

APPLICATION OF GOOD MANUFACTURING PRACTICES ON SHREDDED GIANT CATFISH (*Arius thalassinus*) PROCESSING AT PROCESSING AND MARKETING GROUPS SRIKANDI PANGANDARAN

Penerapan *Good Manufacturing Practice* dan *Sanitation Standard Operating Procedure* pada Pengolahan Abon Ikan Manyung di Poklahsar Srikandi Pangandaran

Yusuf Naufal*, Evi Liviawaty, Rusky Intan Pratama, Iis Rostini

Fisheries Study Program, Faculty of Fisheries and Marine Science, Padjadjaran University

Jl. Ir. Soekarno km. 21, Jatinangor, Kabupaten Sumedang, Jawa Barat 45363

*Corresponding Author: yusufnaufal49@gmail.com

(Received July 30th 2025; Accepted December 17th 2025)

ABSTRACT

Food safety is a critical aspect of the food processing industry as it directly affects product quality and consumer health. The implementation of *Good Manufacturing Practices* (GMP) and *Sanitation Standard Operating Procedures* (SSOP) in small-scale household food processing industries is essential to ensure the safety and quality of the products. This research aims to evaluate the implementation of GMP and SSOP systems and determine the quality of shredded giant catfish produced at Poklahsar Srikandi, Pangandaran. The research was conducted from August 2023 to January 2024 using a case study method. The research procedure included observation of processing stages, analysis of prerequisite program deviations, and chemical content testing. The data obtained were compared and analyzed descriptively, referring to the Regulation of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia No. 17 of 2019 and SNI 7690.2013. The analysis showed 8 minor deviations, 8 major deviations, and 1 serious deviation in the process of shredded catfish processing at Poklahsar Srikandi. Based on the number of deviations in the application of GMP and SSOP, Poklahsar Srikandi has a C predicate. The results of the chemical parameter testing showed that the samples met the standards for water content and protein content, with water content of 12.60% with a maximum limit of 15% and protein content of 25.62% with a maximum limit of 15%.

Keywords: Food Safety, Good Manufacturing Practices, Sanitation Standard Operating Procedure, Shredded Giant Catfish, UPI Basic Feasibility

ABSTRAK

Keamanan pangan merupakan aspek penting dalam industri pengolahan pangan karena berpengaruh terhadap mutu produk dan kesehatan konsumen. Penerapan *Good Manufacturing Practices* (GMP) dan *Sanitation Standard Operating Procedures* (SSOP) pada industri pengolahan pangan skala rumah tangga diperlukan untuk menjamin keamanan dan kualitas

produk yang dihasilkan. Penelitian ini bertujuan untuk mengevaluasi penerapan sistem GMP dan SSOP serta menentukan kualitas abon ikan manyung yang diproduksi di Poklahsar Srikandi, Pangdaran. Penelitian dilakukan dari Agustus 2023 hingga Januari 2024 menggunakan metode studi kasus. Prosedur penelitian meliputi observasi tahap pengolahan, analisis deviasi program prasyarat, dan pengujian kadar kimia. Data yang diperoleh dibandingkan dan dianalisis secara deskriptif, mengacu pada Peraturan Menteri Kelautan dan Perikanan Republik Indonesia No, 17 Tahun 2019 dan SNI 7690.2013. Analisis menunjukkan adanya 8 deviasi minor, 8 deviasi mayor dan 1 deviasi serius dalam proses pengolahan abon ikan manyung di Poklahsar Srikandi. Berdasarkan jumlah deviasi pada penerapan GMP dan SSOP, Poklahsar Srikandi memiliki predikat C. Hasil pengujian parameter kimia menunjukkan bahwa sampel memenuhi standar batas kadar air dan kadar protein yang ditetapkan, dengan kadar air sebesar 12,60% dengan batas maksimal 15% dan kadar protein sebesar 25,62% dengan batas maksimal 15%.

Kata Kunci: Abon Ikan Manyung, *Good Manufacturing Practices*, Keamanan Pangan, *Sanitation Standard Operating Procedure*, UMKM

INTRODUCTION

Food safety has become a primary concern for the public when purchasing processed food products. The diversity of food processing methods and innovations in the food sector necessitates a focus on quality and safety to ensure products remain safe for consumption. Consumers are increasingly attentive to ingredient quality and product composition, regardless of price; consequently, expectations for food processors to maintain product quality have risen, making food safety a critical priority for producers (Suhartini et al., 2020).

