

CODEX ALIMENTARIUS COMMISSION

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Food and Agriculture
Organization of the
United Nations



World Health
Organization

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Agenda item 7 **CX/FH 22/53/7 Add.1**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FOOD HYGIENE

Fifty-third Session
San Diego, United States of America
29 November – 2 December 2022 and 8 December 2022

Discussion paper on revision of the Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic *Vibrio* Species in Seafood (CXG 73-2010)

Comments in reply to CL 2022/49/OCS-FH

Comments of Australia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Egypt, India, Kenya, Norway, Peru, Saudi Arabia, Singapore, Uruguay and USA

Background

1. This document compiles comments received through the Codex Online Commenting System (OCS) in response to CL 2022/49/OCS-FH issued in September 2022. Under the OCS, comments are compiled in the following order: general comments are listed first, followed by comments on specific sections.

Explanatory notes on the appendix

2. The comments submitted through the OCS are hereby attached as **Annex I** and are presented in table format.

GENERAL COMMENTS

COMMENT	MEMBER / OBSERVER
<p>Australia thanks Japan and New Zealand for preparing this discussion paper.</p> <p>Australia supports CCFH undertaking new work to revise and update the appropriate text in CXG 73-2010.</p> <p>Australia considers the main aspects in the proposed new work proposal to be essential for the revision of the guidelines. We also recommend the working group reviews and considers further research findings and developments that have occurred since JEMRA conducted its MRA in 2019. This would include emergence of new pathogenic <i>Vibrio</i> species and research into other markers of pathogenicity.</p> <p>In addition, the working group could also complete work on <i>Vibrio</i> species testing methodologies and consideration of models or tools that may improve risk management options.</p>	Australia
<p>Brazil agrees with the need to review the document taking into account the reasons presented in this CL.</p> <p>Many relevant points have been highlighted and Brazil will make specific comments at an appropriate step.</p>	Brazil
<p>Costa Rica supports the revisions and updates suggested in this document in order to reflect the information provided in MRA 35.</p>	Costa Rica
<p>Cuba appreciates the opportunity to express their views regarding CL 2022/49/OCS-FH and supports what is described in the document in the MRA 35 Report on the risk assessment of those <i>Vibrio</i> species associated with seafood.</p>	Cuba
<p>Egypt appreciates the work done in the document and agrees with it</p>	Egypt
<p>Kenya supports revision and updating of CXG 73-2010 to cover the aspects as indicated in the appendix.</p>	Kenya
<p>We generally supports the suggested amendments. We would like to add some information regarding examinations conducted in Norway with respect to pathogenic <i>Vibrio</i> in imported seafood, and own initiated research on this group of bacteria in Norwegian seafood and environmental samples. Of particular relevance for seafood safety is <i>Vibrio</i> in marine bivalves intended for raw consumption. Due to low seawater temperatures in Norwegian waters, pathogenic <i>Vibrio</i> bacteria have so far not been considered a particular challenge in our seafood. However, with the increase in surface water temperatures, this group of pathogens could be expected to gain increasing relevance in the years to come. Furthermore, new emerging varieties, as <i>V. parahaemolyticus</i> ST 36, seems to pose a pandemic capability and may become a challenge also for seafood from our waters in light of global warming. A present trend is also the increased prevalence of bath associated superficial infections among humans during the warm months in the southern coastal areas of Norway.</p>	Norway
<p>Saudi Arabia support the Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic <i>Vibrio</i> Species in Seafood (CXG 73-2010)</p>	Saudi Arabia
<p>Uruguay appreciates the invitation to participate. We agree with the proposed recommendations</p>	Uruguay
<p>Based on the analysis and the potential revisions that have been identified in Appendix 1 of the discussion paper, it was recommended that the Codex Committee on Food Hygiene (CCFH) undertake new work to revise and update the appropriate text in the Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic <i>Vibrio</i> Species in Seafood (CXG 73-2010). The United States agrees that CXG 73-2010 is in need of review and updating. As such, the United States offers the following comments for consideration in updating the document.</p> <p>The Discussion Paper (CX/FH 22/53/7) suggests revisions to add in paragraph 10 of CXG 73-2010 "it is also important to consider post-harvest practices,</p>	USA

in particular setting appropriate time-temperature requirements and control measures.” While it may not have been covered in the recent FAO/WHO document, pre-harvest handling practices (e.g., those used in aquaculture production) should also be considered. Cooperation with the World Organization for Animal Health should also be considered.

