CODEX ALIMENTARIUS COMMISSION E

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World Health Organization

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Agenda Item 7 **CX/FFP 14/33/9-Add.1**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

Thirty-third Session

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

(At Step 3 of the Procedure)

Comments submitted by Japan and Kenya

JAPAN

Japan would like to submit specific comments on PROPOSED DRAFT CODE OF PRACTICE FOR FISH AND FISHERY PRODUCTS (SECTION ON STURGEON CAVIAR) (CX/FFP 14/33/9)

Specific comments

Comments of Japan are described in ***Italics and bold***.

[p.6]

Microbial hazards: Ovaries remain sterile as long as they are located in the belly cavity. Pathogenic and non-pathogenic ***microorganisms ~~contamination~~*** may be introduced through contact with hands, equipment and utensils, air, water, additives, fish skin and guts. Therefore good hygienic practices according to section 3 of Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) the use of clean, potable water and regular monitoring are very important. ***~~Time/ temperature control, (shortest possible processing time under cold chain condition) and rapid transfer to cold area will reduce risk of microbial growth and related toxin production.~~***

[Rationale: The last sentence in the 2nd para is more accurate.]

Proteolytic and non-proteolytic *Clostridium botulinum* are spore forming ***~~microorganisms that present a~~*** microbial hazard***s which should be controlled*** in vacuum packed caviar. **[Rationale; editorial]** These pathogens are controlled by adding an adequate quantity of salt to the fish eggs ***(> 5% salt in the water phase at temperatures between 3 ºC*** and 10 ***ºC,*** or water activity <***0.94~~7~~***), lowering product pH (pH < ***4.6 ~~5.0~~***) and proper cold storage (*temperature* < ***3.0~~5~~ºC***). The growth of non-spore forming microorganisms (i.e., *Salmonella, Listeria*) can be controlled with pasteurization or adding appropriate quantities of permitted additives in combination with proper removal of air by vacuum sealing and cold storage under appropriate temperatures (microbial hurdles). To minimize microbial growth, ambient (work space) temperature and duration of exposure to the ambient temperature from ovary removal to refrigeration or cold storing steps should be controlled.

[Rationale : to control proteolytic Clostridium botulinum, pH should be less than 4.6.

To control non-proteolytic Clostridium botulinum, temperature should be less than 3.0.

As an alternative to aqueous phase salt, certain time/temperature parameters can minimise the likelihood that C. botulinum will grow in the product. C. botulinum cannot grow and produce toxin at or below 3ºC or below a water activity of 0.94.

5% aqueous phase salt would be required in order to provide complete protection at temperatures between 3°C and 10°C.]

[Reference: CAC/RCP 23-1979, REP 11/FFP (Appendix IV)]

Chemical hazards: Contaminants such as heavy metals, pesticides, oil derivatives, residues of veterinary drugs in the case of farmed fish need to be considered. Technical guidelines mentioned in section 6 of the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) should be considered. ~~***Risk of***~~ Pollutants transfer from water used for washing the fish eggs and other process steps, is another potential chemical hazard. Clean potable water shall be used for this purpose. Contaminants from the salt and additives may also present a chemical hazard.

[Rationale: editorial]

Physical hazards: Sharp and hard fish body fragments, glass and metal inclusion (from utensils and packaging materials) can be introduced***. The introduction of these hazards should be controlled. The control measures*** ~~***and***~~ should be monitored and verified.

[Rationale: editorial]

[p.8]

X. 1 Fish reception

Technical guidance:

- Farmed or captured fish should be harvested from authorized areas which are compatible to Codex requirements mentioned in section 6-1-2 [(Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003)].
- Fish handling should be undertaken in a manner to avoid stress (direct sunlight, high temperature, oxygen depletion) and contamination.
- Live fish should be transported to a processing establishment quickly without causing physical damage.
- In case of fresh (non-live) fish, sensory evaluation charts and tables should be accessible at fish reception sites according to section 8.1.1.1 (Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003)) and the person who receives the fish should assess the fish accordingly and dispose of the unacceptable fish.
- Training should be provided to person(s) who harvest or handle fish from landing points to processing ***establishment*** ~~***plants***~~***.***

[Rationale: editorial]

X. 2 Fish storage

Potential Hazards: Microbiological ***contamination*** ~~***pathogens***~~

[Rationale: to be consisting with definition and use of terminology in the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003))]

Potential defects: Fish mortality, Decomposition, off flavor and off-odour

Technical guidance:

- In order to prevent the mortality of live fish which could result in decomposition, fish should be handled with care, stored in clean (filtered), oxygenated water and rapidly prepared for ovary removal.
- If fish is kept out of water, the period ~~***of time***~~ should be short and the places used for this purpose should be clean.

[Rationale: redundant]

- Stunning may be used to reduce stress after fish are harvested. It should be done by a skilled person using appropriate voltage that would not damage the fish or eggs.