The Indonesian Food and Drug Authority (BPOM) define food safety as the conditions and measures required to prevent food from being affected by three types of contamination—biological, chemical, and physical (foreign objects)—that could impair, harm, or endanger human health, or conflict with religious, belief-based, or cultural norms, thereby ensuring the food is safe for consumption (BPOM, 2015). Food safety is a central concern, serving as a guideline for producers to manufacture healthy products that are free from hazardous contaminants and safe for public consumption. Government Regulation of the Republic of Indonesia Number 86 of 2019 concerning Food Safety states that food safety management aims to protect the public, ensuring access to food that is safe for health and life. Therefore, ensuring the safety of available food requires producers to implement food safety measures throughout the entire production chain, right up to the point where the product reaches the consumer (Lestari, 2020).

Micro and small-scale food industries are generally characterized by limited resources and knowledge regarding sanitation, neglected facilities and infrastructure, facility layouts that do not align with process workflows, inadequate work facilities, poor employee hygiene, and surrounding environmental sanitation conditions that fail to meet established standards (Pinandoyo & Masnar, 2019).

The National Agency of Drug and Food Control (BPOM), through Regulation Number 22 of 2018 concerning Guidelines for Issuing Home Industry Food Production Certificates, has established mechanisms for assessing and evaluating food production processes in home industries to ensure the safety and quality of the resulting products. Law of the Republic of Indonesia Number 18 of 2012 concerning Food also stipulates that—to ensure the availability of food meeting safety, quality, and nutritional requirements for human health—guidance, regulation, and supervision are necessary; therefore, the Home Industry Food Production Certificate (SPP-IRT) and Health Office permits are essential for improving the quality of home-industry food products (Hermanu & Saryana, 2016). The implementation of sanitation

and hygiene across all production stages inherently involves ensuring food safety and quality based on Good Manufacturing Practices (GMP) and Sanitation Standard Operating Procedures (SSOP).

Good Manufacturing Practices (GMP) serve as guidelines for proper food production throughout the entire food chain—from primary production to the final consumer—emphasizing cleanliness at every processing stage. Whether using modern or traditional methods, fish processing operations must properly implement GMP (Tinggi & Katalisator, 2016). GMP implementation must be accompanied by Sanitation Standard Operating Procedures (SSOP), which provide operational guidelines for processing principles and maintaining a clean environment; as a mandatory sanitation program, SSOP helps industries improve product quality and ensure a safe food production system (Triharjono *et al.*, 2013). The application of GMP and SSOP—validated through certification—applies to all sectors of the home-scale food processing industry, including fish processing.

This study aims to identify and analyze the level of implementation regarding the basic prerequisites of Good Manufacturing Practices (GMP) and Sanitation Standard Operating Procedures (SSOP) in the processing of shredded giant catfish by the Srikandi Processor and Marketer Group in Pangandaran Regency.

RESEARCH METHODS

This study was conducted in August 2023 at the Fish Processing Unit (UPI) owned by the Srikandi Processing and Marketing Group (Poklahsar), located in Parapat Hamlet, Pangandaran District, Pangandaran Regency, West Java. Chemical analysis was performed at the Laboratory of the Faculty of Agro-Industrial Technology, Pasundan University. The study employed a qualitative approach involving case studies and observations, utilizing a comparative descriptive analysis against applicable regulations. The case study method aimed to gather detailed information on actual field conditions, ranging from existing operational issues to current efforts to address them.

Data were collected through observation of the shredded giant catfish processing, interviews with employees and the Poklahsar chairperson, and chemical testing of the final product. The obtained data were then analyzed using a comparative descriptive method against SNI 7690:2013 and the Regulation of the Minister of Marine Affairs and Fisheries of the Republic of Indonesia Number 17 of 2019 concerning Procedures for Issuing Processing Feasibility Certificates. The assessment regarding the implementation of GMP and SSOP is presented in Table 1 below:

Table 1. Processing Feasibility Rating

Rating	Number of Deviations			
	Minor	Major	Serious	Critical
A = Excellent	6	0-5	0	0
B = Good	≥ 7	6-10	1-2	0
C = Sufficient	NA	≥ 11	3-4	0
D = Fail	NA	NA	≥ 5	0

*The total number of Major and Minor deviations does not exceed 10.

RESULT

Evaluation of GMP and SSOP Implementation

The evaluation of GMP and SSOP implementation in the processing of shredded giant catfish at Poklahsar Srikandi was based on the Regulation of the Minister of Marine Affairs and Fisheries Number 17 of 2019. GMP and SSOP aspects were assessed based on four categories of deviations: minor, major, serious, and critical.

