CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON CONTAMINANTS IN FOODS

17th Session
15-19 April 2024
Panama City, Panama

FORESIGHT ON EMERGING ISSUES IN FOOD AND FEED SAFETY RELEVANT TO CONTAMINANTS

Information in reply to CL 2024/7-CF

submitted by
Canada, Chile, Cuba, European Union, New Zealand, Peru, United Arab Emirates and USA

Background

1. This document compiles comments received through the Codex Online Commenting System (OCS) in response to CL 2023/7-CF[1] issued in February 2023.

Explanatory notes on the appendix

2. The comments submitted through the OCS are hereby annexed and presented in tabulated format.

[1] https://www.fao.org/fao-who-codexalimentarius/resources/circular-letters/en/
https://www.fao.org/fao-who-codexalimentarius/committees/committee/related-circular-letters/en/?committee=CCCF

ANNEX

GENERAL COMMENTS

COMMENT	MEMBER / OBSERVER
Canada is conducting an exposure assessment of metals in seaweed in products sold in Canada. Canada strives to be up-to-date on emerging issues that are relevant to food and feed safety, such as those noted in the report prepared by Agriculture and Agri-Food Canada: Emerging food products, processes and technologies 2020-21 This document notes the growing interest in a circular economy. The reuse or recycling of agricultural by-products for various applications, such as food packaging, can add contaminants like mycotoxins and metals to the food and feed supply. https://agriculture.canada.ca/en/sector/food-processing-industry/trends-market-analysis/emerging-products-technologies-2020-21#a4.6 The use of recycled plastics in food packaging to reduce plastic waste is also a potential emerging source of contaminants in foods, as discussed in the Government of Canada document, Guidelines for using recycled plastics in food packaging: Overview https://www.canada.ca/en/health-canada/services/food-nutrition/legislation-guidelines/guidance-documents/guidelines-determining-acceptability-use-recycled-plastics-food-packaging-applications.html Novel sources of protein is also an emerging issue. Any novel foods approved for sale in Canada are listed on the following Government of Canada website: Completed safety assessments of novel foods including genetically modified (GM) foods https://www.canada.ca/en/health-canada/services/food-nutrition/genetically-modified-foods-other-novel-foods/approved-products.html The Canadian Food Inspection Agency created a website about edible insects for the general public: Edible insects: what to know before biting into bugs https://inspection.canada.ca/inspect-and-protect/food-safety/edible-insects/eng/1632237657892/1632245370544	**Canada**
Chile agradece la oportunidad de presentar información sobre prospección de cuestiones incipientes en materia de inocuidad de los alimentos y los piensos relacionadas con los contaminantes. Al respecto, Chile quisiera compartir lo siguiente: - En Chile existen diversas iniciativas a nivel de la academia para incentivar el consumo de alimentos de origen vegetal, se comparten a continuación enlaces a sitios web(Para copiar y pegar): • Universidad de Chile innova con comida en impresión 3D a base de alga(https://uchile.cl/noticias/187399/academicos-y-estudiantes-desarrollan-impresion-3d-de-alimentos-) • Carne cultivada en Chile(https://uchile.cl/noticias/203740/luyef-biotecnologo-u-de-chile-crea-emprendimiento-de-carne-cultivada) - En cuanto a ingesta de otras fuentes de proteína, como la derivada de insectos, en Chile también existe iniciativa respecto de piensos para pescados, así como alimentos para humanos, se comparte enlace a continuación:	**Chile**

