



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS**

**Thirty-Second Session**

**Bali, Indonesia**

**1 – 5 October 2012**

**DISCUSSION PAPER ON A CODE OF PRACTICE FOR FISH SAUCE**

**Prepared by Thailand and Vietnam**

**Introduction**

1. The 31<sup>st</sup> session of the Committee on Fish and Fishery Products (CCFFP) finalized the draft Standard for Fish Sauce and agreed to advance the document to Step 8 for adoption. Subsequently, the 34<sup>th</sup> session of Codex Alimentarius Commission (CAC) adopted the draft standard as Codex Standard (CODEX STAN 302-2011) at Step 8.
2. For the need of additional guidance to support compliance with the standard, Thailand and Vietnam proposed to develop a Code of Practice for Processing of Fish Sauce. The committee, consequently, invited the delegations to prepare a discussion paper and project document for consideration by the next session.
3. Fish sauce is a translucent, not turbid with a salty taste and fish flavor obtained from fermentation of a mixture of fish and salt.
4. As Asian people have migrated to other parts of the world and Asian food is becoming more and more popular worldwide, fish sauce is internationally traded to use as a necessary condiment in these oriental dishes. Fish sauce is essential for daily cooking in Southeast Asian households. Consumption data of fish sauce in Thailand, conducted by a national survey in 2003-2004, showed that around 75% of the Thai populations eat fish sauce and the average fish consumption in Thailand is 9.07 g/day.
5. Thailand and Vietnam produce and export most of the fish sauce available in the global market. In 2011, a total of 43 million litres of fish sauce was exported from Thailand to 106 countries. The major trading partners are USA (22%), Hong Kong (11%), Myanmar (8%), Laos (7%), Australia (6%) and Japan (5%). This product increasingly consumed world-wide.
6. Fish sauce can be processed from several types of fish. Nevertheless, fish sauce produced from anchovies (*Stolephorus spp.*) gives the best quality both in terms of taste, odour and colour. In addition to providing desirable sensory characteristics, anchovies make the best raw material for fish sauce as they are abundant and small in size which facilitates an appropriate fermentation period. Attempts have been made to accelerate fermentation by adding natural or synthetic enzymes or chemicals such as acid to assist in the digestion. However, the products obtained from the scientific research are somewhat different from natural fermentation.

**Classification of Fish Sauce and Essential quality of Fish Sauce**

7. Fish sauce can be classified using Total Nitrogen and Amino Acid Nitrogen as the main criteria. In the Codex Standard for Fish Sauce (CODEX STAN 302-2011), Total Nitrogen and Amino Acid Nitrogen were established at not less than 10 g/l and not less than 40% of Total Nitrogen respectively. Amino acid contributes to pleasant aroma and flavour while total nitrogen determines the price of fish sauce. Fish sauce

placed in the market can be of different grades depending on the levels of Total Nitrogen and Amino Acid Nitrogen.

### **Hazards associated with fish sauce**

8. Fish sauce contains high level of salt which is more than 20 percent. The high level of salt can inhibit growth of spoilage microorganisms in the product. However, improper hygienic practices and handling in production may lead to unacceptable levels of histamine. Histamine can cause gastrointestinal symptom like (nausea, vomiting, diarrhoea and abdominal cramps) to severe illness.

9. Temperature abuse on raw material handling during storage in fishing vessels and transportation after landing contributes to increased histamine content. At ice or melting ice temperature, growth of histamine formation bacteria was minimal (Rodtong et al., 2005) and thus, histamine formation is restricted (Brillantes et al., 2002). Salt may be added into the fish on board with an aim to preserve the fish quality.

10. Therefore, proper icing and handling of fish on board plays a very important role in controlling histamine level in the fish itself and the product.

### **Production of Fish Sauce**

11. Fish Sauce is produced by mixing fresh fish with salt. The fish used in the production would be large, small or medium size such as anchovies, mackerels or sardines. The mixture is fermented in a covered container for an appropriate period; generally the fermentation process depends on size of the fish. Subsequently, the liquid product (fish sauce) obtained from the fermentation will be bottled and then distribution.

### **Importance of the Development of the Proposed Draft Code of Practice for Processing of Fish Sauce**

12. It is essential that the Code of Practice for Processing of Fish Sauce is established for use as guideline for improving the processing practices of fish sauce to meet international requirements. The application of GMP and/or HACCP for this traditional product should be promoted to ensure consumers' health and safety. To achieve the quality and safety factors specified in the Codex Standard for Fish Sauce, guidelines and recommendations on the processing techniques should be elaborated and recommended for implementation by fish sauce manufacturers.

