

## WP4: Implementation of Innovations in Food Safety

### Nitrofuran Drug Residues in Meat

#### Background

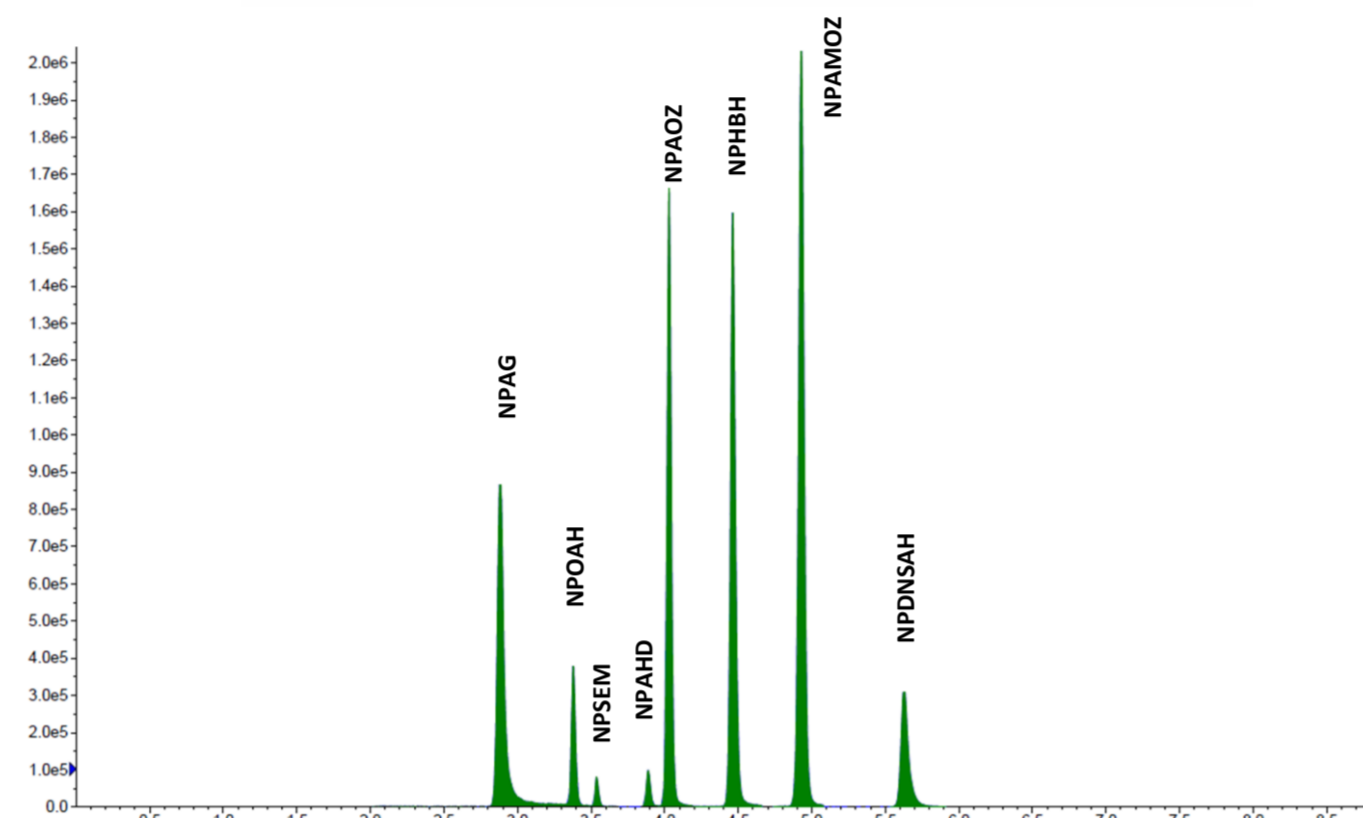
Existing methodology for the analysis of banned nitrofuran drug residues is mainly limited to four main compounds and is very time consuming.

#### Objectives

To extend the scope of nitrofuran analysis by including four additional compounds. To shorten analysis time by using a microwave-assisted derivatisation step and a rapid, modified QuEChERS-based sample extraction.

#### Outputs

A new rapid method has been developed for the analysis of eight bound nitrofuran residues, reducing laboratory turnaround times from four days to two days.



### Pesticide Analysis using LC-HRMS

#### Background

There is extensive developments in EU and Chinese laboratories for analysing multiple pesticides in food using methods based on tandem high resolution mass spectrometry (HRMS).

#### Objectives

To share and standardise approaches for multiple pesticides in food using tandem high resolution mass spectrometry (HRMS). To develop a rapid inhibition assay for detection of CYP enzymes for industry.

