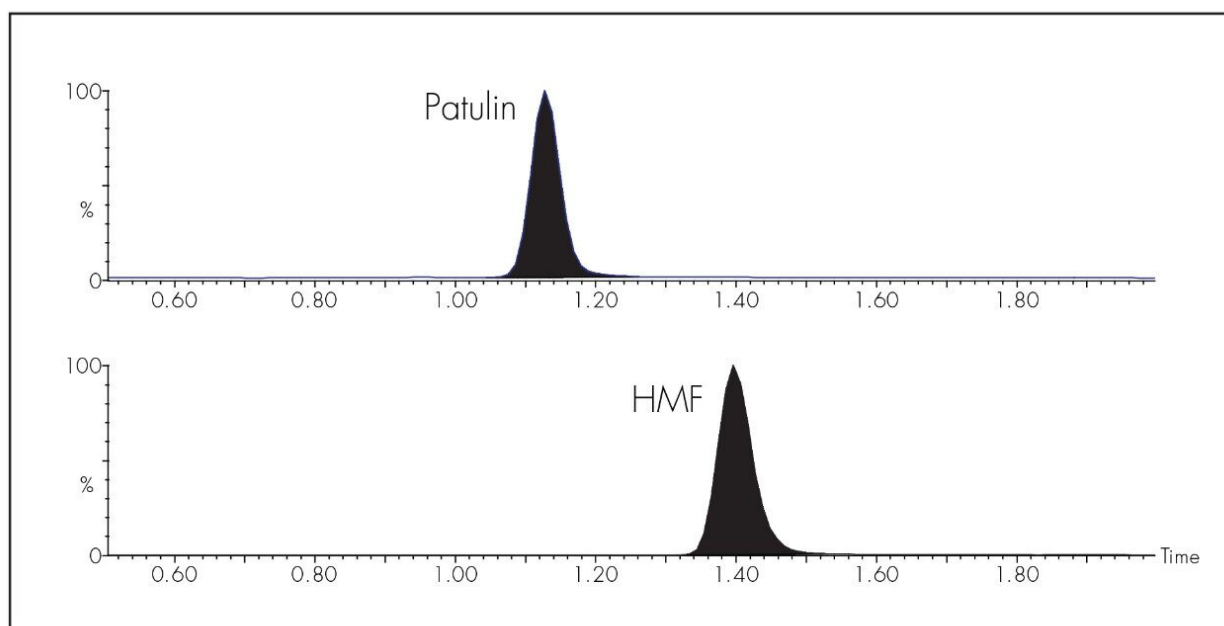
Analytes	MRM Transition
Patulin	153 → 109
	153 → 81
5-hydroxymethylfurfural (HMF)	125 → 95

*MRM method parameters.*

## Results and Discussion



*Apple juice extract at 50 µg/kg containing patulin and 5 hydroxymethylfurfural (HMF) at 276 nm.*



*Apple juice extract at 50 µg/kg containing patulin and 5 hydroxymethylfurfural in negative electrospray mode.*

Concentration	Average Recovery (%RSD)
5 µg/kg	86.1% (13.6)
50 µg/kg	95.4% (5.9)
500 µg/kg	89.9% (17.5)

*Recovery data obtained from Oasis HLB extraction of patulin in apple juice. Four data points were measured at each level.*

## References

1. Developed by Vural Gökmen, Food Engineering Department, Hacettepe University, Ankara, Turkey and John Martin, Waters Corporation.

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## Featured Products

ACQUITY UPLC System <<https://www.waters.com/514207>>

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