13. Factors affecting the quality of fish sauce in general are raw material quality, fermentation process and sanitation and hygiene practices. The Proposed Draft Code of Practice for Processing of Fish Sauce will address the general processing steps and technical guidance to be employed by fish sauce manufacturers which could vary from country to country. Traditional processing techniques will be preserved and at the same time, GMP and/or HACCP concepts will be incorporated to ensure quality and safety of the authentic products. Potential hazards and defects at each processing step starting from fish handling to storage and distribution of final products will be identified. Technical guidance at each step of processing of fish sauce to ensure health and safety of consumers will also be elaborated.

14. The proposed new work could assist in harmonizing national standard for processing of fish sauce and minimizing potential impediments to international trade. This document will also provide better understandings to regulatory authorities to establish appropriate standard and criteria for fish sauce that are practical, achievable, scientifically justified and enabling fair trade.

15. In the process of developing the Proposed Draft Code of Practice for Processing of Fish Sauce, participations of government and non-government organizations, consumer protection agencies, stakeholders as well as international bodies such as FAO are encouraged and welcomed. The elaboration process will enhance participation of developing countries as the major manufacturers of this type of fishery product.

16. The Project Document for Proposal of New Work for the Elaboration of Code of Practice for Processing of Fish Sauce is already prepared and appears as Annex of this document.

### **References**

- Brillantes, S. 1999. Histamine in fish sauce health and safety consideration. INFOFISH International. 4:51-56.
- Rodtong, S., S. Nawong and J. Yongsawatdigul. 2005. Histamine accumulation and histamine-forming bacteria in Indian anchovy (*Stolephorus indicus*). Food Microbiology. 22:475-482. National Bureau of Agricultural Commodity and Food Standards, Ministry of Agricultural and Cooperatives, Thailand. 2006. Food Consumption Data of Thailand. 165 pp.

## Project Document

### Proposal of New Work for the Elaboration of Code of Practice for Processing of Fish Sauce

#### 1. Purpose and Scope of the Standard

The aim of this proposal is to compile the Code of Practice for Processing of Fish Sauce. This guidance will be supplemental to the Code of Practice for Fish and Fishery Products.

The scope of new work will elaborate on the processing techniques of fish sauce which will take into account the issues on food safety and quality, as well as fair trade practices and consumer protection. HACCP principles will be addressed to ensure compliance to requirements of international markets. The Proposed Draft Code should comply with the requirements of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2003)) and Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003).

#### 2. Its Relevance and Timeliness

The Proposed Draft Code of Practice for Processing of Fish Sauce is necessary and very important to be used as a guideline to improve the processing practices of fish sauce to meet international requirements. The application of GMP and HACCP for this traditional product should be promoted to ensure consumers' health and safety. The Codex Standard for Fish Sauce was elaborated by the Codex Committee on Fish and Fishery Products. To achieve the quality and safety factors established in the standard, guidelines and recommendations on the processing techniques should be established and recommended for implementation by fish sauce manufacturers.

#### 3. The Main Aspects to be covered

The Proposed Draft Code of Practice for Processing of Fish Sauce will address the general processing steps and technical guidance to be employed by fish sauce manufacturers which could vary from country to country. Potential hazards and defects at each processing step starting from fish handling to storage and distribution of final products will be identified. Technical guidance at each step of processing of fish sauce to ensure health and safety of consumers will also be elaborated.

#### 4. An Assessment against the Criteria for the Establishment of Work Priorities (page 40, Procedural Manual, 20<sup>th</sup> Edition)

The proposed new work could assist in harmonizing national standard for processing of fish sauce and minimizing potential impediments to international trade.

##### 4.1 General Criterion

The Proposed Draft Code of Practice for Processing of Fish Sauce will ensure consumer protection from the point of view of health and safety, ensuring fair practices in the food trade and taking into account the identified needs of developing countries.

##### 4.2 Criteria applicable to commodities

###### (a) Volume of production and consumption in individual countries and volume and pattern of trade between countries.

In 2011, a total of 43 million litres of fish sauce was exported from Thailand to 106 countries worldwide. The major trading partners are USA (22%), Hong Kong (11%), Myanmar (8%), Laos (7%), Australia (6%) and Japan (5%). This product increasingly consumed worldwide.

###### (b) Diversification of national legislations and apparent resultant or potential impediments to international trade

Fish sauce is processed by fermentation of fish and salt. The production is mostly based on traditional techniques which can vary from country to country in Asia due to national preferences. However factors affecting the quality of fish sauce in general are raw material quality, fermentation process and sanitation and hygiene practices. Considering the tiny amount consumed as a condiment, fish sauce presents very low food safety risk. The proposed draft Code of Practice will help improve fish sauce processing practices by

addressing appropriate control points. This document will also provide better understandings to regulatory authorities to establish appropriate standard and criteria for fish sauce that are practical, achievable, scientifically justified and enabling fair trade.

**(c) International or regional market potential**

Currently, fish sauce has been exported from Thailand and Vietnam to more than 100 countries in all continents. This has been due to migration of Asian people to western countries and other parts of the world, dynamic movement of people and increasingly multi-culture acceptance. Asian foods are becoming more and more popular. This has significantly contributed to increased consumption of fish sauce worldwide.

