

Lupin seeds: Health impairments possible with bitter taste

June 1 2017

For several years now, lupin seeds have been used increasingly to produce foods such as gluten-free bakery produce and pasta, as well as diet products for people with milk protein allergies. Lupin seeds or beans are also consumed as snacks in some European and North African countries. Depending on the botanical species and geographical origin of the lupins, their seeds can contain bitter quinolizidine alkaloids.

If these alkaloids are not properly removed in a so-called "debittering process", they can trigger poisoning in humans which affects the nervous, circulatory and digestive systems. "When purchasing unprocessed lupin seeds, it is usually not easy to tell if they are of the bitter variety, which contain toxic alkaloids, or the sweet variety, which can be eaten without further processing," says BfR President Professor Dr. Dr. Andreas Hensel. There have been isolated reports in the past of cases of poisoning in Germany caused by bitter lupin seeds. "The BfR recommends that consumers who do not have proper knowledge only purchase sweet lupin seeds which are clearly marked as such, or bitter lupin seeds which have already been debittered, instead of debittering the lupin seeds themselves".

For the period 2010 to 2016, the Federal Institute for Risk Assessment (BfR) received data from the Poison Information Centres on approx. 30 concrete cases with poisoning symptoms with varying degrees of severity caused by bitter lupin seeds. In addition to this, reports of cases of poisoning through bitter lupin seeds with sometimes severe outcomes were published in international literature. Most of these cases were

attributable to the inadequate debittering of the bitter lupin seeds in private kitchens.

If lupin seeds or products made from them have a bitter taste, this can be an indicator for the presence of lupin alkaloids, which are undesired from a health point of view. The bitter-tasting water in which lupin seeds were soaked should not be consumed under any circumstances either or used for the preparation of foods.

Foods containing lupin seeds are only rarely consumed in Germany at the moment. In a nationwide representative "Consumer Survey on the Consumption of Lupin Seeds" commissioned by the BfR, 19% of the participants stated that they knew that lupin seeds were edible. Of this number in turn, 46% had consciously eaten [food](#) containing industrially produced or self-prepared lupin seeds. At 9.2%, the percentage of respondents who have consciously eaten foods containing lupin seeds is low. The share of those who purchased unprocessed lupin seeds and further processed them by themselves lay at 1.2%.

The BfR recommends to the producers of foods containing lupin seeds that they only market lupin seeds which can be consumed without the need for any further debittering processes at home. These can be sweet lupin seeds, which have naturally low alkaloid levels, or bitter lupin seeds, which have already been sufficiently debittered by the manufacturer. Where flour made from lupin seeds is sold to consumers, the manufacturers should ensure that it was made from [lupin](#) seeds which were low in alkaloids or sufficiently debittered.

More information: [www.bfr.bund.de/cm/349/risk-as ... s-in-lupin-seeds.pdf](http://www.bfr.bund.de/cm/349/risk-as...s-in-lupin-seeds.pdf)

Provided by BfR Federal Institute for Risk Assessment

Citation: Lupin seeds: Health impairments possible with bitter taste (2017, June 1) retrieved 6 May 2024 from <https://medicalxpress.com/news/2017-06-lupin-seeds-health-impairments-bitter.html>

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