Minor Deviations

Analysis of observations conducted during the processing of shredded giant catfish at Poklahsar Srikandi, Pangandaran, revealed eight minor deviations. These minor deviations related to facilities, as well as sanitation and hygiene practices at the processing unit (Table 2).

Table 2. Minor Non-conformities at Poklahsar Srikandi

Aspect of Minor Deviation	Conditions at POKLAHSAR Srikandi	Basic Eligibility (Regulation of the Minister of Marine Affairs and Fisheries No. 17 of 2019)	Recommendations for Improvement
Door	Made of smooth wood, but not water-resistant.	Made from smooth, waterproof material.	Apply a coating to the bottom of the door to ensure water resistance and prevent deterioration.
Lighting	The lighting is sufficiently bright, though the light fixture lacks a protective cover.	The room is well-lit, and the lights are equipped with safety covers.	If possible, install a protective cover over the light fixture.
Equipment Arrangement and Placement	Equipment is simply hung up; there is no dedicated storage space.	Prevents cross-contamination, ensuring smooth operations and equipment sanitation.	Ensure that tool storage areas are maintained in a sanitary condition to prevent cross-contamination.
Footbath	The footbath is poorly located, as it is situated inside the processing room.	Footbaths are available, or specialized footwear is provided for use in the processing area.	The footbath station needs to be relocated to the entrance of the processing area.
Warning on Processing Procedures	There are no warning signs.	Appropriate signage is present and adequate (e.g., prohibiting smoking, spitting, littering, etc.).	Simple warning signs should be installed to remind employees about hygiene and sanitation during the processing operations.
Training Program	There is no employee training program.	There is a program for enhancing employee skills and capabilities.	A training program needs to be implemented, focusing primarily on the application of GMP and SSOP during processing.
Signage and Equipment Usage	There are no signs indicating work zones on the equipment.	Equipment is marked for specific work areas and segregated based on use for raw materials versus finished products.	Equipment should be labeled according to its specific use in the processing operations.

Aspect of Minor Deviation	Conditions at POKLAHSAR Srikandi	Basic Eligibility (Regulation of the Minister of Marine Affairs and Fisheries No. 17 of 2019)	Recommendations for Improvement
Employee Changing Room	The changing area is combined with the toilet, and there are no lockers.	Located outside the processing area and equipped with lockers.	Lockers should be added for employees to store their personal belongings.

Major Deviations

Eight major deviations were identified in the processing of shredded giant catfish at Poklahsar Srikandi. These deviations were found in aspects concerning the processing unit's building and construction, product receipt and handling, employee facilities, and employee hygiene (Table 3).

Table 3. Major Non-conformities at Poklahsar Srikandi

Aspect of Major Deviation	Conditions at POKLAHSAR Srikandi	Basic Eligibility (Regulation of the Minister of Marine Affairs and Fisheries No. 17 of 2019)	Recommendations for Improvement
UPI Location and Area	Located within a residential area characterized by dusty surroundings and integrated with living quarters, creating a risk of contamination during processing.	The UPI area is sanitary and hygienic, separated from living quarters, and does not serve as a source of contamination.	If the facility's location cannot be changed, structural improvements to the Fish Processing Unit (UPI) can be implemented to prevent contamination from the surrounding environment.
Raw Material Receiving	Operations are carried out rapidly but lack sanitary measures and documentation.	Operations are rapid, sanitary, protected, and contamination-preventive; processes are documented and monitored.	Raw materials should be stored in a clean, well-maintained area rather than simply being covered with tarpaulins. Records regarding raw material intake and related activities must also be maintained.
Pest Control Facilities	There are no pest control facilities.	Pest control measures are in place.	Pest control facilities must be in place, supported by established monitoring and control procedures.
UPI Construction	The facility's design fails to minimize the entry of contamination sources or prevent the ingress of pests and	Capable of preventing the entry of contamination sources and	Design modifications to the UPI are required to prevent pest entry and the accumulation of debris or

