

Sprouts and germ buds as possible cause for the EHEC infections: BfR supports Lower Saxony at the clarification

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The Ministry of Agriculture of the *Land* Lower Saxony announced yesterday (Sunday) that sprout products from a horticultural farm in the district of Uelzen is under the suspicion of having spread EHEC germs. The Ministry recommends refraining from the consumption of sprouts for the time being.

The Federal Institute for Risk Assessment (BfR) and the Robert Koch Institute (RKI) advise and support the authorities in charge of food monitoring in the *Laender* in their current outbreak investigations. The National Reference Laboratory for *Escherichia coli* of BfR, which cooperates closely with the authorities in Lower Saxony, will examine the samples of the sprouts with a new validated method. A definitive detection of the EHEC O104:H4 pathogen on the sprouts, which is the cause for the current outbreak, is not yet available.

Against the backdrop of the severe outbreak in May 2011, BfR and RKI continue to recommend, by way of precaution, not to consume non-heated types of vegetables which are suspected of being the cause of the infection (tomatoes, cucumbers and salads) and have been purchased in Northern Germany, until the identification of the precise cause of the outbreak. Already low germ counts are sufficient for an infection, so that a transmission is very easily possible.

BfR supports all measures which contribute to a rapid clarification of the current EHEC infection outbreak.

The Ministry of Agriculture of the *Land* Lower Saxony announced that sprouts from Lower Saxony are a possible cause for the EHEC infections. A technical laboratory detection of the EHEC O104:H4 pathogen on the sprouts is not yet available. The public authority stressed that the evaluations of the trade relations have pointed repeatedly to the pathway from a horticultural farm to subsequent cases of illness. According to the Ministry of Agriculture in Lower Saxony an employee of the farm concerned has provably contracted an EHEC infection.

Fresh sprouts and bud germs are often consumed untreated and only briefly blanched as sandwich topping or to refine salads. The most well-known are the soybean sprouts, which are sprouts of the mung bean. However, also the consumption of other types such as alfalfa sprouts (US name for lucerne sprouts) or sprouts of lentils, radishes, peas (Green Peez), beans and garlic, which are appreciated because of their mild aromas, is increasing.

BfR and RKI cooperate closely with the authorities in Lower Saxony and support the competent *Land* and district authorities during the ongoing outbreak investigations. BfR as the National Reference Laboratory for *Escherichia coli* has made available its laboratory capacities to the public authorities from Lower Saxony to clarify the most recent findings. The Reference Laboratory will examine the samples of the sprouts in more detail with a new validated method.

The National Reference Laboratory for *Escherichia coli* of BfR develops and validates new analytical methods with which micro-organisms can be reliably detected in foods, feeds and products. A high efficiency of the methods must be guaranteed in order to be applied as reference method. Against the backdrop of the massive EHEC O104:H4 outbreak in Germany, a specific real-time PCR has been developed together with the French sister authority

ANSES in the National Reference Laboratory for *Escherichia coli* in food samples and O104:H4 reference strains. It is based on a rapid, quantitative detection of Shiga toxin genes and the *Escherichia coli* O104:H4 wzx gene. This detection system can identify EHEC O104:H4 in enrichment cultures of suspected foods.

Given the severe infection outbreak, RKI and BfR recommend, by way of precaution, to continue not to consume non-heated types of vegetables which are suspected of being the cause of the infection (tomatoes, cucumbers and salads) and have been purchased in Northern Germany, until the identification of the precise cause of the outbreak. Already low germ counts are sufficient for an infection, so that a transmission is very easily possible.

EHEC is only safely killed if the vegetables are sufficiently heated.

Vegetable types, which are not suspected of being a cause of the infection, must be washed thoroughly prior to consumption (at least 30 seconds with strong rubbing, as far as possible with hot water) and, if necessary, be peeled. Washing and peeling of vegetables results in a reduction of the germ count and hence reduces the risk of infection. The consumption of sufficiently heated vegetables is safe.

EHEC are killed by heating processes such as cooking, frying and stewing. This presupposes that a temperature of 70 °C is reached in the core of the food for at least two minutes. These bacteria are, however, comparatively insensitive to other environmental influences such as an acid environment, cold and desiccation. Deep freezing of foods does not permit a reliable killing of EHEC bacteria either.