

Vietnam

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1. Introduction

The control of potential chemical risks, including residues of antibiotics, veterinary drugs, heavy metals, pesticides and growth promoters, in fish and fish products has become very important because it may seriously affect consumer's health.

The increase in export of fish and fish products to high-income countries requires strict standards on hygiene and safety. Specific requirements on chemical residues in fish and fish products are consequently set up.

For this reason, surveys and studies activities organized by SEAFDEC and funded by JTF IV were significant, as they contribute to providing an overview on residue levels of chemicals and contaminants in aquaculture fish in South-East Asia. Member countries would then determine appropriate policies to ensure quality and safety of fish and fish products, meet importing countries' requirements and protect the health of domestic consumers.

In Vietnam, as the competent national authority responsible for ensuring quality, hygiene and safety of fish and fish products since 1997, the National Fisheries Quality Assurance and Veterinary Directorate – NAFIQAVED (now renamed as the National Agriculture, Forestry and Fisheries Quality Assurance Department-NAFIQAD) has been carrying out the Monitoring Program for certain harmful substances and residues in aquaculture animals. NAFIQAD had also actively participated in the survey titled "Research and Analysis of Chemical Residues and Contaminants in fish and fish products" as well as other activities organized by SEAFDEC.

2. Objectives And Goals

Surveys of histamine are carried out to provide information on the level of histamine present in fish and fish products. The data obtained was deposited into the database of the Fish and Fish Products Safety

Information Network. The network's website: www.fishsafetyinfo.com contains general information on fishery hygiene and safety in SEAFDEC's member countries.

3. Survey Methodologies

a. Sampling Method, Location, Species, Number of Samples and Sampling Size

- NAFIQAD led to implement all activities in 2006 to 2008.
- NAFIQAD branches took samples and analyzed samples as required by the activity.
- Activities carried out by NAFIQAD including the following:
 - (i) Activities using SEAFDEC's budget;
 - (ii) Activities using budget from the Monitoring Program for certain harmful substances and residues in aquaculture animals and certification activities for exported fishery consignments.
- NAFIQAD has signed contracts with its Branches for the implementation of activities, and then is responsible for data analysis and treatment and making report.
- NAFIQAD branches carry out the procedures of sampling, sample preservation, dispatch of samples to laboratories and analysis, in compliance with the Residues Monitoring Program Manual and Quality Manual of NAFIQAD.
- Species studied:
 - Anchovy (*Encrasicholina heteroloba*)
 - Skipjack Tuna (*Sarda orientali*)
 - Bigeye Tuna (*Thunnus albacares*)
 - Sardine (*Sardinella gibbosa*)

b. Method of Analysis

Method: HPLC – Fluorescence Detector (MFRD method)

Equipment: HPLC Water 2695

c. Limit of Detection and Limit of Quantification

Limit of detection (LOD): 1 ppb

Limit of quantification (LOQ): 3 ppb

d. National Regulatory Limits

MRL of Vietnam: 20 mg/100g

MRLs of other markets:

EU: $n = 9$, $c = 2$, $m = 100$ mg/kg, $M = 200$ mg/kg

n = number of units comprising the sample

c = number of sample units giving values $> m$ or between m and M .

Results are satisfactory if:

- 1) Mean value does not exceed m .
- 2) 2 samples have values more than m but less than M .
- 3) No samples have a value exceeding M .

USA : 50 mg/kg

4. Results And Discussion

a. Participation in Inter-laboratory Proficiency Testing and Results

Year of participation	Program Name	Analyte Tested	Reported results	True value	z-score	Remarks
2005-2006	Fapas Proficiency Test 2720 Histamine in Canned Fish	Histamine	29.08	28.4	0.3	Passed

b. Survey Results and Discussion

Table 1. Results of histamine levels in samples analysed in 2006.

No	Sample	SEAFDEC's budget			Vietnam's budget			Total		
		No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL
1	Dried anchovy	18	2-50	0	49	2-185	0	67	2-185	0
2	Frozen tuna	18	5-87	0	701	2-120	0	719	2-120	0
3	Canned tuna	18	5-48	0	782	5-75	0	796	5-75	0
4	Canned Sardines	9	3-54	0	1	1-45	0	10	1-54	0
5	Others	-	-	-	1143	2-283	12	1143	2-283	12

Table 2. Results of histamine levels in samples analysed in 2007.

No	Sample	SEAFDEC's budget			Vietnam budget			Total		
		No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL
1	Dried anchovy	27	5-48	0	138	5-135	9	165	5-135	9
2	Frozen tuna	27	5-49	0	3,116	5-152	10	3,193	5-152	10
3	Canned tuna	27	5-48	0	2,307	5-141	8	2,334	5-141	8
4	Canned Sardines	-	-	-	112	ND	0	112	ND	0
5	Fish sauce	-	-	-	44	25-100	0	44	25-100	0
6	Others	-	-	-	1,143	5-40	0	1,143	5-40	0

Table 3. Results of histamine levels in samples analysed in 2008.

No	Sample	SEAFDEC's budget			Vietnam budget			Total		
		No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL	No. of samples	Analysis results (ppm)	No. of samples exceeding MRL
1	Dried anchovy	27	10-53	0	-	-	-	165	5-135	9
2	Frozen tuna	27	ND-89	0	-	-	-	3,193	5-152	10
3	Canned tuna	27	ND-68	0	-	-	-	2,334	5-141	8

c. Corrective Actions (if applicable)

Nil.

5. Problems and Challenges Encountered

Nil.

6. Recommendations and Suggestions for Future Follow up Action

Nil.