Aspect of Major Deviation	Conditions at POKLAHSAR Srikandi	Basic Eligibility (Regulation of the Minister of Marine Affairs and Fisheries No. 17 of 2019)	Recommendations for Improvement
	the accumulation of dirt.	pests, as well as the accumulation of dirt or debris.	waste during and/or after production.
Walls	Some walls are made of woven rattan, and gaps exist between the walls and the roof, allowing airborne contaminants to enter.	Waterproof, resistant to peeling, smooth, crack-free, mold-resistant, and easy to clean.	Wall surfaces should be replaced with smooth, easy-to-clean materials that effectively seal against airborne contaminants.
Roof	Dark in color, lacking ceilings, and featuring uneven surfaces that are difficult to clean; one processing room has a ceiling, but it is cracked (though not leaking).	Designed to prevent condensation, peeling, leaks, and cracks; features a smooth, light-colored surface that is easy to clean.	Light-colored ceilings should be installed beneath existing asbestos roofing, and roof maintenance is necessary to prevent leaks.
Condition of Rooms and Equipment	The room has dirty areas (specifically the walls) that cannot be cleaned.	Well-maintained, clean, and sanitary.	Dirty walls require maintenance; furthermore, wall cleanliness must be consistently upheld, with cleaning performed after processing operations conclude.
Work Attire and Employee Hygiene	Employees lack dedicated workwear for processing tasks; they wear the same clothes they arrived in from home.	Work clothing is provided, and employee hygiene is well-maintained.	Work clothing must be kept separate from street clothes; the UPI should provide clean aprons, gloves, and head coverings.

Serious Deviations

Observations of the shredded giant catfish processing revealed one serious deviation. If corrective action is not taken, this deviation would affect the safety and quality of the resulting food product. The specific aspect classified as a serious deviation was the processing unit's ventilation (Table 4).

Table 4. Serious Non-conformities at Poklahsar Srikandi

Aspect of Serious Deviation	Conditions at POKLAHSAR Srikandi	Basic Eligibility (Regulation of the Minister of Marine Affairs and Fisheries No. 17 of 2019)	Recommendations for Improvement
Ventilation	Air circulation is provided through wide-open doors and windows—unobstructed by partitions—and overhead ventilation openings, which fail to prevent the entry of dust or contaminants.	Air circulation is sufficient to prevent condensation, moisture, and the ingress of contaminants into the process area, while also being easy to maintain and clean.	For excessively large, unobstructed air inlets, plastic curtains should be installed to prevent outside air from entering directly. UPI can also utilize blowers to facilitate proper air circulation.

Critical Deviations

No critical deviations were found at Poklahsar Srikandi. A critical deviation is defined as a deviation that compromises food safety if corrective action is not taken immediately. The absence of critical deviations indicates that Poklahsar Srikandi has made gradual efforts to comply with and implement the system of basic prerequisite requirements.

Analysis of GMP and SSOP Implementation at Poklahsar Srikandi

Observations regarding the implementation of GMP and SSOP at Poklahsar Srikandi revealed several non-conformities. The identified deviations were categorized as minor, major, or serious (Table 5). The number of non-conformities at Poklahsar Srikandi was calculated and compared with the data in Table 1. Based on the number of non-conformities, Poklahsar Srikandi Pangandaran holds a processing suitability rating of C (sufficient).

Table 5. Number of Non-conformities at Poklahsar Srikandi

	Categories of Deviations			
	Minor	Major	Serious	Critical
Number of Deviations	8	8	1	0

DISCUSSION

GMP and SSOP Analysis Based on the Processing Suitability Certificate

Based on the number of deviations identified during processing at Poklahsar Srikandi Pangandaran—analyzed in accordance with the Regulation of the Minister of Marine Affairs and Fisheries (Permen KP) No. 17 of 2019—this business unit holds a processing suitability rating of C (Adequate). A processing unit with a C rating is permitted to continue operations but is subject to renewed guidance and monitoring at least once every six months. Several aspects require improvement, such as installing plastic curtains to minimize airflow through oversized vents and adding blowers to enhance air circulation. Immediate rectification of minor deviations is recommended; these include installing footbaths at the entrance to the processing room, adding signage for equipment usage, providing lockers for employees' personal belongings, and addressing other minor non-conformities. Improvements and developments in these areas should be carried out in accordance with the standards established in Permen KP No. 17 of 2019.

Chemical Analysis

The results of chemical parameter testing for shredded giant catfish are presented in Table 6. The tests revealed that the moisture and protein levels of the shredded giant catfish produced by Poklahsar Srikandi comply with applicable standards. The moisture content of the product was 12.60%, falling below the maximum limit of 15% set by the National Standardization Agency (BSN) in SNI 7690:2013. Meanwhile, the protein content was 25.62%, exceeding the established standard of 15%.