**(d) Amenability of the commodity to standardization**

The proposed Draft Code of Practice will address appropriate practices from handling, processing, and quality and safety control through to final products and distribution. Traditional processing techniques will be preserved and at the same time, GMP and HACCP concepts can be incorporated to ensure quality and safety of the authentic products.

**(e) Coverage of the main consumer protection and trade issues by existing or proposed general standards**

The new work will elaborate the processing techniques of fish sauce which will take into account the issues on food safety and quality, as well as fair trade practices and consumer protection. HACCP principles will be addressed to ensure compliance to requirements of international markets.

**(f) Number of Commodities which would need separate standards indicating whether raw, semi-processed or processed.**

This new work will cover fish sauce under CODEX STAN 302-2011

**(g) Work already undertaken by other international organizations in this field and/or suggested by the relevant international intergovernmental body(ies)**

This new work does not duplicate work undertaken by other international organizations.

Several Asian countries such as Thailand, Vietnam, Indonesia and Malaysia developed their own standards for local use.

## **5. Relevance to the Codex Strategies Objectives**

### **Goal 1: Promoting Sound Regulatory Frameworks**

The Proposed Draft Code of Practice for Processing of Fish Sauce will contribute to the development and improvement of food control system of Codex member countries. Scientific and technical guidance outlined will assist the competent authority to establish or strengthen regulatory frameworks that address health and safety of consumers and at the same time promote fair trade practices.

### **Goal 2: Promoting Widest and Consistent Application of Scientific Principles and Risk Analysis**

The Proposed Draft Code of Practice for Processing of Fish Sauce will take into account the internationally recognized hygiene control principles such as HACCP. The HACCP concepts require scientific justifications and risk analysis to develop control measures at the identified hazards in the production chain.

General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2003)) will be taken into account in the development of the Proposed Draft Code of Practice for Processing of Fish Sauce to ensure that the scientific principles and risk analysis are appropriately adhered to.

### **Goal 3: Strengthening Codex Work-management Capabilities**

In developing the Proposed Draft Code of Practice for Fish Sauce, the Codex Committee on Fish and Fishery Products should be able to adhere to the expected timeframe for elaboration and able to contribute to efficient management of the CAC as a whole.

### **Goal 4: Promoting Cooperation between Codex and Relevant International Organization**

The Proposed Draft Code of Practice for Processing of Fish Sauce will take into account concerned Codex Committees such as the Codex Committee on Food Hygiene as well as FAO and WHO.

**Goal 5: Promoting Maximum and Effective Participation of Members**

In the process of developing the Proposed Draft Code of Practice for Processing of Fish Sauce, participations of government and non-government organizations, consumer protection agencies, stakeholders as well as international bodies such as FAO are encouraged and welcomed. The elaboration process will enhance participation of developing countries as the major manufacturers of this type of fishery product.

**6. Information on the Relation between the Proposal and other existing Codex Documents**

The Proposed Draft Code of Practice for Processing of Fish Sauce will take into account the Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003), the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2003)) and Codex Standard for Fish Sauce (CODEX STAN 302-2011).

**7. Identification of any Requirement for and availability of expert scientific advice**

In developing the Proposed Draft Code of Practice for Processing of Fish Sauce, scientific advices should be sought in identifying risks and hazards associated with microbial contamination and relation with the development of histamine.

**8. Identification of any need for technical input to the standard from external bodies, so that this can be planned for**

None

**9. The Proposed timeline for completion of the new work**

A period of 4 years is foreseen for the completion of this Proposed Draft Code of Practice for Processing of Fish Sauce.

**10. Work to led by**

Thailand and Vietnam

**11. Inclusion of a risk profile**

Not considered necessary at this stage.

**12. Work plan for the development of the Proposed Draft Code of Practice for Processing of Fish Sauce**

<b>PROGRESS</b>	<b>CODEX SESSION</b>	<b>TIMETABLE</b>
Agree on the objectives and scope of the proposed new work	32 <sup>nd</sup> session, CCFFP	October 2012
Approval for new work	35 <sup>th</sup> session, CAC	July 2013
Consideration of the Proposed Draft Code of Practice for Processing of Fish Sauce at step 4 and advance to Step 5	33 <sup>rd</sup> session, CCFFP	April 2014
Adoption of the Proposed Draft Code of Practice for Processing of Fish Sauce at Step 5	36 <sup>th</sup> session, CAC	July 2014
Consideration of the Proposed Draft Code of Practice for Processing of Fish Sauce at Step 7 and advance to Step 8	34 <sup>th</sup> session, CCFFP	October 2015
Adoption of the Proposed Draft Code of Practice for Processing of Fish Sauce at Step 8	38 <sup>th</sup> session, CAC	July 2016