#### Outputs

A new rapid method has been developed for the analysis of eight bound nitrofuran residues, reducing laboratory turnaround times from four days to two days.



#### 425 contaminants analyzed

- 357 pesticides
- 57 mycotoxins
- 11 pyrrolizidine alkaloids

### Food Contact Materials

#### Background

Chemicals transfer to the product from contact materials, i.e. migration, and if the concentrations are high enough this may make the product unsafe to eat. This means that a suite of analytical methods are required for testing including GC-MS, LC-MS and ICP-MS.

#### Objectives

To train CFSA staff on the migration test methods for food contact materials and techniques to measure, profile and identify the non-intentionally added substances.

#### Outputs

Training materials have been prepared including presentations and training videos to cover all of the regulatory and analytical aspects.



### Rapid Inhibition Test for Pesticides

#### Background

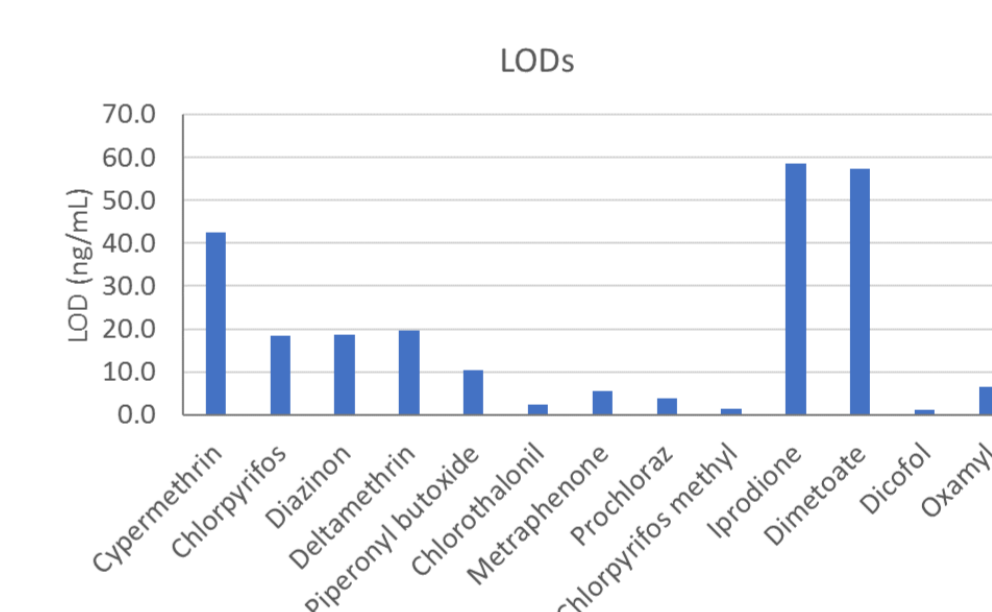
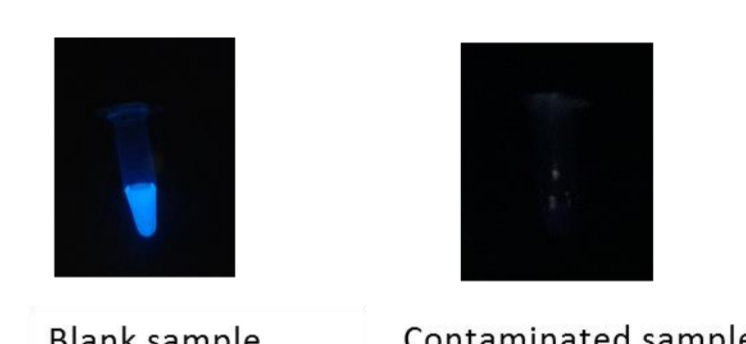
In addition to HRMS methods a multianalyte enzyme inhibition screening method will be adapted for selected phytosanitary products and food matrices in order to provide the food industry with an useful tool that can be implemented in their control procedures.

#### Objectives

To develop a rapid inhibition assay for detection of CYP enzymes for industry.

#### Outputs

Rapid test developed allowing analysis after a short 40 min incubation time.



