

4-year surveillance for mycotoxins – sampling and analysis

Area of research interest: [Chemical hazards in food and feed](#)

Study duration: 2008-01-01

Project code: FS231031/FS231003

Conducted by: Ventress / Premier Analytical Services

[Back to top](#)

Background

Mycotoxins are naturally-occurring chemicals produced by certain fungi. Some of these mycotoxins have been associated with a variety of adverse human health effects, and are regulated within the European Union to minimise consumer exposure through food. Mycotoxins can occur in a wide range of foods, including cereals, nuts, spices, fruit, coffee, milk and alcoholic beverages, and at any stage throughout the food chain.

The Food Standards Agency commissioned a four-year rolling surveillance programme to quantify a number of mycotoxins in a variety of foods.

The aims of this surveillance programme were:

- To protect consumer safety;
- To assess the effectiveness of current legislation and Codes of Practice;
- To facilitate informed negotiations in Brussels and at other international meetings on both current and proposed policy;
- To enable consumer exposure assessments to be made;
- To identify emerging areas of concern, for example identification of mycotoxins for which there is limited occurrence data or foods not previously recognised as commodities affected by mycotoxins.

[Back to top](#)

Research Approach

The sampling was the first part of an interdependent project which provided retail samples available to UK consumers comprising of a variety of foods to support the final year of a four year surveillance programme investigating the occurrence of mycotoxins in foods.

Each sample collected consisted of packs/loose quantities of the same product to give a total of 1.5kg/ litre for each sample. Documentation for each sample provided a clear audit trail that was verified by relevant details recorded on an Excel spreadsheet. Relevant sample information has been transferred to an EFSA formatted database.

Premier Analytical Services analysed 400 samples for citrinin (100 samples), alternaria toxins (100 samples), fumonisins (100 samples), sterigmatocystin (100 samples) and ergot alkaloids (100 samples) depending on the likelihood of contamination. Any samples with mycotoxins above the agreed action limit were reported within 1 working day of the initial result by telephone or e-mail, giving full details of the sample and result. The initial result was confirmed subsequently by

further analysis and reported in full to the FSA by e-mail once the result had been confirmed.

The data collected from the survey was submitted to EFSA as part of their continuous call for data on mycotoxins. The data was also placed into an FSIS Food Safety Information sheet which can be found at the bottom of this page. This provides valuable evidence when negotiating new MLs at Commission working group meetings.

[Back to top](#)

Results

Results and conclusions

- 400 samples of foods were collected and analysed from a range of food categories including: spices, fruit, fruit juices, cereal, vegetable, alcohol, oil, seeds, nuts and dairy.
- A total of 23 mycotoxins including citrinin, alternaria toxins, fumonisins, sterigmatocystin and the ergot alkaloids were included in the fourth year of the surveillance programme.
- The levels of mycotoxins found in this survey were low and indicate no appreciable risk to the health of the general population from exposure to mycotoxins from these products.
- The FSA's advice is that there is no need for consumers to change their eating habits with respect to the foods sampled.
- With current knowledge and agricultural practices, the provision of mycotoxin-free food samples is not possible, since the mycotoxins cannot be removed completely from the foods they are in. The FSA aims to establish and confirm that levels of contaminants and natural toxicants such as mycotoxins do not pose an unacceptable risk to human health and to ensure that they are within statutory limits where set.
- The data generated from this survey have been submitted to EFSA to contribute to their risk assessments.

Research report

England, Northern Ireland and Wales

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