Research by Aditya et al. (2016) indicates that the thickness of the fish meat used in shredded production influences the product's moisture content. Frying duration also affects the moisture level of the fish shredded. During the frying process, heat is transferred from the oil to the fish meat, causing water vapor to be released from the meat. This aligns with the theory proposed by Winarno (2008), which states that free water within the material evaporates due to the heat from the pan and oil, thereby reducing the moisture content of the fish meat.

The relatively high protein content of this fish shredded is derived from giant catfish, a fish species with a protein content ranging from 15% to 24% (Suzuki, 1981). Protein levels are also influenced by the quantity of fish used during production, enabling the product to achieve a high protein value (Harianti & Tanberika, 2018). Furthermore, the addition of protein-containing food additives can increase the protein content of the final product.

Table 6. Quality Test Results for Shredded Giant Catfish Produced by Poklahsar Srikandi

No.	Test Parameters	Unit	Test Results
1.	Protein	%	25.62
2.	Water Content	%	12.60

CONCLUSION

Based on the research conducted, the processing of shredded giant catfish at Poklahsar Srikandi Pangandaran complies with GMP and SSOP requirements, achieving an adequate status. Deviations identified across the processing stages included 8 minor, 8 major, and 1 serious deviation. The quality of the shredded giant catfish meets the standards established in SNI 7690:2013 regarding Shredded Fish. Specific parameters—such as moisture content (12.60% against a maximum limit of 15%) and protein content (25.62% against a minimum limit of 15%)—align with the prescribed standards. Consequently, the shredded giant catfish produced by Poklahsar Srikandi meets the quality parameters for shredded fish products.

ACKNOWLEDGEMENT

In the preparation of this journal, the author received a great deal of support, guidance, and assistance from various parties. Its completion was made possible thanks to their contributions. Therefore, the author wishes to express gratitude to their beloved parents and family, as well as profound thanks to the lecturers who assisted in the preparation and the fellow peers who provided constant support throughout the process.

REFERENCES

- Aditya, H. P., Herpandi, H., & Lestari, S. (2016). Karakteristik fisik, kimia dan sensoris abon ikan dari berbagai ikan ekonomis rendah. *Fishtech*, 5(1), 61–72.
- BSN. (2013). *Standar Nasional Indonesia 7690:2013. Abon Ikan*. Badan Standarisasi Nasional.
- Harianti, R., & Tanberika, F. S. (2018). Pemberdayaan wanita tani melalui produksi abon ikan lele. *JPPM (Jurnal Pendidikan Dan Pemberdayaan Masyarakat)*, 5(2), 167–180.
- Hermanu, B., & Saryana, S. (2016). Implementasi Ijin Edar Produk Pirt Melalui Model Pengembangan Sistem Keamanan Pangan Terpadu. *Bangun Rekaprima*, 2(2).

- Lestari, T. R. P. (2020). Keamanan pangan sebagai salah satu upaya perlindungan hak masyarakat sebagai konsumen. *Aspirasi: Jurnal Masalah-Masalah Sosial*, 11(1), 57–72.
- Peraturan Menteri Perikanan Dan Kelautan Nomor 17 Tahun 2019 Tentang Persyaratan Dan Tata Cara Penerbitan Sertifikat Kelayakan Pengolahan, BPK RI (2019).
- Pinandoyo, D. B., & Masnar, A. (2019). Penerapan GMP pada UKM Keripik SEMAT (Sehat dan Nikmat). *Gorontalo Agriculture Technology Journal*, 51–68.
- Suhartini, M., Khotimah, K., & Hidayat, R. (2020). Persepsi Konsumen dan Pengambilan Keputusan Pembelian Terhadap Produk Sehat Di Asri Organik-Sehat Tambakrejo Jombang. *Agrosaintifika*, 2(2), 131–146.
- Suzuki, T. (1981). *Fish and krill protein: processing technology*. Springer.
- Tinggi, K. R. T. D. P., & Katalisator, J. (2016). Kajian penerapan GMP dan SSOP pada pengolahan ikan nila (*Oreochromis niloticus*) asap di Kecamatan Tanjung Raya Kabupaten Agam. *Jurnal Katalisator*, 1(1).
- Triharjono, A., Probawati, B. D., & Fakhry, M. (2013). Evaluasi Sanitation standard operating procedures kerupukamplang di ud sarina kecamatan kalianget kabupaten sumenep. *Agrointek: Jurnal Teknologi Industri Pertanian*, 7(2), 78–85.
- Winarno, F. G. (2008). *Kimia Pangan dan Gizi Edisi Terbaru*. M-Brio press.