DOI 10.17590/20180730-085425-0

Updated risk evaluation of levels of 1,2-unsaturated pyrrolizidine alkaloids (PA) in foods

BfR Opinion No 020/2018 of 14 June 2018

The German Federal Institute for Risk Assessment (BfR) regularly addresses the contamination of foods with 1,2-unsaturated pyrrolizidine alkaloids (PAs). PAs are secondary plant ingredients produced by plants in order to ward off herbivores. PAs are undesired in foods, as they can damage the liver and have been shown to be genotoxic and carcinogenic in animal studies.

In June 2017, the European Food Safety Authority (EFSA) updated and supplemented its assessment of PAs. Among other things, EFSA derived a new reference point. This reference point can be used to calculate so-called *margin of exposure* (MOE) values. The MOE values serve to prioritise risk management measures, such as the monitoring of foods within the framework of official food monitoring activities.

As even low intake quantities of genotoxic and carcinogenic substances can increase the risk to health, especially if consumed regularly, it is recommended that the intake of these substances be minimised to the lowest level achievable by reasonable means (ALARA principle: *as low as reasonably achievable*).

The BfR has reviewed the EFSA update and shares the recommendations with regard to the new reference point and the MOE value.

Based on calculations using the new reference point, the BfR notes that, from a toxicological point of view, there is still high priority to take measures to reduce PA levels in foods. In view of the genotoxic and carcinogenic properties of PAs, the BfR further recommends that consumers refrain from taking food supplements based on PA-producing plants.

You can find questions and answers on PAs in foods on the BfR website:
https://www.bfr.bund.de/en/frequently_asked_questions_on_pyrrolizidine_alkaloids_in_foods-187360.html

The full version of this BfR Opinion is available in German on:
https://www.bfr.bund.de/cm/343/aktualisierte-risikobewertung-zu-gehalten-an-1-2-ungesaettigten-pyrrolizidinalkaloiden-pa-in-lebensmitteln.pdf

	BfR Risk Profile: 1,2-unsaturated pyrrolizidine alkaloids in honey, tea and food supplements (Opinion No 020/2018)				
A **Affected group**	**General population** [1]				
B **Probability of health impairment due to regular consumption of foods and food supplements containing pyrrolizidine alkaloids**	Practically impossible	Improbable	**Possible**	Probable	Certain
C **Severity of health impairment due to regular consumption of foods and food supplements containing pyrrolizidine alkaloids**	**The severity of the impairment may vary. [2]**				
D **Validity of available data**	**High: the most important data is available and there are no contradictions**		Medium: some important data is missing or contradictory		Low: much important data is missing or contradictory
E **Controllability by the consumer**	Control not necessary		**Controllable through precautionary measures [3]**	**Controllable through avoidance [3]**	Not controllable

Text fields with dark blue background highlighting characterise the properties of the risk assessed in this Opinion (for more details, please see the text of Opinion No. 020/2018 of the BfR dated 14 June 2018).

Explanations

The Risk Profile is designed to visualise the risk described in the BfR Opinion. It is not designed to permit risk comparisons. The Risk Profile should only be read together with the Opinion.

[1] Line A
The outlined risks apply above all to frequent consumers.

[2] Line C
A distinction is to be made between acute and chronic effects. The chronic effects are always to be described as severe (cancer, not reversible).

[3] Line E
The BfR does not make any recommendations for consumers in this Opinion. The recommendations are listed in the BfR-FAQ on PAs in foods. The BfR recommends risk management measures to minimise risk. The BfR is of the opinion that PA levels in the relevant food groups should be kept as low as possible.

This text version is a translation of the original German text which is the only legally binding version.

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. It advises the Federal Government and Federal Laender on questions of food, chemical and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks.