



Study on shrimp processing plant in reference to food safety and management practices, located at Orma village, Olpad, Surat, Gujarat

Jenish Mistry¹, Kapila Manoj²

¹ Research Scholar, Department of Aquatic Biology, Faculty of Science, Veer Narmad South Gujarat University, Surat, Gujarat, India

² Professor And Head, Department of Aquatic Biology, Faculty of Science, Veer Narmad South Gujarat University, Surat, Gujarat, India

Abstract

Food safety management in shrimp processing plants is essential to ensure the production of safe, high-quality products that meet national and international standards. This involves implementing systematic approaches such as hazard analysis and critical control points (HACCP), good manufacturing practices (GMP) and sanitation standard operating procedures (SSOP). The key measures include stringent raw material inspection, microbial & chemical hazard control and strict temperature management, prevention of cross-contamination, employee hygiene training and comprehensive documentation for traceability. The compliance with regulatory requirements and standard of export market in safeguards consumer health supports for market access and strengthens industry reputation. An effective food safety management system not only minimizes risks but also ensures sustainable operations in the global shrimp supply chain.

Keywords: Seafood, shrimp, processing plant, food safety, management

Introduction

Fisheries play a major role in global economy. It provides valuable foreign exchange with highly nutritious animal protein to the people. The shrimp processing is a crucial step in the seafood industry, ensuring that shrimp is a highly valued commodity worldwide. The process encompasses various stages, from harvesting and handling to the final packaging and distribution. A shrimp processing plant is a facility dedicated to handling and preparing shrimp for consumption, encompassing activities from cleaning and peeling to packaging and freezing. The shrimp processing plant is a specialized facility where harvested shrimps are received, cleaned, processed, preserved and packaged to meet food safety and quality standards before distribution to domestic or international markets. These plants play a critical role in the seafood value chain, ensuring that shrimp remain fresh, safe, and appealing for consumers. The processing begins with the receiving stage, where shrimp are inspected for quality and weighed then washed and sorted by size and grade. Depending on the product type, shrimp may be deheaded, peeled, deveined, cooked or frozen. Advanced equipment, such as ice makers, graders and blast freezers are used to maintain optimal hygiene and temperature control throughout the process. The food safety management ensures that products are processed under hygienic conditions, free from hazards and compliant with legal and customer requirements. The Hazard Analysis and Critical Control Points (HACCP) system is the internationally recognized framework for controlling risks in food processing. The plant must also manage environmental aspects, including wastewater treatment and proper waste disposal. (FAO, MPEDA)

Materials and methods

Data collection was conducted through in-depth personal visit with questionnaire and observations including personal interview with responder of shrimp processing plant (Zeal

Aqua limited) located at Orma village of Olpad taluka, Surat, Gujarat, India.

Results

The shrimp processing plant management was appropriate methods of construction and operation to protect the food safety and value of processed shrimps.

1. Plant layout and design

The plant has sufficient space for current and future capacity needs as well as for efficient workflow with separate area of receiving section, pre-processing, processing unit and laboratory with proper air conditioning.

2. Plant maintenance

The facility strictly involves a multifaceted approach and regularly focused on management of plant cleaning, refrigeration, sanitation, waste disposal, portable water supply, raw material handling, pre and final processing with laboratory and equipment maintenance.

3. HACCPs (Hazard Analysis and Critical Control Points)

The facility was a systematic approach to food safety that is crucial for shrimp processing plants to ensure the safety of shrimp products for consumers, including identifying potential hazards, implementing control measures and monitoring all relevant measures with biological hazards (bacteria, viruses, parasites), chemical hazards (residues from aquaculture chemicals, cleaning agents) and physical hazards (foreign objects like metal or plastic).

4. CCPs (Critical Control Points)

The facility is implemented with specific stage in the production process involves regular monitoring of control measures, eliminate or reduces hazards of receiving,

processing, chilling and metal detection to an acceptable level.

5. Plant biosecurity

The facility focuses on preventing the introduction and spread of pathogens and diseases that would contaminate the shrimp and affect their quality. This involves implemented strict hygiene protocols, proper sanitation procedures, which includes foot dipping, hand dipping, clean colour-coded uniform, changing cloths & foot wear, vehicle disinfection, designated separate zones for receiving raw materials processing and packaging for cross contamination.

6. Plant sanitation

The facility regularly focuses on preventing contamination and maintaining sanitation. This includes controlling insects, rodents and pests as well as managing water quality and implementing strict biosecurity measures to prevent the spread of diseases.

7. Uses of ice, water, gases and steam

The facility utilizes various methods of shrimp cleaning, peeling, deveining and freezing with processes involves automated systems for efficiency and quality control with use of ice, water, gases and steam to prepare shrimp for hygiene and nutritionally consumption.

8. Labelling, storage and transportation

The facility has careful attention to labelling, packaging, cold storage and refrigerated vehicle transportation to maintain product quality and meet regulatory requirement.

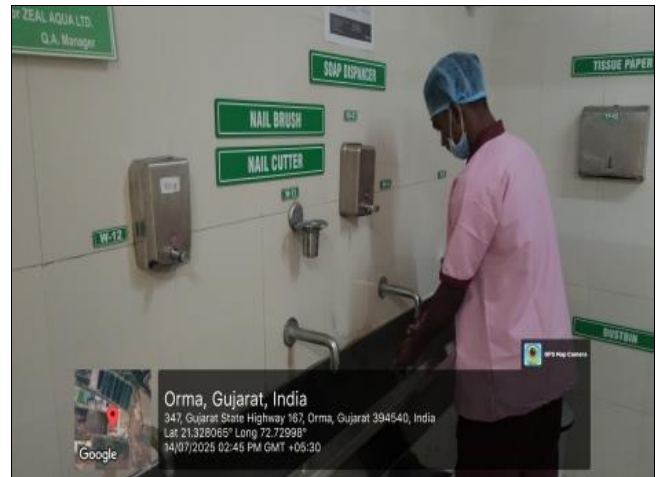


Fig 3



Fig 4

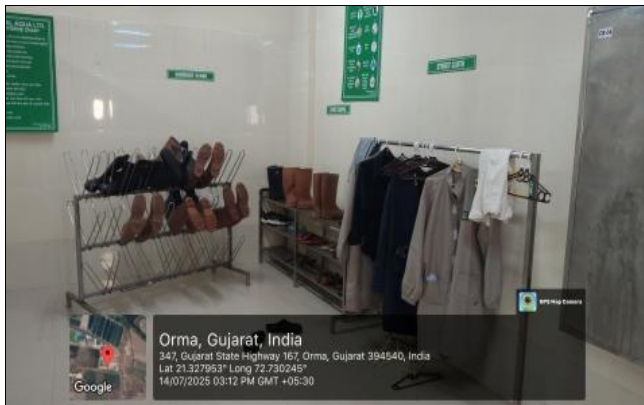


Fig 1



Fig 5



Fig 2



Fig 6



Fig 7



Fig 8



Fig 9



Fig 10

Conclusion

The shrimp processing plant was studied to know the management practices adopted in shrimp production facility. It follows all relevant food safety regulations. The plant was properly cleaned, maintaining strict temperature protocols, biosecurity as well as implemented robust sanitation procedure with proper hygiene and quality control of value-added steps for processing. It is safe crucial hygiene with

nutritionally rich high-quality shrimp product for consumers.

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