• Avanzan incorporando harina de insectos en alimento para salmón chileno(https://www.salmonexpert.cl/biomar-chile-investigacion/avanzan-incorporando-harina-de-insectos-en-alimento-para-salmn-chileno/1167655) • Desarrollan alimentos a base de grillo chileno(https://www.elmostrador.cl/agenda-pais/2022/02/11/desarrollan-pizza-y-barra-energetica-a-base-de-grillo-chileno/) - Chile además cuenta con la iniciativa de innovación alimentaria "Transforma Alimentos". Este programa es impulsado por la Corporación de Fomento de la Producción en Chile y el Ministerio de Agricultura, y tiene como objetivo, destacar a las empresas que ofrezcan soluciones alimentarias en sintonía con las tendencias global de alimentación saludable y producción y consumo sostenible. Se comparte enlace a página web a continuación: • https://transformaalimentos.cl/catalogo-de-innovacion-alimentaria-de-chile-2023/ (https://transformaalimentos.cl/catalogo-de-innovacion-alimentaria-de-chile-2023/)	
En cuanto a las fuentes de alimentos y sistemas de producción nuevos (FASPN), Cuba no ha realizado ningún estudio al respecto, en principio se apoyará lo que por consenso se apruebe entre los países miembros, considerando la importancia que tiene la gestión de la inocuidad en estos alimentos.	**Cuba**
The European Union and its Member States (EUMS) would like to inform the Committee on ongoing European Union activities on emerging issues in food and feed safety relevant to contaminants: MINERAL OIL HYDROCARBONS • Mineral oil hydrocarbons (MOHs) are substances that may contaminate food in many ways: via harvesting or production processes (use of lubricants for machinery, drying processes, contact with exhaust fumes, processing aids, the use of anti-dusting agents, the use of non-stick agents, the use of hexane or mineral oils in extraction processes, etc…), the use of food or feed additives, migration from food contact materials (jute bags, recycled paper and cardboard, printing inks, waxes, etc…) or through environmental contamination. • MOHs can contaminate all foods, but are mostly found in processed foods and in foods packaged in mineral oil containing food contact materials, such as mineral oil treated jute bags. In the following foods often MOAH are found: oilseeds, oil fruits, tree nuts (in particular coconuts), cocoa beans, coffee, tea, herbal infusions, spices, dried herbs, pulses, cereals and processed products derived from these commodities. • MOHs are distinguished between mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH). • In 2023 EFSA updated its risk assessment on MOHs in food (https://www.efsa.europa.eu/en/efsajournal/pub/8215). • MOSH accumulate in liver, spleen, adipose tissue. EFSA considers that, according to the present knowledge, the current exposure to MOSH does not raise concern for human health, for all age groups. However, the consequences of long-term accumulation of MOSH for human health have not yet been investigated and thus remain uncertain. • MOAH with 3 or more aromatic rings are associated with genotoxicity and carcinogenicity. EFSA concludes that, due to a lack of toxicological information on the effects of 1 and 2 ring MOAH, and to the presence of 3 or more ring MOAH in the diet, concerns for human health cannot be excluded. • In view of the several findings of MOAH in various foods and of the fact that the occurrence of MOAH in food is avoidable, the EUMS agreed on a common enforcement approach for concentrations of MOAH above the limit of quantification; in June 2021 for formulae for infants and young children, and in April 2022 for all other foods (https://food.ec.europa.eu/safety/chemical-safety/contaminants/catalogue_en#MOH).	**European Union**

