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Kratom preparations: consumption may cause health problems

Effects on the kidneys, liver, nervous system and cardiovascular system described

The leaves of the kratom tree (*Mitragyna speciosa*) have been used for centuries in Southeast Asia as a traditional remedy for treating various ailments, such as pain relief or increasing overall performance. Preparations made from the plant have also been available in European countries and the USA for some time. They are mostly sold online, partly on websites that also advertise food supplements.

Following an initial review of the scientific data, the German Federal Institute for Risk Assessment (BfR) notes that kratom consumption can have adverse health effects. Case reports describe neurological effects such as dizziness, seizures, drowsiness, confusion or hallucinations, cardiovascular effects such as palpitations or tachycardia, respiratory disorders and liver and kidney damage. In addition, several deaths related to the use of kratom preparations have already been reported internationally, including one case in Germany.

There is currently insufficient data available for a comprehensive risk assessment.

Preparations made from kratom can affect the central nervous system. Depending on the dose, effects may be stimulating, sedative, or narcotic. The plant contains numerous alkaloids, secondary plant substances that are prevalent in the plant kingdom, of which mitragynine and 7-hydroxymitragynine are considered to be primarily responsible for the pharmacological effects. These substances primarily bind to opioid receptors in the body and presumably exert their effects in this way. In addition to neurological symptoms, various other adverse effects have been described, including damage to the liver and kidneys.

In traditional use, the leaves of the kratom tree are usually chewed or used to make a drinkable infusion. Kratom powder is predominantly offered for sale online. However, liquid extracts, liquids for vapes, fruit gums and other preparations are also available. Kratom products are often advertised by manufacturers as having positive health effects. However,

these have not been scientifically proven and the health risks associated with kratom consumption have not yet been thoroughly investigated.

Knowledge about health impairments comes primarily from case reports of individuals who required medical treatment after consuming kratom preparations. The reported consequences include, in particular, damage to the liver and kidneys, including (multiple) organ failure, cardiac arrhythmia, adverse effects on the nervous system associated with seizures, confusion, drowsiness, fainting and hallucinations, as well as muscle fibre breakdown (rhabdomyolysis), but also pulmonary oedema, respiratory disorders and cerebral oedema. In addition, signs of dependence and withdrawal symptoms have been observed after discontinuing regular kratom use. In 2024, the first death following kratom consumption was reported in Germany¹.

In principle, the significance of case reports is limited; however, findings from animal studies in which comparable effects were observed after kratom intake support the toxicological relevance of the findings described in the case reports. From a risk assessment perspective, the available reports on health impairments associated with the consumption of kratom preparations therefore give cause for particular caution. However, the current data do not allow for a conclusive risk assessment and more precise statements on the health risks.

The legal classification of these products is currently unclear in Germany and is the responsibility of the supervisory authorities of the individual federal states. In principle, they could be categorised as unauthorised – and therefore not marketable – medicinal products. At the beginning of July 2025, the Federal Institute for Drugs and Medical Devices (BfArM), which is responsible for the approval of medicinal products in Germany, warned patients against using kratom for medical purposes. It emphasised that the safety and efficacy of kratom had not been sufficiently tested and that kratom preparations were therefore not approved as medicinal products.

Alternatively, classification as a foodstuff is conceivable. As such, however, kratom preparations would probably be considered unauthorised novel foods or unsafe foods, which would prevent their legal marketing in the EU. Several member states of the European Union have already explicitly regulated the substance. For example, the purchase and possession of kratom and its preparations are prohibited in France.

Further information from the BfR on health risk assessments of herbal preparations

Information portal microco.info on botanicals:

<https://www.microco.info/other-substances/botanicals/>

¹ Huter et al., Kratom – Nahrungsergänzungsmittel oder tödliche Droge? Rechtsmedizin 2024, 34, 188 – 191, DOI: 10.1007/s00194-024-00685-w

About the BfR

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Publisher:

German Federal Institute for Risk Assessment

Max-Dohrn-Straße 8-10

10589 Berlin, Germany

T +49 30 18412-0

F +49 30 18412-99099

bfr@bfr.bund.de

bfr.bund.de/en

Institution under public law

Represented by the President Professor Dr Dr Dr h. c. Andreas Hensel

Supervisory Authority: Federal Ministry of Agriculture, Food and Regional Identity

VAT ID No. DE 165 893 448

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