CODEX ALIMENTARIUS COMMISSION E

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World Health Organization

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Agenda Item 5 **CX/FFP 15/34/6 Add.1**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

Thirty-fourth Session

Ålesund, Norway

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PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS (SECTION ON STURGEON CAVIAR) (Comments at Step 3)

Comments submitted by Costa Rica, Egypt, Ghana, Morocco and the United States of America

COSTA RICA

General comments:

Costa Rica considers that the word "defects" should be used for parameters that directly indicate interference with the product quality. As a consequence, paragraph 7 in "General Considerations", says: "Defects: potential defects could be classified in 3 categories" in which are included microbial and chemical decomposition. Costa Rica suggests the following text: "**Defects: potential defects that could be classified in two categories**":

1-Fat tissues could be avoided…

2-A number of factors can have an effect on…

The microbial and chemical decomposition "defects" should not be presented as such, but rather as potential hazards for the product's safety.

As a result, the same comment applies, for example, to the paragraph X.1 Life fish reception, in which microbial contamination is established as a potential hazard and additionally a sub-paragraph is added referring to the "possible defects" and the remainder of the paragraphs make the same reference.

Specific comments:

Costa Rica suggests changing the numbering and line spacing in the flow chart as it is not easy to read or understand.

Specific comment:

Costs Rica suggests that in the aspects dealing with the health status of animals, reference be made to the technical criteria established by the OIE for example in the process X.2 Slaughter (bleeding and washing), technical guidance. Suggesting the following wording:

"Stunning may be used to reduce stress after fish are harvested. It should be done by a skilled person in order not to damage the fish or eggs, **and in accordance with the technical guidelines established by the OIE for this topic."**

General comment:

Costa Rica considers that the Spanish word "*debería*" [should] be replaced in the text with the Spanish word "*deberá*" [shall] and in some specific cases with the Spanish word "*podrá*" [may]; as the word "*debería*" [should] is ambiguous, since it implies the "conditional". For example, in sub-paragraph X.3 Belly cutting and ovary removal, Technical guidance: Prior to cutting, the belly part (around cutting area) should be fully brushed..."; not performing this operation will have a negative impact on the product's safety.

Costa Rica understands that the text is proposed as guidance, however, it is important to consider that, at least in the Spanish text, it is suggested that this/this action may or may not be performed.

In conclusion, the word "*debería*" [should] can be used for quality aspects that do not have a direct bearing on safety, but for specific cases of safety the verb "*debe*" should be conjugated at least as "*deberá*" [shall] and in some specific cases the verb "*podrá*" [may] should be used.

Specific comment:

X.20 Weighing and labelling "Labels should be monitored for accuracy by trained personnel". Costa Rica suggests changing the wording as follows: "**Trained personnel should monitor the information declared on labels for correctness**."

EGYPT

- Proteolytic and non-proteolytic *Clostridium botulinum* are spore forming microbial hazards which should be controlled in packed caviar. These pathogens are controlled by an adequate quantity of salt (product salt content ≥ 3g/100g and ≤ 5g/100g, ≥ 5% in the water phase, or a water activity of < 0.97) and proper cold storage, (temperatures ≤ 4°C). Other controlling factors shown to prevent *Clostridium botulinum* growth and toxin production in the caviar can be used when shown to be effective by scientific studies. In addition to the control of *C. botulinum*, countries producing caviar should ensure that the process used (e.g. pasteurization step, use of permitted food additives, % salt, microbiological testing, temperature controls) will control nonspore forming microorganisms (e.g. *Salmonella* spp., *Listeria monocytogenes*).

***Clearing the extent control of *Listeria* sp.; *Salmonella* sp.; where it can with stand temperature degrees less than that mentioned. Also, salinity and water content are needed.**

- **Defects:** potential defects could be classified in 3 categories:

1- Development of microbial and chemical decomposition due to temperature abuse during caviar production process, handling and storage. This can be prevented by controlling time and temperature.

2- Fat tissues, ovarian follicles and blood clots in caviar (from slaughtered sturgeon), could be avoided by proper bleeding, careful sieving and ovarian washing.

3- A number of factors can have an effect on physico-chemical and sensory properties of caviar; for example; eggs breakage, shell loosening, eggs softening or hardening as a result of overpressure on caviar and temperature abuse. Impure salt or additives, dust, smoke and aromatics in detergents or disinfecting agents can be absorbed by caviar and affect flavour and taste.

