



Background information

Some strains of the spore-forming rod-shaped bacterium *Bacillus cereus* (*B. cereus*) can produce toxins that are harmful to humans. These facultative anaerobic bacteria occur naturally in small quantities in many foods. If improper storage of food leads to a strong increase in the number of these bacteria, toxins can be produced in quantities that cause adverse effects when the affected food is consumed.

When preserving food for long-term storage, high temperatures must be reached in order to eliminate not only the vegetative bacterial cells but also the heat-resistant spores of *B. cereus*. Such intense heating processes are used, for example, in the production of canned foods.

Cereulide is a toxin that can be produced by certain strains of *B. cereus*. It is a cyclic peptide that is extremely heat-resistant. Cereulide that has already formed in food cannot be destroyed by a subsequent heating process.

Legal aspects

In its statement of 30 October 2020, the Bundesinstitut für Risikobewertung states that no generally applicable upper limit for cereulide in food can be derived, reasoning that there are differing reports on the minimum intake levels that lead to intoxication.

Relevant Products

When cereulide intoxication is detected, it is often associated with the consumption of starchy foods (e.g. rice, pasta). Tests carried out on food following an intoxication event often revealed cereulide concentrations of between 0.19 µg/g food and 15 µg/g food (BfR 2020).

Cereulide findings are considered to be particularly critical in foods for infants and young children.

Toxicology

Cereulide can cause vomiting and nausea in humans. These symptoms occur within six hours of consumption and usually subside on their own within 24 hours. In severe cases, liver damage and cerebral oedema may also result.

Analytics

With a modern LC-MS/MS method, Labor Friedle is able to guarantee the reliable determination of cereulide in a wide variety of foods.