



MoniQA informs about EHEC

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The MoniQA Emerging Issues Working Group provides information and advice about current and potential future food safety crisis situations. This document provides an overview of EHEC as well as information about the current outbreak in Germany and reactions on the European level. A link collection is included for further reference.

What is EHEC?

EHEC stands for enterohaemorrhagic *E. coli* (EHEC), a strain of the *Escherichia coli* (*E. coli*) bacterium. While most *E. coli* strains are harmless, some – such as EHEC – can cause foodborne disease. It is transmitted to humans primarily through consumption of contaminated foods.

Symptoms of the diseases caused by EHEC include abdominal cramps and diarrhoea that may in some cases progress to bloody diarrhoea. Fever and vomiting may also occur. Most patients recover within 10 days, but in a small proportion of patients (particularly women as well as young children and the elderly), the infection may lead to a life-threatening disease, such as haemolytic uraemic syndrome (HUS). HUS is characterized by acute renal failure, haemolytic anaemia and thrombocytopenia. It is estimated that up to 10% of patients with EHEC infection may develop HUS, with a case-fatality rate ranging from 3% to 5%.

EHEC can grow in temperatures ranging from 7°C to 50°C, with an optimum temperature of 37°C. Some EHEC can grow in acidic foods, down to a pH of 4.4, and in foods with a minimum water activity (*A_w*) of 0.95. It is destroyed by thorough cooking of foods until all parts reach a temperature of 70°C or higher.

The current outbreak

The 2011 EHEC outbreak (O104 strain) started in Germany in May 2011, with a rapid increase in infections in the Northern part of the country. On May 26 the Hamburg Institute for Hygiene identified Spanish Cucumbers as the being infected. However, it turned out that they were not infected with the aggressive strain responsible for the current outbreak. On June 2, German and Chinese scientists identified the genome of the germ, it being a combination of two strains. On June 5 sprouts were identified as the key “suspects” for being the source of the infection. Nevertheless a final verification of this claim is not possible. From beginning of May to June 16, 2011, 3.304 cases of EHEC were reported in Germany, with 39 casualties. As of June 24, cases from France were also reported.

A joint risk-assessment by EFSA/ECDC, issued June 29, 2011 (see below) implicated fenugreek seeds imported from Egypt in 2009 and 2010, from which sprouts were grown, as a common source of the outbreaks in Germany and France.

Reactions on the European Level

As a reaction the European Food Safety Agency (EFSA) set up a taskforce to investigate the outbreak, in particular the most recent occurrence in France. EFSA scientists provided immediate scientific assistance and were joined by experts from the European Commission, EU Member States, in



particular from France, Germany, Italy and the United Kingdom, and scientists from the European Centre for Disease Prevention and Control (ECDC) and the World Health Organisation (WHO). The task force investigated how the production and distribution chain of seeds, bean sprouts and other sprouted seeds are organised throughout the EU. The report is available as a link below.

Repercussions of the EHEC outbreak on the economic side have included a (temporary) ban of European vegetables in Russia as well as a significant decrease in the sale of vegetables in Europe. As a response the EU has agreed on an emergency aid package for the farmers concerned, worth 210 € million. Furthermore, the EU has banned the imports of fenugreek seeds from Egypt.

Further information

German information about EHEC from Austrian Daily Newspaper “derStandard”

<http://derstandard.at/r1304552914719/EHEC-Keim>

EU Member States vote on the emergency aid package for fresh vegetables producers

http://ec.europa.eu/commission_2010-2014/ciolos/headlines/news/2011/06/20110615_en.htm

EHEC Chronology from German weekly “Focus” (in German)

http://www.focus.de/gesundheitsratgeber/verdauung/ehec/ehec-chronologie-etappen-des-raetselratens_aid_635133.html

EFSA sets up European task force to help investigate French E.coli outbreak

<http://www.efsa.europa.eu/en/press/news/110626.htm>

EHEC outbreak: BfR confirms contamination of sprouts with O104:H4

http://www.bfr.bund.de/en/press_information/2011/17/ehec_outbreak_bfr_confirms_contamination_of_sprouts_with_o104_h4-70976.html

BGI Sequencing news: German EHEC strain is a chimera created by horizontal gene transfer

<http://www.biofortified.org/2011/06/german-ehec-strain-is-a-chimera/>

E Coli Bacteria (EHEC) in France and Germany <http://healthmediconline.com/e-coli-bacteria-ehec-in-france-and-germany.html>

EHEC outbreak: Increase in cases in Germany

http://www.who.int/csr/don/2011_06_02/en/index.html

EFSA/ECDC (2011) Joint Rapid Risk Assessment Cluster of haemolytic uremic syndrome (HUS) in Bordeaux, France.

http://ecdc.europa.eu/en/publications/Publications/2011June29_RA_JOINT_EFSA_STEC_France.pdf