

Call for reassessment of the safety of the flavoring substance acetaldehyde

August 2 2022, by Anne Rommel



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Acetaldehyde is used as a flavoring substance due to its fruity aroma. The Senate Commission on the Food Safety (German SKLM) of the German Research Foundation has reviewed the current data for assessing the health risk of the use of acetaldehyde as a flavoring substance. In view of numerous data gaps that need to be closed for a complete risk

assessment and the resulting uncertainties, the commission concludes that there are doubts about the safety of acetaldehyde as a flavoring substance. In the opinion of the SKLM, the deliberate addition of acetaldehyde as a flavoring substance should be re-evaluated for reasons of precautionary consumer protection.

Acetaldehyde occurs naturally in numerous foods, for example in coffee, bread, fruits or yogurt. Due to its fruity aroma, acetaldehyde is also used as a flavoring agent in or on food. Acetaldehyde enters [alcoholic beverages](#) as a by-product of alcoholic fermentation. In addition, acetaldehyde is formed in the [human body](#) during the degradation of ethanol and during certain metabolic processes.

The SKLM reviewed the current data on the origin, occurrence, intake levels and cancer risk of acetaldehyde as a flavoring substance and concluded that the data available is very limited. Currently it is not possible to reliably assess the use of acetaldehyde as a flavoring substance.

Data on carcinogenic effects and systematic analyses are lacking

The question whether acetaldehyde has a genotoxic and mutagenic effect after ingestion via food cannot be answered conclusively at present. For example, such an effect on tissues exposed directly to acetaldehyde, e.g., [oral cavity](#) or esophagus, cannot be completely ruled out.

Additionally, there is no systematic data on acetaldehyde levels in food. Furthermore, it is not possible to distinguish on the basis of analytical data whether the levels measured so far in foodstuffs are due to the use as a flavoring substance, to the transition from packaging materials or to a natural occurrence. It is also not possible to estimate quantities based

on the declaration of the foodstuffs, as acetaldehyde falls under the ingredient "Flavor" as a collective term and does not have to be labeled separately.

Further research needed for comprehensive risk assessment

"More research is needed to be able to carry out a reliable and comprehensive risk assessment. We need standardized [analytical methods](#) to perform systematic chemical analyses of acetaldehyde levels in major food groups. Likewise, studies with specific biomarkers are necessary to monitor exposure to acetaldehyde from foodstuffs. These biomarkers should be used to investigate whether there are local effects in the upper digestive tract," explains Prof. Jan Hengstler, chairman of the SKLM and scientific director of the Leibniz Research Center for Working Environments and Human Factors in Dortmund (IfADo).

Due to the gaps in knowledge and the resulting uncertainties, as well as the concerns about a possible mutagenic effect of orally ingested acetaldehyde, the SKLM concludes that there are doubts about the safety of acetaldehyde as a flavoring substance. "The SKLM agreed that the targeted addition of [acetaldehyde](#) as a flavoring substance should be re-evaluated for reasons of precautionary consumer protection," Jan Hengstler says.

Provided by Leibniz-Institut für Arbeitsforschung an der TU Dortmund

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