Contaminants

In this guide

110. Differences in cultivation conditions and extraction methods could lead to possible sources of contamination from toxins, microbes, pesticides, heavy metals and residual solvents. Studies investigating contamination in ginger are limited, however of the few studies available, the main sources of contamination reported are heavy metals (Wagesho & Chandravanshi, 2015; Goroya *et al.,* 2019, Kilic & Soylak, 2019; Xu *et al.*, 2020) and mycotoxins (Ałtyn and Twarużek, 2020; Wen *et al., 2014;* Omotayo *et al., 2019;* Lippolis *et al., 2017*).

111. Ginger can be exposed to mycotoxin contamination during harvesting, storage and handling. Whilst information on mycotoxin contamination in ginger is limited, ginger has been demonstrated to be particularly exposed to aflatoxins and ochratoxin A (OTA). This is reflected in GB legislation where maximum levels for these toxins for spices including ginger are established in Assimilated EU Law 1881/2006. Maximum levels are 5 µg/kg for aflatoxin B1

(AFB1), 10 µg/kg for all aflatoxins (sum of AFB1, AFB2, AFG1, and AFG2) and 15 µg/kg for OTA, for ginger and its products.

112. A study evaluating the heavy metal content of ginger from turkey found that the permissible limit values in edible plants determined by FAO/WHO were exceeded for Fe, Zn, Cd, Pb and Cu (Karagözoğlu, 2023).

113. The Committee discussed the potential presence of contaminants in ginger and noted that the ginger products used in the studies reported were sourced locally in markets or herbalists (Wagesho & Chandravanshi, 2015; Goroya *et al.*, 2019). Members queried whether there were any specific data on contaminants in ginger supplements available in the UK.

114. The Committee noted it was unknown how much ginger and particularly, highly concentrated juice extracts, would contribute to overall contaminant exposure in the UK.