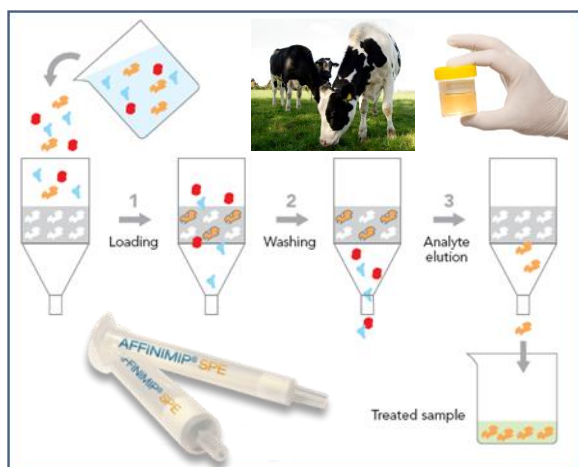


Selective Solid Phase Extraction of Chloramphenicol from Bovine Urine using AFFINIMIP® SPE Chloramphenicol



In this application note, we demonstrate a reliable quantification of Chloramphenicol from bovine urine at low concentrations using AFFINIMIP® SPE Chloramphenicol and even a single quadrupole mass detection.

Experimental conditions

Preparation of samples prior to SPE

10 mL of urine were adjusted at pH 7 with Ammonia 1%. This solution was mixed and used as the loading solution.

Solid phase extraction (SPE) protocol

The SPE procedure used a 1mL AFFINIMIP® SPE Chloramphenicol cartridge:

- Conditioning: 2mL Acetonitrile, then 2mL of deionized Water
- Load 1mL of the loading solution
- Wash the cartridge with 1mL of deionized Water
- Wash with 1mL of (deionized Water-0.5% Acetic Acid) /Acetonitrile (95/5, v/v)
- Wash with 2mL of 1% Ammonia in water
- Wash with 2mL of (Water - 1% Ammonia) /Acetonitrile (80/20, v/v)
- Apply vacuum during 1 minute
- Wash the cartridge with 250µL diethyl Ether
- Elute Chloramphenicol with 2mL of Methanol and apply vacuum during 10 seconds

The SPE procedure lasted approximately 30 minutes. The elution fraction was then evaporated and dissolved in the mobile phase.

Analysis

HPLC: ThermoFinnigan Surveyor Plus with a Thermo Accucore C18 column (50mm x 2.1mm; 2.5µm).

Injection volume: 20µL.

Separation flow rate: 200µL/min.

Mobile phase: Ammonium Acetate 10mM in water/Methanol (75/25, v/v).

Detection system: ThermoFinnigan MSQ Plus (ESI-), selected ion monitoring (SIM) at $m/z = 321$.

Results

High analyte recovery

C° (µg/kg)	Mean (µg/kg)	Recovery %
17.6	16.7	90

Table 1. Recovery of Chloramphenicol spiked at 17.6µg/kg after AFFINIMIP® SPE Chloramphenicol clean-up of 1 mL of Urine.

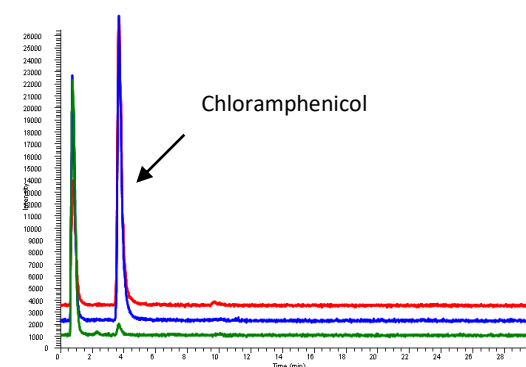


Figure 3. SIM Chromatograms obtained after clean-up with AFFINIMIP® SPE Chloramphenicol of 1 mL of Urine spiked with Chloramphenicol at 17.6µg/kg (red and blue) or not spiked (green).

UV chromatograms demonstrate a perfect cleanup

The UV chromatograms presented in figure 4 shows a very low background at the retention time of Chloramphenicol

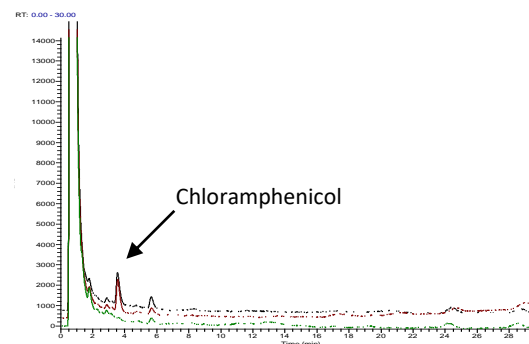


Figure 4. UV Chromatograms of Urine spiked with Chloramphenicol at 17.6 µg/kg (red and black) or not spiked (green) after clean-up with AFFINIMIP® SPE Chloramphenicol.

Product reference

FS110-03A for 50 cartridges 1mL

Other format available

FS110-03 for 50 cartridges 3mL