- In the case of fresh (non-live) fish, the fish should be stored under refrigeration or in chilled (<5˚C), clean water.)
- Refer to Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) sections 6.1**,** 6.2 ***and*** 6.3.

[Rationale: editorial]

[p.11]

X. 13 Reception of packaging materials

Technical guidance:

- All packing materials such as metal or plastic cans, glass jars and rubber bands should be resistant to the components of caviar especially salt and additives and be able to preserve the product during its shelf life without any quality loss.
- All packing materials should be verified prior to use by trained personnel to ensure that specifications are met and they are not damaged or contaminated.
- Any non-compliant items should be returned and all corrective measures ***should be*** recorded.
- Prior to their application, labels should be verified to ensure that all information declared meets, where applicable the General Standard for the labelling of pre-packaged foods (CODEX STAN 1 1985) and labelling provisions of the Standard for Sturgeon Caviar (CODEX STAN 291-2010).
- Packing materials and labels should be sourced from reliable suppliers and accompanied by appropriate documentation on the specifications and composition.

[p.13- 14]

X. 21 Refrigeration

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

[Rationale: to be consisting with definition and use of terminology in the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003))]

Potential defects: Decomposition, quality loss

Technical guidance:

- Packaged caviar should be stored in an appropriate manner prior to final cold storage (for example in refrigerator; 2-4 °C for 24 hours) upon packaging to facilitate salt absorption and maturation (equal salt distribution in caviar, giving enough time for saltwater removal) and also minimize microbial growth.
- Time/ temperature of refrigerator should be frequently monitored and recorded.
- Refrigerator should be clean and regularly cleaned and disinfected by sanitation schedule.
- Refrigerator should be equipped with thermometer and thermograph to frequently ***monitor and*** record ***~~and monitor~~*** caviar temperature.

[Rationale: monitoring should be performed first before recording the results.]

- Refrigeration (cooling) systems, thermometers and thermographs, should be frequently ***~~checked and~~*** calibrated to ensure accuracy and efficiency.

[Rationale: redundant]

- To avoid possible cross contamination, any other food stuff should not be stored together with caviar cans/jars.
- After maturation, caviar packed in cans should be sealed by rubber strips or other means and wiped clean, or repacked and transferred to cold storage (- 4°C to 0°C).
- In the case of pasteurized caviar or vacuum packed caviar (jars and tins), the packs could be transferred directly to cold storage (- 4°C to 0°C).

[p.14]

X. 22 Cold storage and rechecking

Potential hazards: Pathogenic microbiological ***contamination*** growth

[Rationale: to be consisting with definition and use of terminology in the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003))]

X. 24 Transportation and distribution

Potential hazards: Pathogenic microbiological ***contamination*** growth

[Rationale: Same as above]

Potential defects: Decomposition, physical damage to the caviar cans/jars

Technical guidance:

- Refer to Section 17, Code of Practice for Fish and Fishery Products.
- Proper handling and vehicle conditions should be followed to prevent physical damage to caviar cans/jars.
- Caviar temperature should be monitored during loading to make sure the temperature is between - 4°C to 0°C.
- Temperature of vehicle storage cabin should be maintained between - 4°C to 0°C.
- The duration of exposure to surrounding temperatures above 2°C should be monitored to prevent temperature abuse of the caviar.
- Products should be transported in a way that allows cool air to circulate easily around cans/jars and that to protect them from physical damages.
- Product cabin should be completely insulated and clean. It should be cleaned and disinfected according to a regular sanitation schedule.
- The storage cabin should be equipped with a thermometer and thermo recorder to frequently ***monitor and*** record ~~***and monitor***~~ the storage temperature.

[Rationale: See above]

- Handling should be done by trained personnel.

KENYA

Definitions

Fish eggs: non-ovulated eggs separated from the connective tissue of ovaries. [Ovulated eggs may be used from aquaculture sturgeons].

Comment

We propose that the non-ovulated eggs and ovulated eggs should be defined separately for the purpose of clarity.

1. Fish eggs – an organic vessel in which an embryo of fish first begin to develop
2. Non-ovulated fish egg – naturally developed organic vessel in which an embryo first begin to develop.
3. Ovulated fish eggs – artificially developed organic vessel in which an embryo first developed through hormone induction.

General comment

For ovulated eggs, proper study needs to be done by JECFA to justify their safety [Kenyan concern is that synthetic hormones transfer to consumers through the eggs]

~~[~~**Caviar from ovulated fish eggs**: The product made from **non-ovulated**/ovulated fish eggs of the *Acipenseridae* family by treating with food grade salt and permitted additives~~]~~

Comment

We are in agreement with the definition with some modification indicated above in **bold** and propose to remove the open and close square brackets and propose that it should be declared on the label as '**caviar from ovulated fish eggs'**

General considerations, second paragraph

This section applies to caviar production from sturgeon fish both by slaughtering [and by extracting the eggs after ovulation (without slaughtering the sturgeons; allowing multiple harvests). Ovulation can be induced by releasing factors (synthetic or natural), naturally by homogenates/lysates of carp or sturgeon pituitary gland containing these factors and/or environmental means to trigger natural hormone release from the fish brain under appropriate conditions (light/temperature)].

