INTRODUCTION

Nitrofurans (NFs) are a group of broad spectrum antibiotics. Due to health concerns, nitrofurans are now prohibited in food-producing animals in most jurisdictions. They are still authorized for use in honey, shrimp, eggs and milk. Parent nitrofurans are only sought in matrixes using the Xevo TQ-S Micro, which will confirm'. They are the reference point for action (‘Action levels’) when evaluating food consignments. Laboratories must demonstrate that their calculated Detection Capability (CC) and Decision Limit (CCU) values are at or below the MRPL. Suppliers and importers can set even lower limits for PET based upon trading decisions to provide better warranties to their customers and gain commercial advantage.

Here we demonstrate rugged, robust and reliable performance for the determination (screening and confirmation) of nitrofurans in a range of sample matrices using the Xevo TQ-S micro, which will allow confident screening and confirmation to concentrations well below the MRPL value.

METHODS

Previous studies have demonstrated that parent nitrofurans deplete rapidly in animals and that they are extensively metabolized to tissue-bound metabolites [1]. Methods have been described for various animal tissues e.g. kidney for official control, muscle for consumer risk, honey, shrimp, eggs and milk. Parent nitrofurans are only sought in medicated feeds used for animal production and aquaculture. Commonly sought parent nitrofurans and associated metabolites include: furazolidone as 3-amino-2-oxazolidinone (AOZ), nitrofurazone as semicarbazide (SCA), furaltadone as 3-amino-5-morpholinomethyl-2-oxazolidinone (AMOZ) and nitrofurantoin as 1-amino-1-hydantoin (AHD). The method described is based upon that originally developed as part of the ‘FoodBRAND’ project [3], and although newer technology has enabled improvements in performance, the principles behind procedure have changed little.

RESULTS

The ACQUITY H-Class with the Xevo TQ-S micro provides sufficient sensitivity for detection, identification and quantification of nitrofurans in a range of products. The method is suitable for both official control purposes but also to meet the demands of pre-export testing, which may demand lower limits of quantification.

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References