

## Communication 002/2024

18 January 2024

### ***Escherichia coli* in flour - Second expert discussion on sources, health risks and prevention**

---

Shiga toxin-producing *Escherichia coli* (STEC) can cause serious, life-threatening infectious diseases, especially in people with immature or weakened immune system. For some years now, the focus has been on flour, which is considered a possible vehicle for the transmission of the bacteria to humans. The German Federal Institute for Risk Assessment (BfR) assessed the associated risk in 2019 and published the opinion "*E. coli* in flour - sources, risks and prevention" in January 2020 (No. 004/2020).

In October 2023, an expert discussion on this topic took place at the BfR with representatives from science, government bodies, food safety authorities and industry. A first meeting of this kind took place in November 2021.

At the second meeting, the latest developments from the fields of science and food monitoring as well as the internationally observed STEC outbreaks in connection with flour were presented and discussed. The assessment made at the first expert meeting that the majority of flour is used as intended and that no impairment of consumer health is to be expected from STEC due to the usual heating steps is still valid. However, infection risks can occur when raw dough for baking or ready-made dough is consumed and when food prepared with flour is insufficiently heated.

Some questions regarding STEC in flour are still unanswered, and there is a need for further development of methods and measures, particularly with regard to pathogen diagnostics and risk mitigation. To this end, cooperation between scientific institutions and industry associations has once again been agreed.

In the first expert discussion on STEC in flour in November 2021, it was determined that further investigations into diagnostics, sources of entry along the processing chain and ways of risk mitigation were necessary in order to eliminate uncertainties in the risk assessment.

Since then, several studies on the entry of STEC into flour have been carried out by various cooperation partners. The experts at the recent meeting discussed the introduction of STEC

via the faeces of wild ruminants in the field, through organic fertilisation and during the processing of grain into flour in mills.

STEC in buckwheat and maize flour was also an issue. The occurrence has been exemplarily determined since 2021. Both flours, together with rice and green spelt flour, will be further investigated by means of systematic sampling as part of zoonosis monitoring in 2024. The National Reference Laboratory for *Escherichia coli* including verotoxin-producing *E. coli* (VTEC) at the BfR has also tested the inactivation of STEC by heat in various doughs and baking processes in baking trials - with the result of a sufficient reduction in bacterial counts with the usual recipe specifications.

The status of the optimisation of detection methods was also of particular interest. Inadequacies in the existing diagnostics were identified in an interlaboratory comparison. The technical discussion on the topic made it possible to identify options for refinement of the detection methods.

In 2021, little was known about consumer awareness of the health risk of STEC in flour. A representative survey conducted by the BfR on the topic of "raw foods" (BfR Consumer Monitor 2023, Special Raw Foods) has now shed light on this. Among other things, it was found that 38 per cent of respondents considered snacking on raw dough to be harmless to health and a further 21 per cent associated a health risk with raw dough only with egg. STEC was unknown to 71 per cent of respondents, while 98 per cent had heard of salmonella.

The discussions will be continued at specialist level.

### **Further information on the BfR website**

Communication 018/2022 "*Escherichia coli* in flour - First results of the technical exchange on BfR statement 004/2020"

<https://www.bfr.bund.de/cm/349/escherichia-coli-in-flour-first-results-of-the-technical-exchange-on-bfr-statement-004-2020.pdf>

Opinion 004/2020 "*Escherichia coli* in flour - sources, risks and prevention"

<https://www.bfr.bund.de/cm/349/escherichia-coli-in-flour-sources-risks-and-prevention.pdf>

BfR Consumer Monitor 2023 | Special Raw food

<https://www.bfr.bund.de/cm/364/bfr-consumer-monitor-2023-special-raw-food.pdf>

## 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. The BfR advises the Federal Government and the States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

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

### Legal notice

Publisher:

**German Federal Institute for Risk Assessment**

Max-Dohrn-Straße 8-10

10589 Berlin, Germany

T +49 30 18412-0

F +49 30 18412-99099

bfr@bfr.bund.de

bfr.bund.de/en

Institution under public law

Represented by the president Professor Dr Dr Andreas Hensel

Supervisory Authority: Federal Ministry of Food and Agriculture

VAT ID No. DE 165 893 448

Responsible according to the German Press Law: Dr Suzan Fiack



valid for texts produced by the BfR

images/photos/graphics are excluded unless otherwise indicated

**BfR** | Identifying Risks –  
Protecting Health