

Determination of *Alternaria* toxins in food

Alternaria toxins are mycotoxins produced by *Alternaria* species that cause plant diseases on many crops. They are the principal contaminating fungi in wheat, sorghum and barley, and have also been reported to occur in oilseeds such as sunflower and rapeseed, tomato, apples, citrus fruits, olives and several other fruits and vegetables.² These fungi make part of the natural microbiological growth on pre- and post-harvest crops. *Alternaria* species can produce a variety of secondary metabolites, especially low molecular weight toxins. The most important that occur in food are: alternariol, alternariol monomethyl ether, tenuazone, tenuazonic acid and tenuazonic acid.

In April 2022 the European Commission published the **Commission Recommendation (EU) 2022/553 of 5 April 2022** on monitoring the presence of *Alternaria* toxins in food.¹

Pay specific attention to the following extracts of the Recommendation (EU) 2022/553:

For the determination of alternariol and alternariol monomethyl ether, the LOQ should not be higher than 2 µg/kg in cereal-based foods for infants and young children and 4 µg/kg in other foods, and for the determination of tenuazonic acid, the LOQ should not be higher than 20 µg/kg in all foods.¹

Indicative level for alternariol, alternariol monomethyl ether and tenuazonic acid in certain foods, based on the available data in the EFSA database, above which investigations should be performed, on the factors leading to the presence of *Alternaria* toxins or on the effect of food processing (see **Figure 1**).

The indicative levels are not food safety levels.¹

Food	Alternariol (AOH) (µg/kg)	Alternariol monomethyl ether (AME) (µg/kg)	Tenuazonic acid (TeA) (µg/kg)
Processed tomato products	10	5	500
Paprika powder	-	-	10 000
Sesame seeds	30	30	100
Sunflower seeds	30	30	1 000
Sunflower oil	10	10	100
Tree nuts	-	-	100
Dried figs	-	-	1 000
Cereal based foods for infants and young children	2	2	500

Figure 1: Annex to Recommendation (EU) 2022/553.¹

Neutron proposal

Neutron performs the analysis of *Alternaria* toxins by LC-MS/MS technique, permitting to detect the residues in compliance with Commission Recommendation (EU) 2022/553 of 5 April 2022.

For more information please contact us @ www.neutron.it

References:

1. Commission Recommendation (EU) 2022/553 of 5 April 2022 on monitoring the presence of *Alternaria* toxins in food.
2. Scientific Opinion on the risks for animal and public health related to the presence of *Alternaria* toxins in feed and food, EFSA Panel on Contaminants in the Food Chain, EFSA Journal **2011**; 9(10):2407.
3. Dietary exposure assessment to *Alternaria* toxins in the European population, EFSA Journal **2016**; 14(12):4654.