

Superfoods - super good?

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They are supposed to make you slim. Or even prevent diseases. Food producers use the term “superfoods” to advertise the healthy properties of certain foods, such as chia seeds, goji berries and quinoa; but there is currently no standard definition of “superfoods”. However, foods marketed under this term may represent novel foods in the legal sense in accordance with EU Regulation (EU) 2015/2283, such as e.g. chia seeds. Goji berries and quinoa, however, do not belong to this group. The statutory task of the German Federal Institute for Risk Assessment (BfR) includes the health assessment of the biological and chemical safety of substances used in foods. At federal level, the [Max Rubner Institute \(MRI\)](#), is responsible for investigating the quality rating of foodstuffs, including nutrients, in terms of nutritional physiology and health.

In the 2020 BfR Consumer Monitor Special, 70 percent of respondents stated that they had heard that certain foods are referred to as superfoods. Of the respondents familiar with the term, 70 percent described chia seeds as a superfood. 65 percent named goji berries, 57 percent quinoa and 52 percent linseed. More results and detailed information on the survey method can be found at https://www.bfr.bund.de/en/publication/bfr_consumer_monitor-195708.html.

The BfR currently has the following information available on the health risks of these foods.

Chia seeds: Chia seeds are an authorised novel food that has been subject to a comprehensive health risk assessment according to Regulations (EC) 258/97 and (EU) 2015/2283 on novel foods. Based on a risk assessment by the European Food Safety Authority (EFSA), the first authorisation was granted in 2009 for use in bread products with a maximum content of 5 % chia seeds. Authorisation for using chia seeds has been extended to many other food categories following a detailed assessment. In a 2019 opinion ([EFSA 2019](#)) on the general assessment of the safety of chia seeds regarding their use levels EFSA concludes that, based on the current state of knowledge, the consumption of chia seeds not subjected to heat treatment at or above 120°C during their production, processing or preparation poses no health risk. In its recently published opinion on the assessment of heat-treated foods containing chia seeds ([EFSA 2020](#)), EFSA concludes that

- (a) based on the current state of knowledge, the concentrations of hydroxymethylfurfural and furfural in heat-treated chia seeds pose no health risk,
- (b) the available data are currently insufficient to assess whether the addition of chia seeds to foods undergoing heat-treatment (≥ 120 °C) leads to an increased formation of acrylamide.

A study taken into account by EFSA indicates that the use of chia seeds flour for baking biscuits (amount of 10 % to 20 %) may potentially lead to a substantially increased acrylamide content. According to the chia seeds authorisation, baked products intended for sale may contain up to 10 % whole, unground chia seeds and bread products up to 5 % whole or ground chia seeds. This specifically means: only whole, unground chia seeds up to 10 % may be used for baking cake but not chia seeds in the form of flour.

Goji berries: In its 2013 publication “Risk assessment of plants and plant-based preparations” (BfR Wissenschaft 12/2013), the BfR carried out an assessment of possible health risks from

the consumption of (dried) goji berries as well as goji berry juices made from fresh, ripe fruits. The BfR concluded that at the time of the opinion a final health assessment was not possible. In addition to toxicological data, there was also an absence of studies in animals and humans regarding the intake of goji berries in higher quantities and the consumption of goji berries in higher quantities over a prolonged period. However, the BfR assessed the available data to that effect that they currently reveal no evidence of undesirable acute or chronic effects. Furthermore, the BfR referred to two case reports described in the literature that describe an interaction between ingredients of goji berry and the vitamin K antagonist warfarin (anticoagulant drug). In 2013, the Federal Institute for Drugs and Medical Devices and the Paul-Ehrlich-Institute also pointed out possible interactions between goji berries and vitamin K antagonists (Bulletin on drug safety - information from the BfArM and PEI. Issue 1, March 2013).

Quinoa: Quinoa seed coats contain saponins, which taste bitter and can damage the intestinal mucosa. Depending on the saponin content, sweet (≤ 0.11 % saponins) and bitter (≥ 0.11 % saponins) quinoa varieties can be distinguished. The way the seeds are processed also influences the saponin content. Thus, the amount of saponins in commercial quinoa is minimised by washing or peeling the seeds. There are currently no opinions on the health risk assessment of quinoa by BfR.

On its homepage at

https://www.bfr.bund.de/en/health_assessment_of_infant_nutrition-1463.html

the BfR refers to an article by the German Nutrition Society, in which the BfR assesses the extent to which pseudocereals such as amaranth, quinoa and buckwheat are suitable for the nutrition of infants and young children. The BfR concludes that, due to a lack of data on the quality of the pseudocereals found on the German market and the products made from them, it is currently not possible to make a reliable statement as to whether they would also be suitable for infants and young children.

Further information on the subject from the BfR website

Overview of the BfR Consumer Monitor:

https://www.bfr.bund.de/en/publication/bfr_consumer_monitor-195708.html

Overview of superfoods

https://www.bfr.bund.de/en/a-z_index/superfoods-259079.html



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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. It advises the German federal government and German federal states ("Laender") on questions of food, chemical and product safety. The BfR conducts its own 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.