



# EU Food Safety Bulletin

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## LIMITS FOR ERGOT ALKALOIDS IN FOOD

Ergot alkaloids (EAs) are a group of mycotoxins produced from a fungus of the genus *Claviceps*, in particular by *Claviceps purpurea*, which infects cereals, cereal-based products, feed and food for infants.

Before and during flowering, *Claviceps purpurea* can infect the reproductive structures of cereal plants, especially when rain, humidity and low temperatures occur, generating structures called sclerotia containing various alkaloids of the ergotine group, hence the name of ergot alkaloids.

If the sclerotia are processed into flour, high levels of contamination with ergot alkaloids can occur. Since many food products are based on cereals (wheat, spelt, oats and especially rye), surveillance of these toxic substances is essential to protect the health of the final consumer.

The European Commission has published [REGULATION \(EU\) 2021/1399](#) amending Regulation (EC) no. 1881/2006 as regards the maximum levels of sclerotia of *Claviceps* spp. and alkaloids of *Claviceps* spp. in some food products.

The limits for these alkaloids relate in particular to barley, wheat, spelt, rye and oats and processed cereal-based foods for infants and children and has been applied from 1 January 2022.

The changes to the limits of these mycotoxins are reported in the following table and, as stated, will be applied gradually.

2.9.2.	<b>Ergot alkaloids (*)</b>	
2.9.2.1.	Milling products of barley, wheat, spelt and oats (with an ash content lower than 900mg/100g)	100 µg/kg 50 µg/kg as from 1.7.2024
2.9.2.2.	Milling products of barley, wheat, spelt and oats (with an ash content equal or higher than 900mg/100g)  Barley, wheat, spelt and oats grains placed on the market for the final consumer	150 µg/kg
2.9.2.3.	Rye milling products Rye placed on the market for the final consumer	500 µg/kg until 30.6.2024 250 µg/kg as from 1.7.2024
2.9.2.4.	Wheat gluten	400 µg/kg
2.9.2.5.	Processed cereal based food for infants and young children (*) (**)	20 µg/kg

(\*) The maximum level for ergot alkaloids refers to the lowerbound sum of the following 12 ergot alkaloids: ergocornine/ergocorninine; ergocristine/ergocristinine; ergocryptine/ergocryptinine (α- and β-form); ergometrine/ergometrinine; ergosine/ergosinine; ergotamine/ergotaminine. In the lowerbound sum, the contribution of each non-quantified epimer is set at zero.

## NEOTRON PROPOSAL: DETERMINATION OF ERGOT ALKALOIDS IN LCMS

The expertise of Neutron team supports companies of the cereal sector to answer to the requirements of the new regulation regarding the limits of ergot alkaloids.

The analytical determinations are carried out in liquid chromatography associated with mass spectrometry (LC-MS / MS).

Ergocornine	<b>Quantification limits: 1 µg/kg</b>
Ergocorninine	
Ergocristine	
Ergocristinine	
Ergocryptine	
Ergocryptinine	
Ergometrine	
Ergometrinine	
Ergosine	
Ergosinine	
Ergotamine	
Ergotaminine	

The analysis is accredited on fruit and vegetables with a high protein and starch content (cereals, potatoes, dried legumes, bread, pasta, baked goods, polenta) and their processed products and beers and drinks (es: non-alcoholic beers or soft drinks with malt) with a quantification limit for each alkaloid equal to 1 µg / kg.

To request an analysis, or to learn more about this specific topic, please do not hesitate to contact the Neutron team <https://www.neutron.it/en/contacts>.