In paragraph 16 it would be useful to note that 16S rDNA is another potential marker, with reliability similar to vcg.

In paragraph 19 there is an added statement about relaying (“Relaying oysters to high salinity waters (>32 g/l (ppt: parts per thousand) was shown to reduce *V. vulnificus* numbers by 3–4 logs (<10 per g) within 2 weeks.”). Our subject matter experts note that this finding has not been consistent across more recent studies.

In considering the inactivation of *Vibrio parahaemolyticus* (Vp) and *Vibrio vulnificus* (Vv), account should be taken of the fact that both species have inducible acid tolerance mechanisms that greatly increase their survival at lower pH levels. Furthermore, it is important to take into account the increasing portion of populations that consume antacids and acid-blocker medication. Likewise, consuming a contaminated food late in a meal would result in exposure to a gastric pH closer to pH 4.5 than pH 1.8.

Considering that only a relatively small percentage of Vp carry the virulence factor(s), CCFH should consider whether it is possible that detection of Vp would be a microbiological indicator and only the actual pathogenic strains would be considered as the pathogen.

Reliance on the latest understanding in pathogenesis of both Vp and Vv is critical in understanding the problem, but this needs to be balanced against the level of sophistication of suppliers in countries with developing economies. CCFH should consider guidance on the level of intervention technologies (5 logs, 6 logs, etc.) that would be needed to ensure the safety of the products. Likewise, if CCFH is going to establish a standard for harvest water related to the two species, are there any definitive on data that establish maximum population density (or should we simply go back to the old standard of not harvesting shellfish during months that do not have an "R")?

How will the guidance address all the literature on the viable but non-cultural *Vibrio*?

The guidance should consider including *Vibrio cholerae*. Not all seafood comes from the ocean.

Para 5

Reads: (...)different growth characteristics compared to (...).

Should read: (...)different growth characteristics in the food matrices, compared to(...)

Peru**Para 8**

Would there be value in also including type VI secretion systems (T6SS) to paragraph 8 (alongside T3SS)?

References:

Molecular mechanisms of *Vibrio parahaemolyticus* pathogenesis
Lingzhi Li, Hongmei Meng, Dan Gu, Yang Li, Mengdie Jia,
Microbiological Research, Volume 222, 2019, Pages 43-51, ISSN 0944-5013
(<https://doi.org/10.1016/j.micres.2019.03.003>)

Regulation of Virulence Factors Expression During the Intestinal Colonization of *Vibrio parahaemolyticus*
(<https://www.liebertpub.com/doi/full/10.1089/fpd.2021.0057>)
Jingyu Wang, Yuming Zhan, Han Sun, Xiaodan Fu, Qing Kong, Changliang Zhu, and Haijin Mou
Foodborne Pathogens and Disease 2022 19:3, 169-178

Canada

Para 10

It may be beneficial to include in parenthesis an example of a control measure type, for instance depuration techniques in post-harvest settings.	Canada
While it may not have been covered in the recent FAO/WHO document, pre-harvest handling practices (e.g., those used in aquaculture production) should also be considered.	USA

Para 14

If it is decided to move forward with the mention of these, would recommend avoiding term “probably” to mention the hypothesis of link to climate change, “hypothesized to be linked to climate change (and increasing water temperatures)?” Consider defining what in climate change would have been linked to these: increased water temperature (as indicated in example if accurate), currents, etc. Is there data to corroborate the hypothesis?	Canada
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Para 16

It would be useful to note that 16S rDNA is another potential marker, with reliability similar to vcg.	USA
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Para 19

Subject matter experts in the United States note that this finding has not been consistent across more recent studies.	USA
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Para 25

Peru agrees. Reads: “clean water.” Should read: Potable water. Rationale: Using “potable water” throughout the document was agreed to during the 52nd meeting.	Peru
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Para 34 and 35

Peru agrees. Reads: “clean water.” Should read: Potable water. Rationale: Using “potable water” throughout the document was agreed to during the 52nd meeting.	Peru
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Para 73

This paragraph should be expanded based on information in the “High hydrostatic pressure”, “ Low dose gamma radiation Low dose gamma radiation ”, “Mild heat treatment” and “Freezing” in the MRA 35, page 30 One possible typo: “Low dose gamma radiation” repeated.	Norway
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ANNEX ON THE CONTROL MEASURES FOR *Vibrio parahaemolyticus* and *Vibrio vulnificus* in Bivalve Molluscs