o 0.5 mg/kg for dry foods with a low fat/oil content (≤ 4% fat/oil) o 1 mg/kg for foods with a higher fat/oil content (> 4% fat/oil, ≤50% fat/oil) o 2 mg/kg for fats/ oils or foods with >50% fat/oil • At the moment no EU limits are in place for MOSH in food, however certain Member States have established national benchmark levels and food business operators are recommended to monitor their production and to apply mitigation measures, where needed. • The analyses for MOH in food are typically carried out by coupling liquid and gas chromatography with subsequent flame ionization detection (LC-GC-FID). However, in cases where naturally occurring/ biogenic substances interfere with the analysis, a confirmatory analysis with two-dimensional gas chromatography (GCXGC) is needed to confirm the concentration of MOAH. The Joint Research Centre (JRC) of the European Commission published a Guidance on sampling analysis and data reporting for the monitoring of mineral oil hydrocarbons in food and food contact materials (https://op.europa.eu/en/publication-detail/-/publication/97cb92c2-d29e-11ed-a05c-01aa75ed71a1) (referred to hereafter as 'JRC Guidance'). • When MOSH or MOAH are quantified in food, the food business operators should check all steps of the process, in order to identify the source(s) of the contamination and they should apply the necessary mitigation measures, to avoid further contamination of their production. Also food contact materials should be investigated as a possible source of the MOH contamination of food. In order to avoid the contamination of food via the transfer from mineral oil based jute bags, it is recommended to use jute bags that were produced on the basis of MOH free vegetable oils. • Taking into account the 2023 updated EFSA risk assessment, discussions have been started with the EU Member States on the regulatory follow-up. It is the intention to establish in the EU legislation on contaminants in food maximum levels for MOAH. As an increase of the exposure to MOSH might also lead to health concerns, indicative levels for MOSH in food are under discussion. The indicative levels are values that, when exceeded, should trigger investigations towards the sources of the contamination and the application of mitigation measures. • The adoption of the EU maximum levels and indicative levels is targeted fourth quarter of 2024/ first quarter of 2025. • As the presence of MOAH in food is avoidable, food business operators are urged to already check their processes in order to avoid the presence of MOAH in their production. • Further information on this topic can be found on: https://food.ec.europa.eu/safety/chemical-safety/contaminants/catalogue_en#MOH HEAVY METALS IN ALGAE Because algae have a tendency to accumulate heavy metals and because the consumption of algae and algae based products is gaining popularity, the European Food Safety Authority carried out an assessment of the dietary exposure to heavy metals and iodine intake via the consumption of seaweeds and halophytes in the European population (https://www.efsa.europa.eu/en/efsajournal/pub/7798). Because it appears that the consumption of algae results in a significant contribution to the consumer exposure to heavy metals and iodine, the EUMS have started discussions on the establishment of maximum levels for heavy metals and iodine in seaweed. The adoption of these maximum levels is targeted mid-2025. QUINOLIZIDINE ALKALOIDS IN LUPINS AND LUPIN-DERIVED FOOD Increased consumption of lupins as the consequence of the transition towards more plant based, entails new risks. In particular the presence of quinolizidine alkaloids in lupins and lupin-derived products might be of concern. The European Food Safety Authority (EFSA) has published a scientific opinion on the risks for animal and human health related to the presence of quinolizidine alkaloids in feed and food, in particular in lupins and lupin-derived products (available at: https://doi.org/10.2903/j.efsa.2019.5860).	

The EU is finalising a monitoring recommendation on quinolizidine alkaloids - to gather more occurrence data on the presence of quinolizidine alkaloids in lupins and lupin-derived products, - to carry out investigations to identify the factors leading to high levels of quinolizidine alkaloids in lupins and lupin-derived food and - to gather more information on the effects of processing on the level of quinolizidine alkaloids . Information can already be found in: Schyvers et al. The fate of quinolizidine alkaloids during the processing of lupins (Lupinus spp.) for human consumption. Food Chemistry 429 (2023) 136847 The information will be used to consider the establishment of regulatory measures to reduce the presence of quinolizidine alkaloids in lupins and lupin-derived food. ALTERNARIA TOXINS Climate change has an impact on the prevalence of toxicogenic fungi, including Alternaria species. The European Food Safety Authority (EFSA) adopted a scientific opinion in 2011 on the risks for animal and public health related to the presence of Alternaria toxins in feed and food (availble at: https://doi:10.2903/j.efsa.2011.2407). EFSA published in 2016 a scientific report on the dietary exposure assessment of Alternaria toxins in the European population (available at https://doi:10.2903/j.efsa.2016.4654). It was concluded that the estimated chronic dietary exposure to the Alternaria toxins alternariol, alternariol monomethyl ether and tenuazonic acid exceeds the relevant threshold of toxicological concern. The Commission Recommendation (EU) 2022/553 of 5 April 2022 on the monitoring of presence of Alternaria toxins in food was adopted (availble at: http://data.europa.eu/eli/reco/2022/553/oj). The monitoring of the Alternaria toxins alternariol, alternariol monomethyl ether and tenuazonic acid in food, in particular in processed tomato products, paprika powder, sesame seeds, sunflower seeds, sunflower oil, tree nuts, dried figs and cereal-based foods for infants and young children is recommended. In addition, investigations to identify the factors resulting in increased presence of Alternaria toxins and on the effects of processing on the level of these Alternaria toxins should be performed. The information will be used to consider the establishment of regulatory measures to reduce the presence of Alternaria toxins in food. CLIMATE CHANGE AND IMPACT ON PRESENCE OF MYCOTOXINS AND PLANT TOXINS IN FEED AND FOOD The increased prevalence of mycotoxins (such as deoxynivalenol, ergot alkaloids, T-2 and HT-2 toxin and fumonisins) and plant toxins (such as tropane alkaloid and pyrrolizidine alkaloids) in feed and food due to, among other factors, climate change requires constant attention in the EU to permanently guarantee the safety of feed and food.	
Purpose 1. In response to the request for information on foresight on emerging issues in food and feed safety relevant to contaminants from the Codex Secretariat (CL 2024/07-CF) New Zealand submits this paper to inform CCCF members of New Zealand's proposal to hold informal workshops on Environmental Inhibitors (EIs) as side events to the forthcoming Codex Committee on Pesticide Residues (CCPR) and the Codex Committee on Residues from Veterinary Drug in Foods (CCRVDF) meetings. These workshops will help facilitate recognition and understanding of the importance of environmental inhibitors to advancing global interests around mitigating the impact of climate change, transforming food systems while advancing broader food security and sustainability goals.	**New Zealand**

