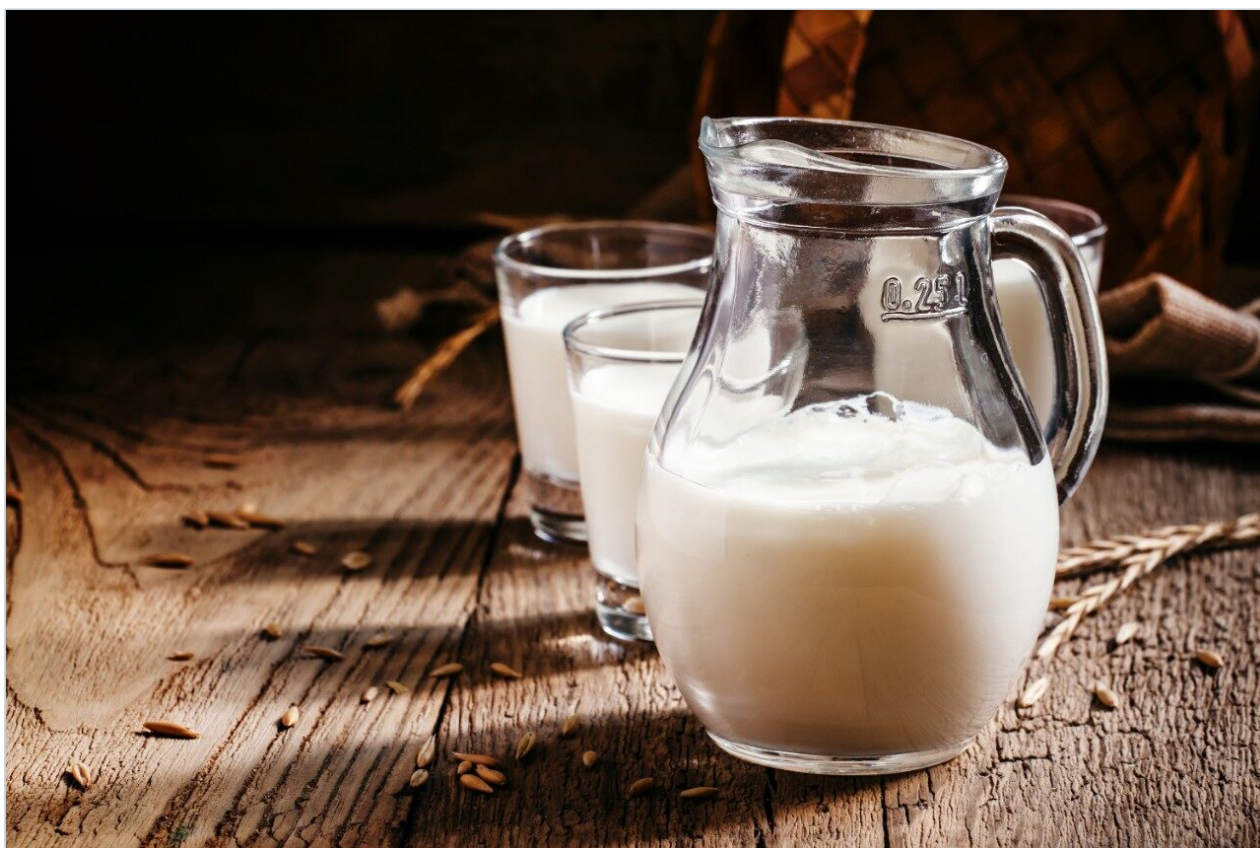


Sulfonamide Antibacterials in Milk

Waters Corporation



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

Abstract

This application brief describes the process of monitoring the presence of sulfonamides in milk.

