

Opinion 11-2022 of the Scientific Committee established at the FASFC on the assessment of the FASFC analysis program on plant toxins and unwanted plants/seeds in foodstuffs and animal feed

Question

The Scientific Committee has been asked to assess the analysis program of the FASFC concerning plant toxins and unwanted plants/seeds in foodstuffs and animal feed.

More specifically, it has been asked to:

1. evaluate possible trends on the basis of the results of the analyses carried out between 2010 and 2019, and
2. evaluate the implementation of the general approach applied within the FASFC for the programming of analyses (i.e. control efforts in terms of, among other things, chosen "matrix/hazard" combinations and number of analyses programmed for these combinations) and to identify possible shortcomings in the analysis program.

Background

This opinion specifically deals with the analysis program dedicated to "plant toxins and unwanted plants/seeds in food and feed".

This specific analysis program includes analyses on:

- 'unwanted plants'. This parameter refers to the putative presence of *Senecio vulgaris* leaves in rocket (*Eruca sativa*) for human consumption (leaves from which are containing pyrrolizidine alkaloids);
- 'unwanted seeds'. This parameter refers to the putative presence of seeds of *Datura* spp., *Ricinus communis*, *Crotalaria* spp. and *Ambrosia* spp. in animal feed;
- endogenous plant toxins (phytotoxins) in certain foodstuffs. This group of contaminants includes erucic acid, the tropane alkaloids atropine and scopolamine, hydrocyanic acid, pyrrolizidine alkaloids and opioid alkaloids.

Method

This opinion is based on expert opinion combined with information from both the scientific literature and an assessment of potential trends in the results of analyses carried out between 2010 and 2019.

Opinion

Unwanted plants in foodstuffs

As no unwanted plants were detected in any sample, no trend analysis can be performed. Given this maximum compliance (100%), the Scientific Committee recommends to reduce the number of the programmed analyses. For field-grown rocket, it is recommended to adjust the number of samples taken according to the weather conditions. Wet conditions will lead to more weeds germinating and make weeding more difficult, resulting in an increased risk of *S. vulgaris* leaves in rocket.

Unwanted seeds in animal feed

As unwanted seeds are hardly detected in almost all feed samples (very high compliance rates), it is recommended to reduce the number of the programmed analyses. Regarding the distribution of samples to be analysed between the different species of unwanted seeds, it is recommended that the analysis program considers different elements such as the size of the unwanted seeds (see point 4.2.) and, for example, that it foresees more analyses on millet and sorghum for the detection of *Ambrosia*, *Crotalaria* and *Datura* seeds, and on maize and soybean, for the detection of *Ricinus communis* seeds.

Endogenous plant toxins (phytotoxins) in foodstuffs

Erucic acid

As all samples (100%) are compliant and erucic acid was not detected in 88% of the samples, it is recommended to reduce the number of the programmed analyses.

Tropane alkaloids

Cereal preparations contain almost no tropane alkaloids (very high compliance rates). The number of the programmed analyses could be reduced. However, analysis results are only available for a three year period. Therefore, the Scientific Committee recommends to maintain the current number of the programmed analyses.

For the other foodstuffs, as they are only analysed since 2021, no analysis results are available for the period 2010-2019. Trend analysis is therefore not achievable. However, the Scientific Committee recommends that maize starch (15 samples) is no longer analysed. (-)-hyoscyamine and (-)-scopolamine are indeed highly water soluble and the extraction of the starch granules is done in aqueous phase from pre-sorted maize grains, thus eliminating the *Datura* seeds containing these substances. Instead, it is recommended that 15 samples are taken to increase the number of analyses for cereal flours, cereal preparations, maize, infusions, buckwheat, sorghum and millet.

Other regulated phytotoxins

The other regulated phytotoxins have only recently been analysed or will be analysed soon. This makes it impossible to infer trend analysis, and consequently to evaluate the relative analysis program.

Uncertainties

Trends were observed and discussed in the opinion on the basis of the results of the analyses carried out by the FASFC in the period 2010-2019. These results were not collected via controlled studies in which statistically relevant numbers of random samples were taken during a pre-defined period. Nevertheless, the results of analyses covering a long period (in this opinion, a decade) and several kinds of products (e.g. with different compositions, from different producers) can be used to have an idea on the levels and trends regarding contaminants (unwanted plants/seeds and phytotoxins) in food and feed. They can be used to establish priorities for the FASFC's future analysis program.

Conclusions

The Scientific Committee is of the opinion that the analysis program can be reduced with regard to the control of both unwanted seeds in animal feed and *S. vulgaris* leaves in rocket intended for human consumption, with the exception of those grown in the field.

Regarding phytotoxins in foodstuffs, the Scientific Committee is of the opinion that the number of analyses for erucic acid can be reduced, that tropane alkaloids should no longer be analysed in maize starch and that the number of analyses for the same parameter should be increased in cereal flours, cereal preparations, maize, infusions, buckwheat, sorghum and millet.

The Scientific Committee also considers that it is necessary and relevant to evaluate at short term, for instance within the five years, the future results of the FASFC analysis program concerned by this opinion regarding developments in weed control practices and climate change.

The full text is available on this website in dutch and in french.