* **Microbial decomposition (spoilage) cannot deal with as a kind of defect, it constitutes threats to human health, so it should be considered as a hazard rather than a defect.**

- Figure x.1 Example flow chart for caviar production

1- Live **and recently dead** fish reception **and storage.**

* **Recently dead fish can be used as long as no signs of decomposition appeared and records for transportation, temp,....that indicate GMP are kept.**

- X.1 Live fish reception, **harvesting, storage/holding and transportation**.

Potential Hazards: ~~Microbiological~~ , **Biotoxins as in CCFFP-2012 fish code of practice (6.3.6)** and chemical contamination (e.g. ~~oil pollutants~~ **detergents and disinfectants**, heavy metals, pesticides, drugs residue)

Technical guidance:

- Farmed **and captured** fish should be harvested / **captured** from growing area where water quality should comply with section 6.1.2 (Code of Practice for Fish and Fishery Product (CAC/RCP 52-2003)).
- In order to prevent the mortality of live fish which could result in **fish or egg** decomposition, fish should be handled with care, stored in clean (filtered), oxygenated water and rapidly prepared for ovary removal.
- In the case of fresh fish, the fish should be stored under refrigeration or in cold and clean water. ***what is meant by fresh fish/fresh water fish, live fish, fresh harvested fish?**

X.2 Slaughter (bleeding and washing)

Technical guidance:

- Stunning may be used to reduce stress after fish are harvested. It should be done by a skilled person in order not to **harm or** damage the fish or eggs.
- As soon as the live fish have been slaughtered **washing and/or disinfecting the site of slaughter** the fish should be bled to prevent blood dispersion into the eggs.
- Suitable facilities for **hygienic** waste disposal should be available in bleeding site.

X.4 Ovary cutting to small pieces and sieving

Potential defects: Physical damage to the eggs, off flavour and off odour, eggs with bad consistency **residues of undesirable matter as fat, blood and ovary remnant.**

X.5 Laying induction

Technical guidance:

- Hormone dosage and treatment time should be applied in accordance with fish size and manufacturer's instructions. **Records shall be kept for treated fish with hormones indicating: date of injection, dosage, name of natural or synthetic hormone, proposed withdrawal time, approval of use from the authorities.**

X.6 Anaesthesia for big fish

Technical guidance:

- Anaesthetic **records shall be kept for the used anesthesia** dosage and treatment time should be applied in accordance with fish size and the manufacturer's instructions.

X.8: Treatment of eggs by shell improving methods

Technical guidance:

- Treatment of eggs by shell improving methods should occur in a manner **permitted food grade matter and proper concentration** that does not result in chemical or microbiological contamination and growth.

X.10 Ingredients reception

Technical guidance:

- Salt impurities such as magnesium (Mg2+) and calcium (Ca2+) **what is the recommended concentration of these impurities?** Can affect the taste of the caviar and the penetration of sodium chloride into the eggs.

X. 14 Cleaning of packaging materials

Technical guidance:

- Cleaning and disinfection of packaging materials should be done by trained personnel with potable or clean water and permitted detergents **and disinfectants.**

X. 15 Measuring ~~and~~, blending **and grading** of fish eggs, salt and additives

Potential defects: Spoilage, microbial growth, foreign matters, additive misuse

***spoilage, microbial growth and additive misuse are not to be considered as potential defects but hazards as they affect human health.**

Technical guidance:

- The quantity or weight of eggs, salt and as applicable, additives should be measured adequately **with calibrated equipments** to ensure that the appropriate percentage of salt and additives are met.
- The ambient temperature, humidity, and the duration of exposure to the ambient temperature, should be controlled and monitored so that it does not affect the homogeneous distribution of ingredients and additives and to prevent microbial growth **specially *Listeria* particularly no specific method was used to prevent it**
- Grading and blending should be done by trained personnel.

***separate step with details of the grades is it by size ,quality ,..**

X. 16 Extra saltwater removal

Technical guidance:

- Extra saltwater removal (sieving) should be done in **hygienic** a manner that does not damage the quality of caviar.
- In addition, the salt content shall be equal to or above 3g/100g and below or equal to 5g/100g **(at this step or in the final product?)**
- The ambient **what are the suitable conditions (limits for temp and humidity/time programmes of operation conditions should be previously set.....** temperature and duration of exposure to the ambient temperature should be controlled and monitored to minimize microbial growth.

X. 17 Caviar packing

- Potential defects: Oxidation, physical ~~damage~~ **rusting,** off flavour, egg discoloration due to corrosion of container's epoxy coatings, improper coding

X.21 Cold storage

Technical guidance:

- Containers of caviar should be periodically checked regarding air existence **or rusting for cans** and any affected containers should be re-exhausted or rejected.

