

Application Note

Penicillin G in Pork

Waters Corporation



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

Abstract

This method can be used to monitor Penicillin G in pork.

Introduction

World organizations are concerned about the overuse of antibiotics and antibacterials levels in foods due to possible bacteria resistances and health concerns.

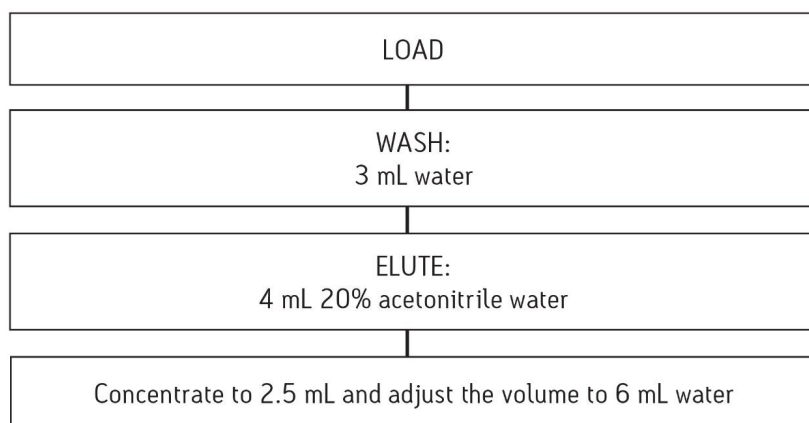
Experimental

Pre-treatment

1. Homogenize 3 g of sample with 3 mL of 5% sodium tungstate, 3 mL of 0.17 M sulfuric acid and 30 mL of water.
2. Centrifuge 3100 rpm for 10 minutes.
3. Filter with glass fiber filter.

SPE Procedure

Sep-Pak® Plus Short C₁₈, 360 mg



LC Conditions

System:

ACQUITY UPLC

Column: ACQUITY UPLC BEH C₁₈, 1.7 μm, 2.1 x 50 mm

Flow rate: 600 μL/min

Mobile phase A: 0.1% formic acid in water

Mobile phase B: 0.1% formic acid in acetonitrile

Gradient

Time (min)	%A	%B
0	90	10
5	10	90
5.5	90	10
6	90	10

MS Conditions

MS System: Waters Quattro Premier XE

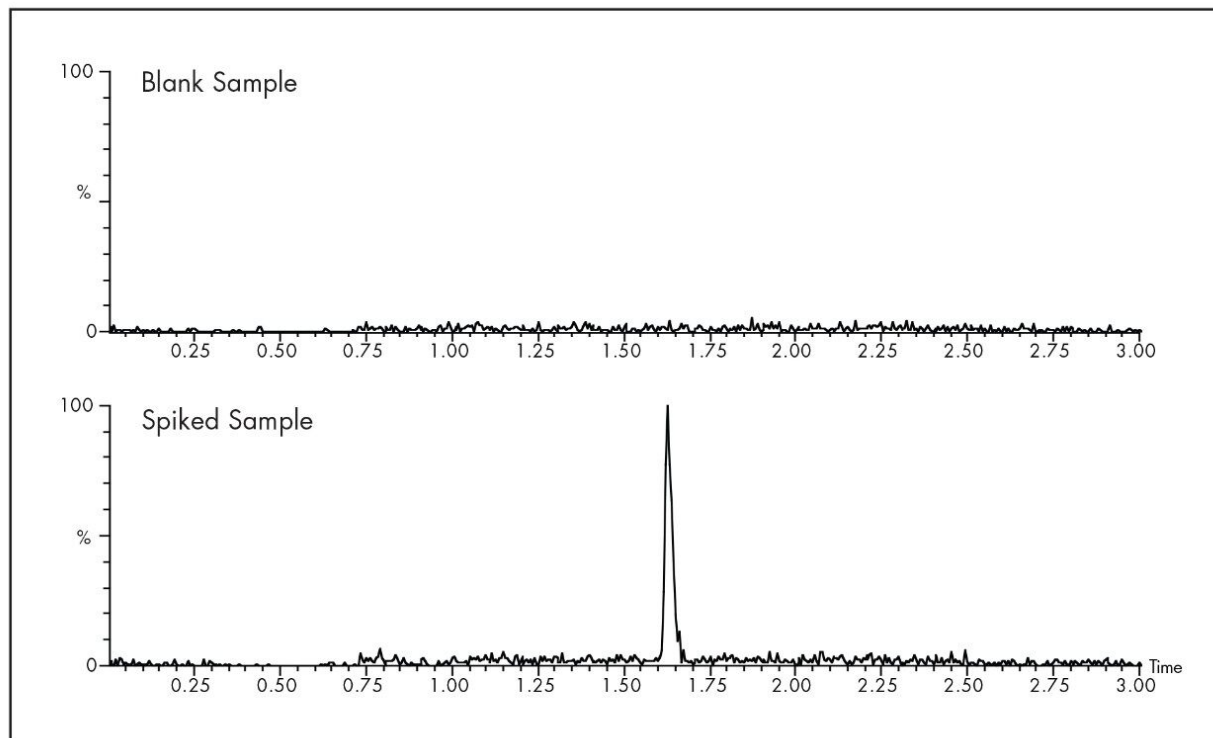
Ionization mode: Positive electrospray (ESI+)

Multiple reaction monitoring

MRM transitions: 1: 335160

2:335176

Results and Discussion



Representative chromatogram for 5 ppb penicillin spiked in pork muscle.

Compound Name: penicillin MRM 335→176	RT	Area
pork blank1	1.83	4.50
pork blank2	1.83	3.23
5 ppb spiked pork 1	1.83	23.30
5 ppb spiked pork 2	1.82	18.54
5 ppb spiked pork 3	1.83	21.82
5 ppb spiked pork 4	1.83	15.45
5 ppb spiked pork 5	1.82	21.50
RSD (%)	15.56	
Recovery (%)	58.26	

Compound Name: penicillin MRM 335→160	RT	Area
pork blank1	1.82	5.81
pork blank2	1.83	5.02
5 ppb spiked pork 1	1.83	42.97
5 ppb spiked pork 2	1.83	26.59
5 ppb spiked pork 3	1.83	21.89
5 ppb spiked pork 4	1.82	25.22
5 ppb spiked pork 5	1.83	39.03
RSD (%)	29.75	
Recovery (%)	78.30	

Recovery results for 5 ppb penicillin spiked in pork muscle.

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

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