

### Determination of Sulfonamides by C18 Rp-HPLC Part 2

#### Abstract

A method is described for the determination of three sulfonamides; Sulfadiazine, Sulfamerazine and Sulfamethazine, by reversed-phase HPLC on a C18 column with UV detection. Sensitivity of the method is at the sub-ppm level with separation achievable within 12 minutes.

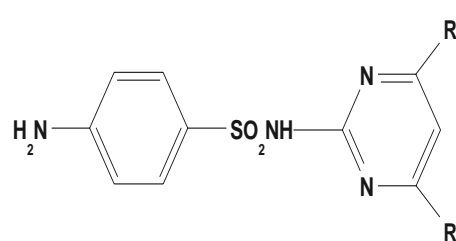
Sulfonamides are used as antibacterials in domestic animals via medicated feeds. These agents increase the vigor and general well-being of food producing animals. In addition, they reduce the economic losses of the animal industry due to the incidences of parasitic protozoan infections in species like poultry, cattle and sheep.<sup>1</sup> These commercially valuable animals are prone to coccidiosis infection and treatment consists of administering sulfonamides via drinking water.

Acceptable levels of sulfonamides in animal tissue, which are governed by the withholding and withdrawal periods prior to slaughter, have been established. However, these levels are subject to change based on new evidence of toxicological profiles of these drugs. For example, recent evidence<sup>1</sup> has implied sulfamethaxine as a possible carcinogen, and this has necessitated the re-evaluation of legal levels.

Sulfonamide residue levels have been monitored by various analytical techniques,<sup>2-4</sup> including colorimetry, TLC, GC and HPLC. Among the various methods, HPLC offers high selectivity and sensitivity when coupled with the appropriate sample preparation technique.<sup>5,6</sup>

#### Keywords:

Sulfonamide, Sulfadiazine, Sulfamerazine, antibiotic, Pharmaceutical, Veterinary Medicine, meat, RP-HPLC



Sulfadiazine	R <sup>1</sup> = H	R <sup>2</sup> = H
Sulfamerazine	R <sup>1</sup> = Me	R <sup>2</sup> = H
Sulfamethazine	R <sup>1</sup> = Me	R <sup>2</sup> = Me

#### Conditions

Column:	Spherisorb S5 ODS2, 250 x 4.6 mm ID
Mobile Phase:	0.01 M Sodium Acetate, 1% Acetic Acid /Methanol (75:25) (HeliumSparging)
Flow Rate:	1.0 ml/min
Temperature:	30°C
Detection:	UV at 265 nm
Injection Vol:	20 µl
Standard Prep.:	1.0 mg of each standard is dissolved in 10 ml of methanol

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*'...sulfonamide residue levels have been monitored by various analytical techniques... HPLC offers high selectivity and sensitivity when coupled with the appropriate sample preparation technique...'*



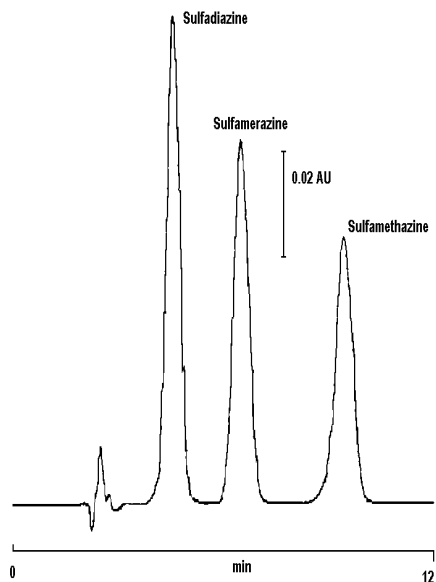


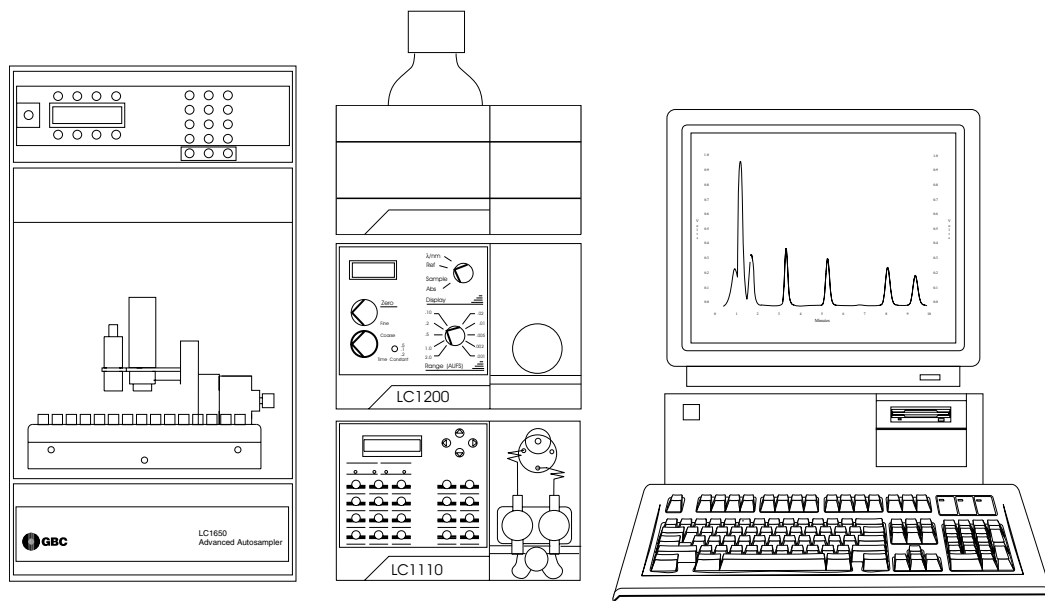
Figure 1 HPLC Separation of Sulfonamides

## GBC HPLC Instrumentation

LC1110 Dual Piston HPLC Pump  
 LC1200 Variable Wavelength UV/Vis  
 Detector  
 LC1650 Advanced Autosampler  
 WinChrom Chromatography Data  
 Management System  
 LC1440 System Organiser  
 LC1120/LC1150 HPLC Column Oven Option

## References

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