



## Communication 66/2023

8 December 2023

### **Pesticide residues in mulled wine – potential to spoil the festive season?**

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Christmas time is mulled wine time. Right on time for the start of the festive season, a consumer magazine has tested various mulled wines. With mulled wine being popular this time of the year not only with consumers but also with toxicologists alike, the results have been of particular interest to the German Federal Institute for Risk Assessment (BfR). It is therefore all the more pleasing that the results do not raise any toxicological concerns. That is, beyond the generally known and in this context most likely anticipated effects of alcohol. This applies both to the reported addition of flavourings as well as to the detected traces of active substances from plant protection products (hereafter referred to as pesticides). Although the lack of specific concentrations posed some challenge with regard to the standard requirement for a detailed risk assessment.

Traces of pesticides were found in 18 of the 24 mulled wines tested. The magazine does not mention whether it also tested for residues of active substances authorised for organic cultivation and which are frequently used in organic viticulture. The magazine refers to traces as active substance residues in a range of 0.01 mg/kg or above. Of the organic wines four out of seven were tested free of pesticide active substances.

Two out of 18 conventionally produced wines were found to be free of pesticide residues. Amongst the others two further samples contained residues from up to three different active substances of which the report explicitly called out – iprovalicarb and dimethomorph. Use of both of these is currently approved in the EU.

The BfR comments as follows:

Prior to authorisation in the European Union pesticides are comprehensively tested and evaluated for possible health risks. Hence no adverse health effects are to be expected from pesticides or their residues when used as intended. However, it should be noted that even under best operating practices residues can foreseeably occur and will hence be detectable for example in grapes and the foodstuffs produced from them. The occurrence of such residues is therefore explicitly taken

into account during the safety assessment of these products by setting respective maximum residue levels. The uptake or ingestion of small quantities hence will generally not cause any adverse health effects.

With regard to the analysed samples the report fails to mention whether a specific maximum residue level (MRL) for grapes was exceeded. However, given that only trace amounts were detected this seems unlikely.

With regard to the reported pesticide residues the BfR therefore concludes that the reported pesticide findings in the tested mulled wines are unlikely to constitute a health risk. Although not discussed further in the report, adverse health effects are rather to be expected from another ingredient - ethanol (also better known as alcohol). It is contained in mulled wine in average concentrations of 100 g/kg ( $\approx$  12.5% by volume). Ethanol is known to have acute effects on the nervous system as well as various chronic effects. Although being most likely at odds with the desired experience, consumers wanting to protect their health thus might want to consider to employ responsible drinking.

Ever increasingly sensitive analytical methods allow for the detection of pesticide residues in trace amounts. Residues of pesticides must be so low that they do not endanger consumer health. Pesticide residues are permitted in food up to the legally defined maximum residue level (MRL). The MRL specifies the maximum amount of a pesticide active substance that a foodstuff may contain. The setting of an MRL follows the requirement of exposure minimisation based on the ALARA principle ("As Low As Reasonably Achievable"). Notably the MRL of an active substance is usually well below the health-based guidance value for the respective specific plant protection product. Exceeding an MRL is therefore not necessarily associated with a health risk.

In 2018, the BfR already issued a communication on a similar topic. At the time this referred to the assessment of levels of glyphosate in beer. The tests were carried out by Stiftung Warentest. The BfR calculated that an adult would have to drink roughly 1000 litres of beer per day in order to ingest harmful amounts of glyphosate.

(<https://www.bfr.bund.de/cm/343/einschaetzung-zu-gehalten-von-glyphosat-in-bier.pdf>).

Likewise, with pesticide residue levels far below a range of 1 mg/kg it would require a consumption of at least several hundred litres of mulled wine per day in order ingest levels potentially relevant to human health.

Based on the current state of science it seems safe to assume that the generally known acute and chronic effects of alcohol would lead to serious health problems well beforehand. In addition to its acute effects on the nervous system, alcohol also has potentially carcinogenic and developmentally toxic properties which clearly relativises the risks from other substances in the samples.

Here as elsewhere responsible consumption therefore should heed that "the dose makes the poison". Bearing this in mind the BfR wishes an unspoilt festive season!

**Further information on the BfR website on the subject of plant protection products**

Questions and answers on pesticide residues in food:

[https://www.bfr.bund.de/en/questions\\_and\\_answers\\_on\\_residues\\_of\\_plant\\_protection\\_products\\_in\\_food-60852.html](https://www.bfr.bund.de/en/questions_and_answers_on_residues_of_plant_protection_products_in_food-60852.html)

Topic page on pesticide residues in food:

[https://www.bfr.bund.de/de/risikobewertungen\\_des\\_bfr\\_von\\_nachgewiesenen\\_pflanzenschutzmittel\\_rueckstaenden\\_in\\_lebensmitteln-53099.html](https://www.bfr.bund.de/de/risikobewertungen_des_bfr_von_nachgewiesenen_pflanzenschutzmittel_rueckstaenden_in_lebensmitteln-53099.html)

Interview with Tewes Tralau about the risks of pesticides:

[https://www.bfr.bund.de/cm/429/02\\_interview\\_with\\_dr.\\_tewes\\_tralau.pdf](https://www.bfr.bund.de/cm/429/02_interview_with_dr._tewes_tralau.pdf)

## 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. The BfR advises the Federal Government and the German States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent 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.*

## Imprint

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