Risk characterisation - Risk Assessment of T-2 and HT-2 mycotoxins in Food

In this guide

47. The estimated acute and chronic exposures are expressed as percentages of EFSA's ARfD and TDI in order to assess acute and chronic health risks (as shown below in Tables 3 and 4 below), respectively.

Table 3: Estimates of total acute exposure to sum of T2/HT2 as a % of EFSA's ARfD of 0.3 µg/kg bw.

Type	Toddlers (1.5-3 yrs); mean	Toddlers (1.5-3 yrs); P97.5	Children (4-10 yrs); mean	Children (4-10 yrs); P97.5	Older children (11-18 yrs); mean	Older children (11-18 yrs); P97.5	Adults (19-64 yrs); mean	Adults (19-64 yrs); P97.5	El (6 yr m

Total unprocessed (LB-UB)	90	500	60	313	24	150	25	147	31
Total processed (LB-UB)	29-83	157-327	15-70	83-217	12-40	60-147	11-30	53-163	4-

Table 4: Estimates of total chronic exposure to sum of T2/HT2 as a % of EFSA's TDI of 0.02 µg/kg bw.

Type	**Toddlers (1.5-3 yrs); mean**	**Toddlers (1.5-3 yrs); P97.5**	**Children (4-10 yrs); mean**	**Children (4-10 yrs); P97.5**	**Older children (11-18 yrs); mean**	**Older children (11-18 yrs); P97.5**	**Adults (19-64 yrs); mean**	**Adults (19-64 yrs); P97.5**	**El (6 yr m**
Total unprocessed (LB-UB)	650	4050	405	2450	155	1100	200	1350	28 30
Total processed (LB-UB)	175-600	1100-2400	130-480	800-1850	75-265	405-1050	70-210	405-1100	60

48. All of the estimated mean acute exposures for the sum of T2/HT2 in all processed foods are below the ARfD and are therefore not of toxicological concern.

49. However, 97.5th percentile acute exposures for the sum of T2/HT2 in all processed food exceeded the ARfD in all age groups, with the highest exceedance being up to 3.3-fold in toddlers (aged 1.5-3 years). There are also exceedances of up to 2.2-fold for children (aged 4-10 years), up to 1.5-fold for older children (aged 11-18 years), up to 1.6-fold for adults (aged 19-64 years), and up to 1.4-fold for the elderly (aged 65+ years),

50. Furthermore, using 97.5th percentile acute exposures, there are exceedances of the ARfD of up to 1.7-fold for adult vegetarians/vegans (aged 19-64 years), and up to 1.1-fold for women of childbearing age (16-49 years).

51. As shown in Table 4, there are substantial exceedances of the TDI at both the mean and 97.5th percentile levels of chronic consumption of processed food.

Acute exposure

52. As shown in Table 3, estimated mean exposures of the sum of T2/HT2, do not exceed the ARfD for either processed or unprocessed food, indicating no health concern.

53. However, there are some exceedances of the ARfD at the 97.5th percentile estimated exposures. The highest exceedance is up to 3-fold in toddlers (aged 1.5-3 years), while children (aged 4-18 years) and adults (aged 19-64 years) exceed the ARfD 2-fold and the elderly (aged 65+ years) are at/slightly above the ARfD.

54. Adult vegetarians/vegans (aged 19-64 years) exceed the ARfD 2-fold, while women of childbearing age (16-49 years) are at the ARfD, for high consumption (97.5th percentile).

55. Given the uncertainties in the exposure assessment (listed below), it is unlikely that these exceedances pose a significant health concern. Furthermore, it is unlikely that the consumption rate for the average consumer would be at the 97.5th percentile for each food category used for the total exposure assessment across the general diet.

Chronic exposure

56. As shown in Table 4, estimated mean and 97.5th percentile chronic exposures to T2/HT2 for both processed and unprocessed food exceed the TDI, for all consumer groups. These exceedances indicate a health concern.

57. The estimated mean chronic exposure for the sum of T2/HT2 in all processed food exceed the TDI in all age groups, with the highest exceedance being up to 6-fold in toddlers (aged 1.5-3 years). There are also exceedances of up to 5-fold for young children (aged 4-10 years), up to 3-fold for older children (aged 11-18 years) and up to 2-fold for adults (aged 19-64 years) and the elderly (aged 65+ years). Adult vegetarians/vegans (aged 19-64 years) and women of

childbearing age (16-49 years) exceed the TDI 3- and 2-fold, respectively.

58. Estimated 97.5th percentile chronic exposure estimates for the sum of T2/HT2 in all processed food exceed the TDI in all age groups, with the highest exceedance being up to 24-fold in toddlers (aged 1.5-3 years). There are also exceedances of up to 19-fold for children (aged 4-10 years), up to 11-fold for older children (aged 11-18 years) and for adults (aged 19-64 years), and up to 10-fold for the elderly (aged 65+ years). Adult vegetarians/vegans (aged 19-64 years) exceed the TDI 13-fold, while women of childbearing age (16-49 years) exceed the TDI 9-fold. However, the uncertainties of the exposure assessment (listed below), might affect the interpretation of these findings, and whether or not they represent a health concern.

Uncertainties

59. There are several uncertainties regarding the occurrence data in this assessment that may lead to an overestimation of the actual exposure in the UK population.

- In the UK and Ireland, it is common for grain to be delivered to the mill ‘as harvested’ i.e. uncleaned and unprocessed with the husk still intact. Where mycotoxin contamination may be more associated with the outer layers of the grain this may exhibit higher levels of contamination. A large proportion of data submitted as part of the data call were from such unprocessed grains which show higher levels of contamination compared to cleaned, processed grains. The range of the sum of T2/HT2 toxin reduction rates by dehulling has been estimated as 60 to 97% (D Croucher, 2023).
- The NDNS consumption data is based on food as consumed whereas the occurrence data received were largely for unprocessed forms (the food consumption data are as consumed; no processing factors have been applied). Exposure assessments for unprocessed foods have been included in this assessment, in the absence of sufficient data on processed data, however this may result in an overestimation of actual exposure.
- The NDNS does not include pregnant or lactating women, therefore data for women of childbearing age (16-49 years) were used as a proxy and therefore may not be representative of the maternal diet.
- The total estimates are likely to overestimate exposure, particularly at the 97.5th percentile, given that an individual is unlikely to be a high-level consumer of all the foods listed in Tables 1-2.
- The occurrence data of T2/HT2 in processed foods makes up a very small fraction of data samples received by industry. While the respective

exposures give an indication of the risk from final products, this may not be representative.