30/09/2022

European Union comments on

Codex Circular Letter CL 2022/46-CF

Request for comments on sampling plans for total aflatoxins for cereals and cereal-based foods, including foods for infants and young children

European Union Competence
European Union Vote

The European Union (EU) wishes to provide following information and comments in reply to the CL 2022/46-CF

A) Information /data on the typical ratio of the four aflatoxins in naturally contaminated samples of maize grain; flour, meal, semolina and flakes derived from maize, husked rice, polished rice and sorghum grain and cereal-based foods for infants and young children.

The EU has only limited data available in which all four aflatoxins have been quantified separately and where at least one of the four aflatoxins has been quantified in relevant cereals and cereal products (280 samples). The data are presented in four groups: maize grain (19 samples), flour, meal, semolina and flakes derived from maize (46 samples), husked rice and polished rice (214 samples) and sorghum (1sample). No samples of cereal based for infants and young children are available in which all four aflatoxins were quantified separately.

Table 1: maize grain (19 samples)

	No of samples > LOQ	Range of ratio sum/AFsingle	Comments (details on the range of ratio)
AFB1	19	1.0 – 4.0	5 with ratio 1.0, 3 with ratio 1.1, 1 with ratio 1.2, 3 with ratio 1.7, 2 with ratio 2.8, 2 with ratio 3.0, and 1 with ratio 4.0
AFB2	12	2.5 - 21	3 with ratio 2.5, 1 with ratio 4.0, 2 with ratio 4.5, 2 with ratio 4.6, 1 with ratio 6.3, 1 with ratio 8.1, 1 with ration 18.0 and 1 with ratio 21.0
AFG1	5	4.0 - 4.6	1 with ratio 4.0, 2 with ratio 4.5, 2 with ratio 4.6
AFG2	5	4.0 - 4.6	1 with ratio 4.0, 2 with ratio 4.5, 2 with ratio 4.6

Table 2: flour, meal, semolina and flakes derived from maize (46 samples)

	No of samples > LOQ	Range of ratio sum/AFsingle	Comments (details on the range of ratio)
AFB1	45	1.0 – 2.0	37 with ratio 1.0, 5 with ratio 1.1, 1 with ratio 1.2, 1 with ratio 1.3 and 1 with ratio 2.0
AFB2	6	8.4 – 19.0	1 with ratio 8.4, 1 with ratio 13.7, 1 with ratio 14.0, 1 with ratio 14.6, 1 with ratio 15.2 and 1 with ratio 19.0
AFG1	6	1.0 – 35.1	1 with ratio 1.0, 1 with ratio 2.3, 1 with ratio 9.8, 1 with ratio 13.7, 1 with ratio 19.7 and 1 with ratio 35.1
AFG2	0	--	

Table 3: husked rice and polished rice (214 samples)

	No of samples > LOQ	Range of ratio sum/AFsingle	Comments (details on the range of ratio)
AFB1	213	1.0 – 4.0	120 with ratio 1.0, 59 with ratio 1.1, 2 with ratio 1.2, 3 with ratio 1.3, 2 with ratio 1.4, 3 with ratio 1.5, 2 with ratio 1.6, 1 with ratio 1.7, 14 with ratio 2.0, 1 with ratio 2.2, 1 with ratio 2.5, 1 with ratio 3.8 and 4 with ratio 4.0
AFB2	85	2.0 – 17.7	14 with ratio 2.0, 5 with a ratio between 2 - 3, 4 with a ratio 4.0, 14 with a ratio between 4.5 - 10, 40 with a ratio between 10 - 15 and 8 with a ration between 15 and 17.7
AFG1	9	1.4 – 43.7	1 with ratio 1.4, 1 with ratio 1.7, 4 with ratio 4.0, 1 with ratio 5.5, 1 with ratio 8.3 and 1 with ratio 43.7
AFG2	11	1.0 -5.5	1 with ratio 1.0, 1 with ratio 2.7, 1 with ratio 3.3, 1 with ratio 3.7, 5 with ratio 4.0, 1 with ratio 4.3 and 1 with ratio 5.5

Table 4: sorghum (1 sample)

	No of samples > LOQ	Range of ratio sum/AFsingle	Comments (details on the range of ratio)
AFB1	1	1.6	
AFB2	1	11.0	
AFG1	1	3.7	
AFG2	0	--	

B) Information on the variation in sampling, sampling preparation and analysis for husked rice, polished rice and sorghum grain.

In a technical report of the European Normalisation Committee, a comparison of the level of homogenisation between dry milling of a sample versus the slurry method was performed. (CEN/TR 15298:2006 - Foodstuffs - Sample comminution for mycotoxins analysis - Comparison between dry milling and slurry mixing). The matrices however used for this comparison were not husked rice, polished rice and sorghum grain and also not other cereals or cereal based products (but peanuts and tree nuts). It was concluded that slurries contain smaller particles than dry milled samples and thus generate the lowest possible coefficients of variation (CV) values which in turn leads to better sample homogenisation.

As regards the performance criteria to be applied in case the maximum level applies to a sum of different components, the EU is of the opinion that in this case the same performance criteria apply to both the sum and the individual components of the sum.

C) Comments on sampling plans for AFT for maize grain and flour, meal, semolina, and flakes derived from maize, as well as for cereal-based foods for infants and young children.

The EU is of the opinion that the sampling plan and decision rule as already established in CXS 193-1995 for the control of Codex MLs for deoxynivalenol (for cereal grains (wheat, maize and barley) destined for further processing; for flour, meal, semolina and flakes derived from wheat, maize or barley; for cereal-based foods for infants and young children) and for fumonisins (B1 + B2) (maize grain, maize flour and maize meal). are also applicable for the control of aflatoxins in maize grain and flour, meal, semolina and flakes derived from maize as well for the control of aflatoxins in cereal-based foods for infants and young children.

The sampling provisions for the control of deoxynivalenol in cereal grains (wheat, maize and barley) are also applicable for the control of aflatoxins in husked rice, polished rice and sorghum grain.

From an enforcement point of view it is important that the sampling procedures for the control of mycotoxins in cereals and cereal based products are aligned so that the same representative sample of the lot can be used for the control of compliance with maximum levels for several mycotoxins at the same time as there are multi-mycotoxin methods of analysis available that enable to analyse reliably several mycotoxins at sufficient level of sensitivity and compliant with the analytical performance criteria established for the individual mycotoxins.

In that context, it is appropriate to consider this sampling procedure also for the control of the Codex MLs for ochratoxin A in wheat barley and rye.