### Chlorate Residue In Milk and Dairy Products

#### Background

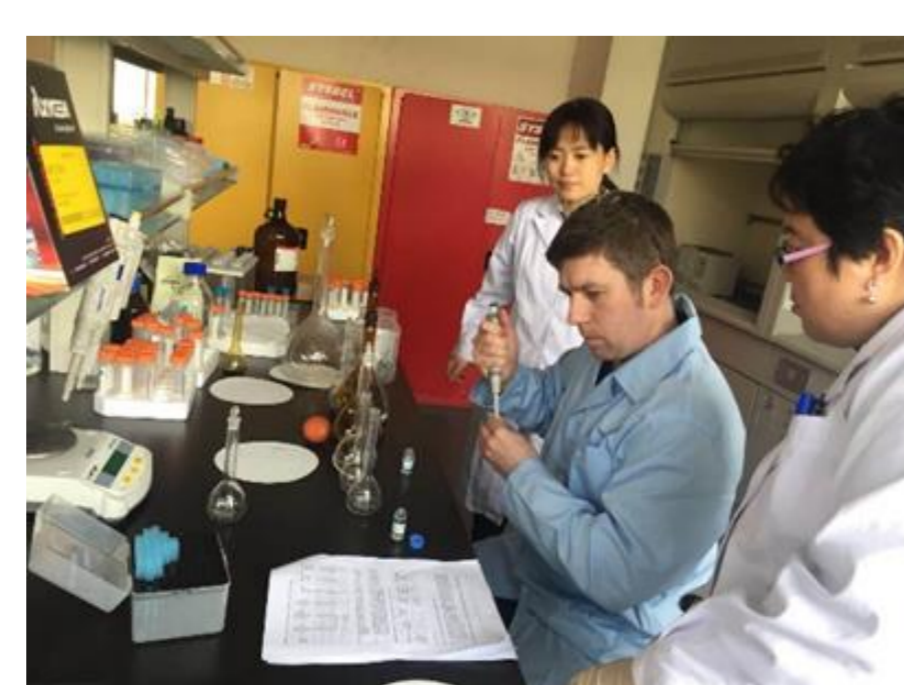
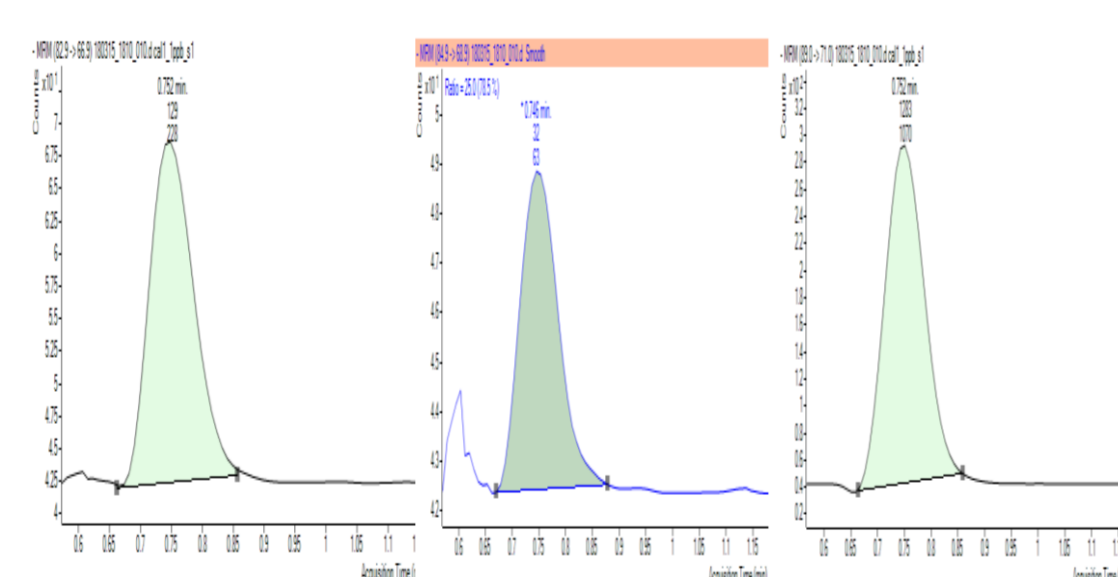
Chlorate residues are an emerging group of residues that dairy products due to use of cleaning chemicals and water.

#### Objective

To exchange methodology between EU and Chinese.

#### Outputs

Methodology established in Chinese laboratories that allow measurement of residues to 0.0020 mg/kg and 10 mg/kg in milk and powder, respectively.



### Whole Genome Sequencing of Pathogens

#### Background

Microbiological safety will be addressed through the molecular characterisation of selected foodborne pathogens of importance to public health.

#### Objective

To provide high quality whole genome sequences of isolates of each of the three bacterial genera, taken from collections cultured from this food chain.

#### Outputs

Training in WGS techniques was provided to CFSA at UCD-CFS and SOPs tested. The sequencing protocol developed is now running at all collaborating laboratories.

