

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.

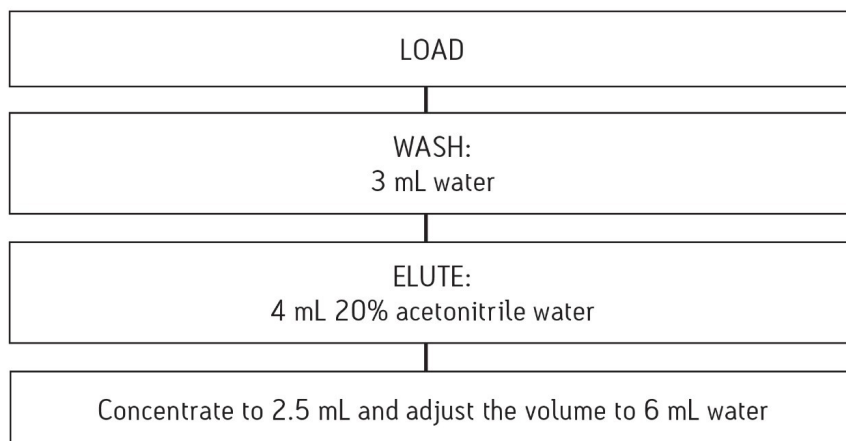
Experimental

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 μ L/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 |

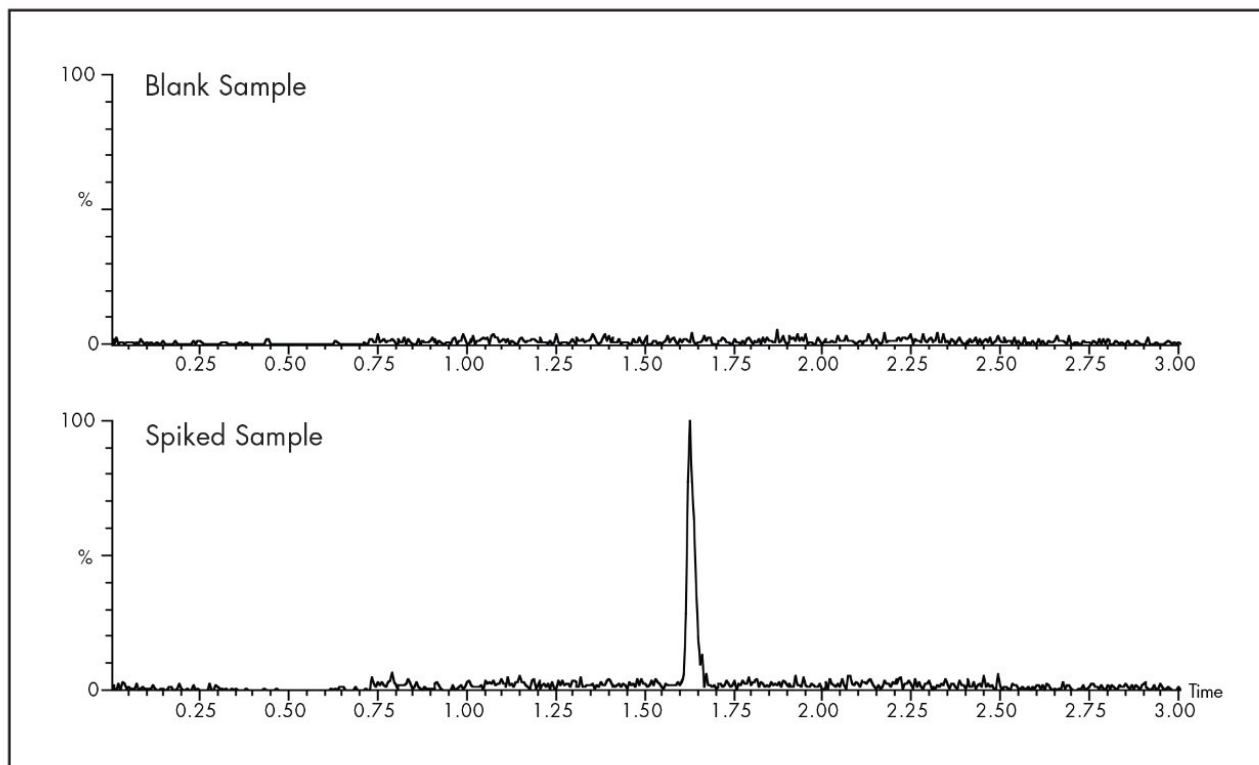
MS Conditions

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.

Featured Products

· [ACQUITY UPLC System <https://www.waters.com/514207>](https://www.waters.com/514207)

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