Background

2. One of the strategic goals of Codex is to address current and emerging issues in a timely manner. There are significant global challenges arising from climate change and other environmental pressures necessitating food systems transformation to feed a growing global population in a sustainable manner to meet broader sustainability goals and targets. Using environmental inhibitors to mitigate greenhouse gas emissions and increase food production is an important tool to reduce the environmental impact of agriculture.

3. Codex, as the pre-eminent global body for food standards for health protection and trade has a major role to play through the development of appropriate international standards that assure the safety of food while minimizing technical barriers to trade arising from the use of EIs.

Progress to date

4. In 2019, the 42nd session of the CAC adopted the *Guidelines for rapid risk analysis following instances of detection of contaminants in food where there is no regulatory level* (CXG 92 - 2019). This work was progressed through the Codex Committee on Contaminants in Food (CCCF) and achieved two important objectives. Firstly, it promoted a generic and internationally agreed risk based approach to dealing with substances that may be detected in food but for which there are no specific limits established in Codex. Secondly it helped draw attention to detection of very low traces of substances (including environmental inhibitors) that may increasingly be detectable in food largely through advances in detection technologies. The guidelines covered a range of substances including those used to address specific environmental considerations.

5. Both the CCPR and the CCRVDF have acknowledged the relevance of environmental inhibitors and food safety and agreed that these compounds can be addressed within their mandates and procedures. These were important first steps to formal consideration of specific compounds in due course.

6. Different EI compounds are being used in countries depending on production systems and environmental constraints. For instance, some farmers/companies/researchers are more interested in using EIs that are applied to the land or fed directly to animals to reduce the production of greenhouse gases (such as methane) or to reduce the release of nitrous oxide into the atmosphere and soluble nitrogen into waterways or aquifers.

7. The regulatory frameworks governing the use of EIs amongst countries is varied and ranges from none or very little regulation, to strict regulatory requirements. Regulation often depends on how these substances are used, that is whether as a chemical applied to pasture/crops or as a veterinary compound given to animals or as a medicated feed/feed additive. The recent report by the FAO 'Food Safety Implications from the Use of Environmental Inhibitors in Agrifood Systems', published in late 2023, described the challenges and opportunities associated with EIs, provides an excellent background overview.

8. To establish maximum residue levels (MRLs) for an EI, CCPR and CCRVDF look to members to put forward one or more compounds in accordance with the established procedures. The compound will then be assessed by the relevant risk assessment body. To undertake this risk assessment the FAO/WHO Joint Meeting on Pesticide Residues (JMPR) for CCPR and Joint FAO/WHO Expert Committee on Food