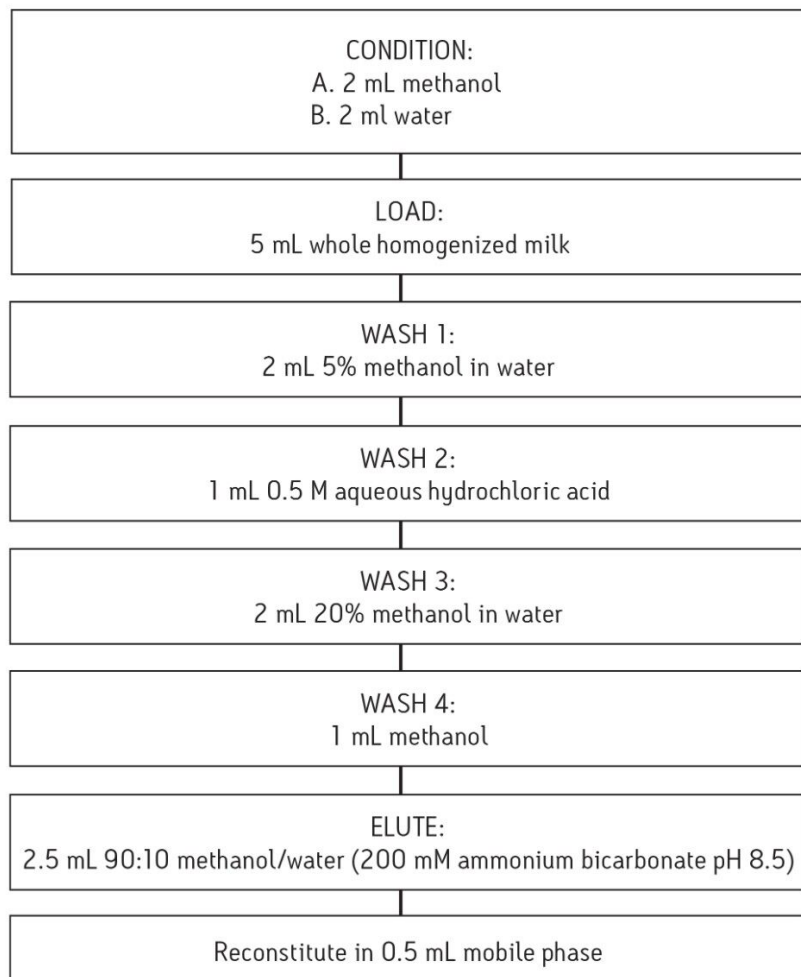
Introduction

Sulfonamides are widely used for therapeutic and prophylactic purposes in animals. When sulfonamides are retained in food stuff, this may result in allergic or toxic reactions in sensitive consumers. This method can be used to monitor the presence of sulfonamides in milk.

Experimental

SPE Procedure

Oasis® MCX 3 cc/60 mg



LC Conditions

System:	ACQUITY UPLC System
Column:	ACQUITY UPLC BEH C ₁₈ , 1.7 µm, 2.1 x 100 mm
Flow rate:	0.2 mL/min
Mobile phase A:	0.05% formic acid/water