X.23 Transportation and distribution

Technical guidance:

- The storage cabin should be equipped with a **calibrated** thermometer and a thermograph to frequently monitor and record the storage temperature.

GHANA

X.4 Ovary cutting to small pieces and sieving

Bullet 1:

- Prior to cutting to small pieces, ovaries could be placed in cold potable or clean water ~~or cold potable or clean water~~ with added salt to improve consistency.

Rationale

Repetition of "or cold potable or clean water. "

Bullet 5:

- The ambient temperature and duration of exposure to the ambient temperature should be controlled and monitored to ~~minimize~~ **inhibit/prevent** microbial growth.

Rationale

Minimizing microbial growth suggests there will still be some growth. The microbial load emanating from the growth could cause the product to be unsafe.

X. 16 Extra saltwater removal

Bullet 5

The ambient temperature and duration of exposure to the ambient temperature should be controlled and monitored to ~~minimize~~ **inhibit/prevent** microbial growth.

Rationale

Minimizing microbial growth suggests there will still be some growth. The microbial load emanating from the growth could cause the product to be unsafe.

X.19 Pasteurization (optional step)

Potential hazards: ~~Microbiological contamination~~ **Pathogenic microbes**

Rationale

Pasteurization is not meant to remove all microbes. Target is to reduce pathogenic microbes to an acceptable level. Again "hazard" refers to the microbes that can cause harm or ill-health. That applies only to pathogenic microbes.

X.20 Weighing and labeling

Potential hazards: ~~Incorrect or misleading labeling~~

Rationale

This cannot be classified as a hazard as it does not fall into the three main categories of Physical, chemical or biological hazards.

Additionally, the technical guidance given relates to labelling.

X.21 Cold storage

Potential hazards: Microbiological ~~contamination~~ **growth**

Rationale

Microbiological contamination at the cold storage step is unlikely. Rather microbiological **growth** due to improper temperature control is likely.

X.23 Transportation and distribution

Potential hazards: Microbiological ~~contamination~~ **growth**

Rationale

Microbiological contamination during transport and distribution is unlikely. Rather microbiological growth due to improper temperature storage Microbiological contamination during transport and distribution is unlikely. Rather microbiological growth due to improper temperature storage conditions can lead to microbiological **growth.**

MOROCCO

(i) General comments

X.2 Slaughter (bleeding and washing)

Technical guidance:

- As soon as the live fish have been slaughtered the fish should be bled to prevent blood ~~dispersion into the eggs~~ **from contaminating the eggs.**

Rationale:

To improve the style given that there is a problem of translation in the French version.

X.7 Micro caesarean or hand stripping

X.7-1 Micro caesarean

Potential hazards: Microbiological contamination

Potential defects: Physical damage to the eggs, foreign matter, off flavour and off odour

Technical guidance:

- Prior to cutting, belly area should be appropriately brushed and washed with potable or clean water to remove all foreign matters (sands and blood) and reduce microbial load.
- Cleaning and disinfection agents used for hand washing and on equipment should not affect the flavour and odour of eggs.
- Belly-cutting and the extraction of the eggs should be done by skilled personnel to minimize contamination with fish guts and faecal matter and reduce physical damage to the eggs.

X.7-2 Hand stripping

Potential hazards: Microbiological contamination

Potential defects: Physical damage to the eggs

Technical guidance:

- Cleaning and disinfection agents used for hand washing and on equipment should not affect the flavour and odour of eggs.
- Hand stripping should be performed gently taking into account the anatomical position and direction of the oviduct in order to release the eggs quickly.

Rationale:

Micro caesarean and hand stripping are two stages one of which is done by hand and the other using incision tools, so these two stages do not present the same hazards, which is why the technical guidance needs to be separated for each method.

(ii) Specific comments

General comments:

Microbial hazards:

Proteolytic and non-proteolytic *Clostridium botulinum* are spore forming microbial hazards which should be controlled in packed caviar. These pathogens are controlled by an adequate quantity of salt (product salt content ~~≥ 3g/100g and ≤ 5g/100g~~ **≥ 5g/100g et ≤ 10 g/100g, ≥** 5% in the water phase, or a water activity of ~~< 0.97~~ **< 0.94**)and proper cold storage, (temperatures ~~≤ 4°C~~ **≤ 3°**) . Other controlling factors shown to prevent *Clostridium botulinum* growth and toxin production in the caviar can be used when shown to be effective by scientific studies. In addition to the control of C. botulinum, countries producing caviar should ensure that the process used (e.g., pasteurization step, use of permitted food additives, % salt, microbiological testing, temperature controls) will control non-spore forming microorganisms (e.g., Salmonella spp., Listeria monocytogenes).

