

LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY FOR THE ANALYSIS OF BANNED ANTIBIOTICS IN FOOD

John F. Leeder, Adam T. Atkinson and Heather Patsiouras

Leeder Consulting, 4-5/18 Redland Drive, Mitcham, Vic, Australia

Corresponding author-John Leeder email-john@leederconsulting.com

The European Union (EU) has banned a range of antibiotic drugs from use in food-producing animal because of significant concerns about their carcinogenicity and mutagenicity. Some of these banned compounds include four nitrofurans antibacterial drugs (furazolidone, furaltadone, nitrofurazone and nitrofurantoin) and chloramphenicol. Leeder Consulting have developed robust High Performance Liquid Chromatography-Ion Trap Mass Spectrometry methods to detect these compounds in a wide range of food matrices including seafood, tissue, milk and honey.

In food analysis by mass spectrometry, signal suppression may occur during the ionisation process of the sample extracts due to the composition (salts, proteins, lipids, carbohydrates, etc). This matrix effect can be minimised by an efficient cleanup of the extract, but usually cannot be totally eliminated. The use of matrix matched calibration curves and isotopically labelled internal standards have greatly increased the precision and accuracy of these methods.

The analyses were carried out using an Agilent Technologies (Palo Alto, CA) LC-MS XCT plus ion trap system with both electrospray (EI) and atmospheric chemical ionisation (APCI) sources. Sub ug/Kg (ppb) limits of reporting for the methods have been achieved using the method developed.