

*'...erythromycin  
is a widely used  
macrolide  
antibiotic  
produced by  
fermentation...'*

### Determination of Erythromycin A by LCEC

#### Abstract

A method is described for the determination of Erythromycin A by RP-LCEC (Reversed Phase-Liquid Chromatography with Electrochemical Detection) on silica-based columns. Sensitivity of a method is at sub-ppm levels. The combination of a micro-composite glassy carbon electrode with a wall jet cell offers a LCEC system which is reliable and user friendly.

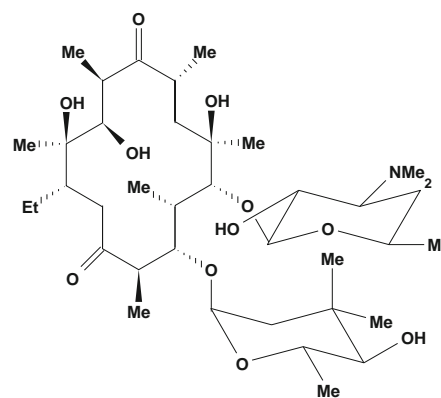
Drugs are used extensively in food-producing animals to maintain optimal health and promote growth. Of all the types of drugs used in animal nutrition, antibiotics have the largest sales by dollar value and volume.<sup>1</sup> The use of these drugs has the potential to leave residues in meat, milk and eggs. For those drugs that require a withholding period, methods of analysis are required.

Erythromycin is a widely used macrolide antibiotic produced by fermentation. Traditional microbiological methods,<sup>2</sup> although suitable for residual screening, suffer from a lack of sensitivity,<sup>3</sup> while HPLC with

fluorescent detection, although very sensitive,

#### Keywords:

Erythromycin A, Electrochemical, RP-LCEC, Macrolide Antibiotic, Pharmaceutical, Veterinary Medicine, Animal Nutrition



requires complex postcolumn derivatisation.<sup>4</sup> By comparison, LCEC offers simplicity in sample clean-up, no derivatisation requirement and excellent selectivity. High selectivity is achieved as analytes must be electroactive at the applied potential in order to be detected.

The LC1260 Electrochemical Detector, with its unique 'Wall Jet' design allows shorter equilibration time and increased reliability. The use of a micro-composite glassy carbon electrode results in increased sensitivity when compared with conventional 3 mm glassy carbon electrodes. Sensitivity is enhanced through the use of low noise electronic circuitry with active and digital filtering.

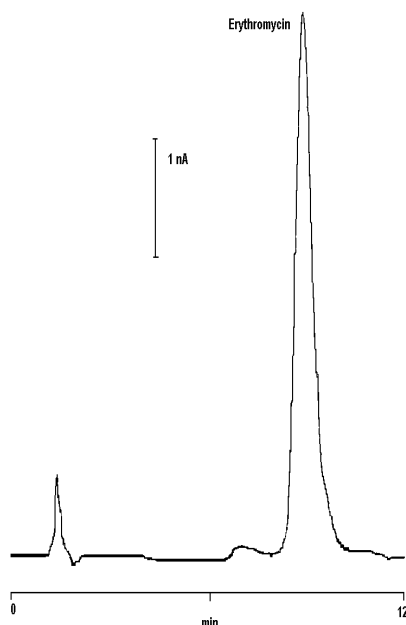


Figure 1 Erythromycin Standard



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## Conditions

Column: Spherisorb S5 CN,  
150 mm x 4.6 mm ID  
Mobile Phase: 0.06 M sodium acetate,  
0.1 mM EDTA disodium salt,  
(pH 6.8):Acetonitrile (55:45)  
(Helium sparging)  
Flow Rate: 1.0 ml/min  
Temperature: Ambient  
Detection:  
Working Electrode: 3 mm  
MicroComposite  
Glassy Carbon  
Reference Electrode: Ag/AgCl (3 M KCl)  
Auxiliary Electrode: Cell Body  
Applied Potential: 900 mV

## GBC HPLC Instrumentation

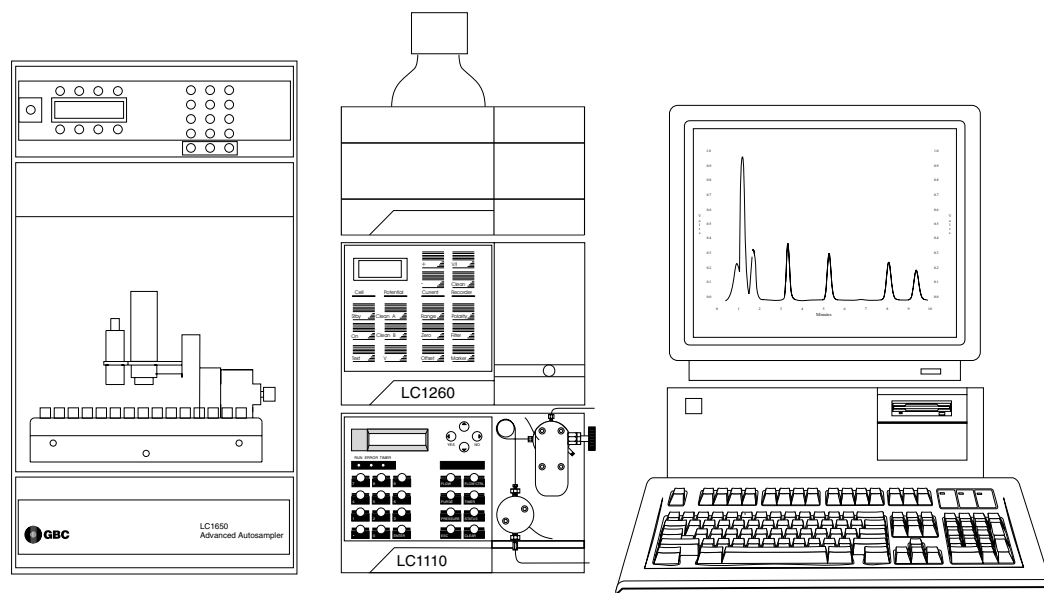
LC1110 Dual Piston HPLC Pump  
LC1260 Electrochemical Detector  
LC1650 Advanced Autosampler  
WinChrom Chromatography Data  
Management System  
LC1440 System Organiser

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## Reference

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