Additives (JECFA) for CCRVDF calls for data to be supplied by the compound manufacturer. But the extent of the data requirements for this process are difficult to determine at this stage. 9. New Zealand proposes to host, in collaboration with FAO, the Codex Secretariat, host governments and interested member countries, informal workshops in the margins of the upcoming CCPR55 (3-8 June 2024, China (chaired by China)) and CCRVDF27 (21-25 October 2024, United States (chaired by the US)) meetings as a precursor to formal consideration of specific work proposals in relevant committees. The purpose of these workshops will be to: • inform and facilitate the recognition of the importance of EIs, discuss how different compounds are currently being used in countries with different agricultural production systems; • deepen the understanding of regulatory frameworks for EIs and how these differ between countries and between compounds products; and • clarify and facilitate better understanding and transparency about the data requirements for Codex risk assessments of these substances.	
El Perú agradece a la Secretaría de la Comisión del Codex Alimentarius, por el esfuerzo emprendido a la fecha y al trabajo realizado respecto a la solicitud de información sobre prospección de cuestiones incipientes en materia de inocuidad de los alimentos y los piensos relacionadas con los contaminantes, y en atención y respuesta al documento CL 2024/07-CF Perú desea expresar que no contamos con información sobre fuentes de alimentos y sistemas de producción nuevos (FASPN) relativas a cuestiones incipientes en materia de inocuidad de los alimentos y los piensos relacionadas con los contaminantes.	**Peru**
Regarding the invitation to submit information on United Arab Emirates (UAE) activities on NFPS related to emerging issues in food and feed safety relevant to contaminants 1. United Arab Emirates (UAE) maps the control functions and mechanisms at the overall food supply level, necessary to identify, monitor, predict and handle food safety hazards and emerging risks and to deal with food emergencies: - There are sampling plans for food products traded in UAE including primary production level, providing analysis and laboratory testing services for quality and conformity, and monitor pesticide residues in many exported and imported food products. The efforts to collect and analyze data continue to determine priorities when developing and designing monitoring programs and plans to monitor risks according to the risk classification framework (Hazard - Products Monitoring Program) - There is an advanced system for monitoring all human diseases, supervised by health authorities, that ensures the effective management of foodborne disease problems and other acute public health problems. The system contains an effective reporting mechanism at the country level, and laboratory data received from the infectious disease notification system are used to identify the disease causes, link sources and means of disease transmission to the cases in question, support the detection of disease outbreaks, and identify risks and response measures to control disease outbreaks.	**United Arab Emirates**

- There are operational response procedures in the country for suspected cases of food poisoning and several food notifications. The food safety authorities are considered among the supporting bodies in response plans for epidemics that affect humans, and their role is determined by responding if the epidemic is caused by a food-borne disease, according to the response plans. For food accidents, the presence of these plans is also important to respond to accidents without there being reported human casualties, such as the widespread spread of contaminated products in the markets. 2. United Arab Emirates pays great attention to the Information flows and integration of food business operators into risk management, as there are sustainable communication mechanisms and procedures for transferring information and data with establishments through multiple communication channels, including social media or text messages that can be directed to any category of high-risk establishments. There is also continuous communication with all retail sector operators to quickly communicate with them in the case of notifications requiring product recall from the market. There is also an electronic official communication with them to send notifications and important messages that require a response. 3. There is a mechanism to ensure consideration of newest scientific and technical information for food control for example: - Food control authorities have systems and relationships to obtain advice on the latest relevant information. For example, there are collaborations to obtain scientific and technical advice on the latest information related to food control and public health, where coordination is being made with some universities and research centers inside and outside the country for the purpose of promoting areas of scientific research related to food safety. In addition to electronic risk management systems that enable us to anticipate and respond to any emerging issues related to food safety in a way that ensures they are contained or prevented from occurring in the country. - Organizing conferences of some international organizations concerned with food safety and public health issues.	
The United States would like to draw attention to the following developments: • Issuance of a Guidance for Industry: Foods Derived from Plants Produced Using Genome Editing by the U.S. Food and Drug Administration (FDA) (https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-foods-derived-plants-produced-using-genome-editing) • Publication of an article in Frontiers in Sustainable Food Systems highlighting critical issues surrounding safe use of crops used for molecular farming (https://www.frontiersin.org/articles/10.3389/fsufs.2024.1345958/full?&utm_source=Email_to_authors_&utm_medium=Email&utm_content=T1_11.5e1_author&utm_campaign=Email_publication&field=&journalName=Frontiers_in_Sustainable_Food_Systems&id=1345958%22) • Planned publication by December 2024 of draft guidance for industry on FDA Premarket Consultation on Cultured Animal Cell Foods • FDA is working with the Controlled Environment Agriculture (CEA) segment of the produce industry to develop information on standard CEA practices, production conditions, and impacts on food safety.	**USA**