This Annex seems to be a practical document that reinforces much of what we indicate in our policy for Canada. What would the rationale be for keeping or not keeping this Annex?	Canada
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DISCUSSION PAPER ON THE REVISION OF GUIDELINES ON THE APPLICATION OF GENERAL PRINCIPLES OF FOOD HYGIENE TO THE CONTROL OF PATHOGENIC VIBRIO SPECIES IN SEAFOOD (CXG 73-2010)

Answer: We support the start of this new work and consider the proposed considerations pertinent, in point 5 we would also add the inclusion of a	Chile
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practical example that allows countries to use these variables in <i>Vibrio</i> predictive microbiology.	
In response to the CL 2022/49/OCS-FH, Cuba supports the discussion paper on the REVISION OF GUIDELINES ON THE APPLICATION OF GENERAL PRINCIPLES OF FOOD HYGIENE TO THE CONTROL OF PATHOGENIC VIBRIO SPECIES IN SEAFOOD (CXG 73-2010)	Cuba
Kenya supports the new work proposal based on the MRA 35 report. It is timely and relevant due to the advances in science and risk management that have been made in these species	Kenya
Singapore supports the proposed new work to revise and update the Guidelines on the Application of General Principles of Food Hygiene to the control of pathogenic <i>Vibrio</i> species in seafood (CXG 73-2010) based on the latest scientific advice from FAO/WHO, and to incorporate some relevant aspects of the revision of the General Principles of Food Hygiene (CXG 1-1969).	Singapore
Uruguay appreciates the invitation to participate. We agree with the proposed recommendations	Uruguay

3. Main aspects to be covered

<p>The practical interventions that can be conducted to reduce vibriosis risks associated with the consumption of seafood, including relaying, cooling, post-harvest treatments, etc. • <u>Alternative biological or chemical interventions to reduce the risk of spreading these microorganisms in fish farming and/or during the production chain.</u></p> <p>Among the factors to analyze, alternative biological or chemical interventions should be considered to reduce the risk of spreading these microorganisms in fish farming industries and/or during the chain.</p>	Colombia
<p>Comment: The new work shall also take into consideration of other pathogenic <i>Vibrios</i> such as <i>V. alginolyticus</i> apart from <i>V. parahaemolyticus</i> and <i>V. vulnificus</i>.</p> <p>Rationale: Some of the latest reports say that <i>Vibrio alginolyticus</i> is emerging as an opportunistic pathogen infecting humans and causing gastroenteritis, septicemia in humans.</p>	India
<p>Singapore supports this consideration, as it is noted that the current guidelines does not include a Section on microbiological monitoring methods, or make any reference to international methods.</p> <p>Among pathogenic <i>Vibrio</i> species, <i>Vibrio cholera</i> is a notifiable foodborne disease in Singapore. The information on its clinical incidence and pathogenic sub-types are collected as part of the communicable diseases' surveillance by the Ministry of Health, Singapore (MOH). Surveillance of other <i>Vibrio</i> species is supported through event-based notifications of suspected clusters by medical practitioners, laboratories and institutions.</p> <p>Singapore recognises the importance of harnessing newer laboratory methodologies that can improve the detection and characterisation of pathogenic <i>Vibrio</i> species. In particular, Singapore sees the opportunity on the recent advancements in Whole Genome Sequencing (WGS), with the possibility of harmonising across various laboratories and sectors, and increasing global use of WGS for One Health epidemiological investigation and risk assessment.</p> <p>Singapore supports this consideration. We recognise that environmental conditions such as temperature, salinity, pH and currents are factors that impact vibriosis risk. Water quality monitoring sensors / probes can be used for real-time/periodic measurements of such parameters. . Sensors may be incorporated with analytic telemetry technology that can prompt alerts for potential water quality issues.</p> <p>The development of the risk model could take into consideration variability of the factors of the water in different regions of the world, to work towards constructing risk calculator(s) that can be contextualise for wider applications among member countries.</p> <p>Singapore supports the inclusion of such interventions as means to mitigate risks associated with the consumption of seafood. The review should include both pre and post-harvest interventions to mitigate risk of vibriosis, as it would be useful for countries to have a guide on the range of interventions to</p>	Singapore

make better-informed decisions.

For example, high pressure processing, individual quick freezing and heat-cool pasteurisation are some of the post-harvest technologies that are currently used for treating oysters to reduce vibriosis risks. From literature review, high pressure processing seems to emerge as the more effective treatment in reducing *V. parahaemolyticus*.