Mobile phase B: 0.05% formic acid/methanol

Detector: ACQUITY UPLC PDA Detector

Gradient

Time (min)	%A	%B
0	90	10
3.25	80	20
3.26	90	10

MS Conditions

MS System: Waters Quattro Premier XE

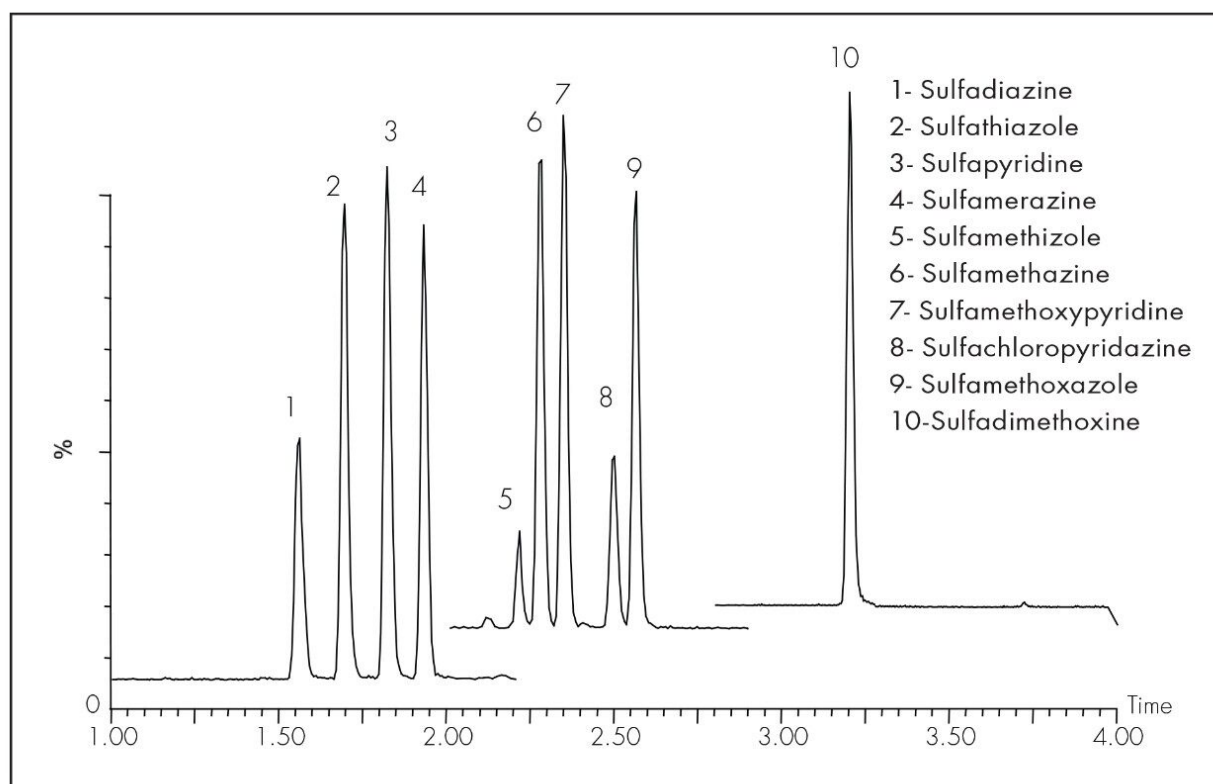
Ionization mode: Positive electrospray (ESI⁺)

Multiple reaction monitoring

Compounds	Precursor (m/z)
Sulfadiazine	250.80 → 91.90
	250.80 → 155.90
Sulfathiazole	255.70 → 91.90
	255.70 → 155.90
Sulfamerazine	264.80 → 92.00
	264.80 → 155.80
Sulfamethizole	270.90 → 91.70
	270.90 → 155.80
Sulfamethazine	278.80 → 91.90
	278.80 → 155.80
Sulfamethoxy-pyridazine	280.80 → 91.90
	280.80 → 155.80
Sulfachloropyridazine	284.70 → 92.00
	284.70 → 155.90
Sulfadimethoxine	310.80 → 91.90
	310.80 → 155.90

MRM method parameters.

Results and Discussion



Whole milk (5 ng/mL) typical LC-MS/MS analysis (MRM).

Compound	Recovery (%)	RSD (%)
1-Sulfadiazine	79	9.2
2-Sulfathiazole	75	6.5
3-Sulfapyridine	68	10.2
4-Sulfamerazine	77	9.1
5-Sulfamethizole	73	10.1
6-Sulfamethazine	67	7.0
7-Sulfamethoxypyridine	79	10.0
8-Sulfachloropyridazine	60	7.0
9-Sulfamethoxazole	71	9.1
10-Sulfadimethoxine	80	9.2

Featured Products

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

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