Comment

We are against the use of hormones to induce ovulation, we believe that hormone treatment is only used for breeding purposes and no treated fish enter the food chain (neither their eggs). Therefore, we think that it is important to deal only with environmental means to induce ovulation in the code of practice. Another concern is to know the exact hormone withdrawal period using supportive technical data, currently it is not known.

Figure x.1

Comment

We have gone through the figure x.1 sample of flow diagram for caviar production and conclude that unless a proper study has been done for ovulated fish eggs on effect of hormone use on ovulation and use of anaesthetic for fish, we need not to consider steps 6, 7, 8 and 9 in this code for the purpose of consumer health safety. Therefore we would propose to strike off the latter clauses indicated below.

~~**[X.6 Laying induction**~~

~~**Potential hazards:** Chemical contamination (Residues of veterinary drug)~~

~~**Potential defects:** Deterioration of Quality~~

~~**Technical guidance:**~~

~~If hormones are used to induce ovulation (or to assist in the release of eggs), the hormones should have undergone regulatory assessment and be approved for use by the competent authority and the dosage and treatment time should be applied in accordance with fish size and manufacturer's instructions.~~

~~Eggs should only be harvested after the appropriate withdrawal period, following the injection of the hormone has been completed.**]**~~

~~**[X.7 Anaesthesia for big fish**~~

~~**Potential hazards:** Chemical contamination (Residues of veterinary drug)~~

~~**Potential defects:** Physical damage to the eggs, flavour and odour change, quality deterioration~~

~~**Technical guidance:**~~

~~If using electric shock, it should be done by skilled personnel with allowed voltage to minimize stress to fish and physical damage to eggs.~~

~~If anaesthetics are used, the dosage and treatment time should be applied in accordance with fish size and manufacturer's instructions and their use must be approved by the competent authority.~~

~~Refer to section 6.3.2 (Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003)).]~~

~~**[X.8 Micro caesarean, roe vacuuming or hand stripping**~~

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

~~**Potential defects:** Physical damage to the eggs, foreign matter~~

~~**Technical guidance:**~~

~~Prior to cutting, belly area should be appropriately brushed and washed with potable water to remove all foreign matters (sands and blood) and reduce microbial load.~~

~~Hand washing and disinfection agents should not affect on the flavour and odour of caviar.~~

~~Belly cutting and the extraction of the eggs should be done by trained, skilful person to minimize contamination with fish guts and faecal matter and reduce physical damage to the 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.]~~

~~**[X.9: Treatment of eggs with shell improving methods**~~

~~**Potential hazards:** Chemical contamination (e.g. unpermitted agents), Microbiological contamination, drugresidue~~

~~**Potential defects:** Damage to the egg texture, off flavour and odour, quality loss of the caviar~~

~~**Technical guidance:**~~

~~Physical shell improving methods should be applied in a manner that does not result in microbiological contamination and growth~~

~~Chemical shell improving agents are unpermitted as additives in accordance with the Standard for Sturgeon Caviar (CODEX STAN 291-2010)~~

~~Biological shell stabilisation from the eggs themselves through enzyme activation should occur in a manner that does not result in microbiological contamination and growth.~~

~~The eggs have to be handled with care to protect them from damage.]~~

X.10 Washing and draining the eggs

Technical guidance

Comment

We propose to delete the word ‘free of any odour and taste’ since potable water does not have these characteristics and replace ‘cold’ with ‘chilled’.

“The water used to wash the eggs should be potable, ~~free of any off odour and taste~~ and it should be ~~**cold**~~ **chilled** to prevent a loss in the texture quality.”

X.11 Ingredients reception

Technical guidance, bullet 5

Comment

We propose to replace ‘sea salt’ with unprocessed salt or raw salt for all salts come from the sea.

“~~**Sea salts**~~ **unprocessed salt/raw salt** should not be used as they may contain bacteria and halophylic moulds which could affect the safety and quality of the caviar.”

X.21 Refrigeration

Potential hazards

Comment

We propose the word “and” to be inserted between ‘contamination’ and ‘pathogenic microbial growth’ to read as indicated below:

Potential hazards: Microbiological contamination **and** pathogenic microbial growth

bullet 3

Comment

We propose bullet 3 to be rephrased for clarity to avoid ambiguity as follows: Refrigerator should be clean **~~and regularly cleaned and~~** disinfected by sanitation schedule.

X.22 Cold storage and rechecking

Comment

Air existence in caviar cans should be **~~periodically~~** checked and any affected containers should be **~~exhausted~~ rejected.**