Rationale:

According to international scientific references, the survival, growth and toxin production of *Clostridium botulinum* are as follows:

- To contain the growth of non-proteolytic *Clostridium botulinum* spores, the temperature must be below 3°C

- To contain the growth of proteolytic *Clostridium botulinum* spores, the pH must be less than 4.6.

- To contain the growth of proteolytic *Clostridium botulinum* spores and limit the production of toxin, the water activity must be at least 0.94

- To contain the growth of non-proteolytic *Clostridium botulinum* spores, the NaCl content must be at least 5%, and 10% for proteolytic *Clostridium botulinum*.

X.1 Live fish reception

Technical guidance:

- Training should be provided to persons who harvest, handle or receive fish.
- **The premises, material and equipment used for reception must be thoroughly cleaned.**

Rationale:

To avoid all risk of microbial or chemical contamination.

X.2 Slaughter (bleeding and washing)

Technical guidance:

- After bleeding is completed, fish should be washed **as quickly as possible** with potable or clean water to clean all residual blood leftover from surface and reduce the risk of contaminating the eggs

Rationale:

Blood is a significant source of contamination and an appropriate environment for bacterial growth; to limit the risk of bacterial contamination, washing must be performed as quickly as possible and just after bleeding.

X.3 Belly cutting and ovary removal

Technical guidance:

- …..
- All utensils that come in contact with fish eggs should not be used for other purposes and should be carefully cleaned, disinfected and stored in a proper place **to avoid any contamination**.

- Knives that are used for belly cutting should be distinct from those used for ovary cutting
- **If appropriate, the personnel performing the abdominal incision is to be different from that in charge of cutting the ovaries**

Rationale:

- The word “proper” is general and non-specific; add “to avoid any contamination” to clarify the term and ensure greater precision.

- To prevent all risk of cross-contamination, it is preferable that the personnel performing the abdominal incision be different from that responsible for cutting the ovaries.

X.9: Washing and draining the eggs

Technical guidance:

- The eggs should be drained using a sieve to avoid water remaining in fish eggs which may impact the final weight at packaging.

- **Draining is to be performed in a chilled cold room or in a temperature-controlled environment away from any source of contamination.**

Rationale:

To void any risk of microbial contamination.

X.21 Cold storage

Technical guidance:

- The product should be held at cold storage ~~temperatures between -4°C and 0°C~~ **at the temperature of melting ice.**

Rationale:

At negative or near 0°C temperatures, there is a risk of the onset of slow thawing which results in the formation of significant crystals liable to damage the cell walls, called macro-crystallisation, which does not conserve the tissue and precludes its restitution with its initial texture. That is why we propose the temperature of melting ice between 0°C and +2°C.

UNITED STATES OF AMERICA

Specific comments

General considerations

Comment 1: Edit 2nd paragraph as follows:

This section applies to products covered by the *Standard for Sturgeon Caviar* (CODEX STAN 291-2010)~~,~~ and **It** covers the production of caviar~~,~~ by extraction of non-ovulated eggs, and the production of caviar from ovulated eggs by induction of ovulation using natural means as well as by the use of authorized products. Potential hazards and defects that may be introduced at a processing step are identified in this code of practice~~,~~ ~~a~~ **A** summary of major defects and additional prerequisites programs are listed below:

Rationale: Editorial. Sentences shortened for clarity.

X.8: Treatment of eggs by shell improving methods

Comment: We can concur with the current version of Section X.8.

We recognize that there were diverging opinions in the eWG on the use of shell improvement methods (para 16 of CX/FFP 15/34/6), and we consider the current version an appropriate resolution that allows the draft COP to advance.

X.20 Weighing and labelling

Comment: Remove brackets on 2nd technical guidance bullet:

- ~~[~~Pasteurization treatment or a reference to pasteurization should be indicated on the label.~~]~~

Rationale: Pasteurization treatment is a significant material fact about the nature of the product. Pasteurization changes flavor/texture. Fresh unpasteurized caviar is considered higher quality, is more valuable, and has different holding requirements. Fresh and pasteurized caviar are essentially different products, and it may mislead the consumer if pasteurization is not indicated on the label.

X.22 Repackaging

Comment: Adjust 3rd bullet under “Technical guidance” to keep minus (-) sign associated with the numeral 4 to avoid misreading “between **-**4 °C to 0 °C”.

Rationale: Editorial