

Research

Implementation of HACCP (Hazard Analysis Critical Control Point) at Dan's Fried Chicken Restaurant

A. Syamsiah Adha¹, Nur Alifnah^{*2}, Andi Rizqah Kamilah Pangewai³

^{1,2,3} Department of Public Health, Faculty of Medicine and Health Sciences, Universitas Islam Negeri Alauddin Makassar, Gowa, Indonesia

* Corresponding Author: nuralifnah12@gmail.com

ARTICLE INFO

Keywords:

HACCP, food safety, hygiene and sanitation, critical control points, food service

History:

Submitted : 27 July 2026

Reviewed: 30 July 2026

Accepted : 6 August 2026

Competing Interests:

The authors declare no conflicts of interest related to this work.

ABSTRACT

Food safety is an essential aspect of public health because contaminated food may cause foodborne diseases. The novelty of this study lies in evaluating the implementation of the Hazard Analysis and Critical Control Point (HACCP) system in a local food service establishment using direct observation based on the seven HACCP principles. This study aimed to analyze the implementation of the HACCP system at Dan's Ayam Geprek Restaurant in Gowa Regency. A qualitative descriptive approach was employed through direct observation and interviews with food handlers. The collected data were analyzed descriptively by identifying potential biological, chemical, and physical hazards and determining Critical Control Points (CCPs). The findings showed that the restaurant had implemented most basic food safety practices, including the provision of clean water, adequate sanitation facilities, proper storage of raw materials and cooked food, and hygienic food serving procedures. However, several shortcomings were identified, including the incomplete use of personal protective equipment by food handlers and the storage of chili sauce in uncovered containers, which may increase the risk of contamination. Three Critical Control Points (CCPs) were identified, namely food processing, frying and cooked food storage, and food serving and packaging. Overall, the implementation of HACCP at Dan's Ayam Geprek Restaurant meets most food safety requirements, although improvements in personal hygiene, food storage management, and continuous monitoring are still required to enhance food safety.

1. Introduction

Food safety is a crucial component of public health because food consumed must be free from biological, chemical, and physical hazards that could threaten human health. Food contamination that occurs during handling, processing, storage, distribution, and serving remains a major cause of foodborne illness. Unsafe food not only impacts consumer health but can also undermine public trust in food businesses and cause economic losses. Therefore, every food service provider, including restaurants and small-scale food businesses, needs to implement a sound food safety management system to ensure that the food produced is safe, hygienic, and fit for consumption. One internationally recognized food safety management system is the Hazard Analysis and Critical Control Point (HACCP), a system that emphasizes prevention efforts through the identification of potential hazards and their control at critical stages in the food production process.

According to the World Health Organization (WHO), approximately 600 million people, or nearly one in ten of the world's population, experience foodborne illnesses annually, with approximately 420,000 deaths. Children under five are the most vulnerable group to these foodborne illnesses. In Indonesia, food safety remains a public health issue, with cases of food poisoning reported annually. Data from the Food and Drug Monitoring Agency (BPOM) shows that inadequate hygiene and sanitation practices during food processing are a major cause of food contamination. This situation demonstrates the importance of implementing a preventive food safety system, particularly HACCP, in catering businesses and food stalls to minimize the risk of contamination and protect consumer health.

Various previous studies have shown that the implementation of HACCP can improve food safety by identifying potential hazards and establishing Critical Control Points (CCPs) at each stage of food processing. Research conducted in restaurants and catering establishments has reported that the application of HACCP principles contributes to improved hygiene and sanitation practices, improved food storage, and safer food handling. However, several studies have also revealed that there are still obstacles in the implementation of HACCP, such as low compliance of food handlers with personal hygiene, incomplete use of personal protective equipment, food storage that does not meet standards, and inconsistent monitoring of the processing process. Furthermore, most previous studies have been conducted in large-scale restaurants, catering industries, or institutional food service establishments. Research on the application of HACCP in micro, small, and medium enterprises (MSMEs), particularly food stalls serving ready-to-eat chicken-based meals, is still relatively limited. This research gap indicates the need for further study on the application of HACCP in small-scale food businesses as an effort to strengthen food safety systems.

Dan's Fried Chicken Restaurant is a catering business that processes and serves ready-to-eat chicken products to consumers daily. The processing process includes receiving raw materials, storing, washing, seasoning, flour coating, frying, temporary storage of cooked food, and serving to consumers. Each of these stages has the potential to cause biological, chemical, and physical hazards if food safety practices are not implemented properly. Based on initial observations, this restaurant has implemented several hygiene and sanitation practices, such as providing clean water, adequate sanitation facilities, and adequate storage of raw materials. However, a comprehensive evaluation

of the implementation of a food safety system based on HACCP principles has never been conducted. Therefore, this study provides a review of the implementation of HACCP in small-scale food stalls as additional scientific evidence for food safety management in micro and small businesses.

This study aims to analyze the implementation of the Hazard Analysis and Critical Control Point (HACCP) system at the Ayam Geprek Dan's Food Stall in Gowa Regency by identifying potential biological, chemical, and physical hazards at each stage of the food processing process and determining Critical Control Points (CCPs). The results of this study are expected to provide recommendations for improving food safety practices, strengthening the implementation of hygiene and sanitation, and reducing the risk of food contamination in small-scale catering businesses.

2. Method

This research is a descriptive study with a qualitative approach that aims to analyze the application of Hazard Analysis and Critical Control Point (HACCP) in the food processing process at Warung Makan Ayam Geprek Dan's. The qualitative approach was chosen because it is able to provide a systematic description of the application of HACCP principles, hygiene and sanitation conditions, as well as potential biological, chemical, and physical hazards that exist at each stage of food processing. The research was conducted in July 2026 at Warung Makan Ayam Geprek Dan's located on Jalan HM Yasin Limpo, Samata, Gowa Regency.

The research subjects were selected purposively by considering that Warung Makan Ayam Geprek Dan's is a catering business that processes ready-to-eat food made from chicken every day so that it has a complete production stage to be analyzed using the HACCP system. The research population includes the entire food processing process along with the components involved in the implementation of HACCP, namely raw materials, production processes, processing facilities, equipment, and food handlers. The research sample consists of all stages of the observed geprek chicken processing process, starting from receiving raw materials, storage, washing, seasoning, flour coating, frying, pounding, to serving food to consumers.

The data sources in this study consist of primary and secondary data. Primary data were obtained through direct observation of all stages of the food processing process, hygiene and sanitation conditions, processing facilities, and interviews with food handlers using observation and interview guidelines compiled based on the seven HACCP principles. Secondary data were obtained through literature review sourced from books, scientific articles, HACCP guidelines, and laws and regulations related to food safety and food hygiene and sanitation.

The research procedure began with obtaining research permits from the food stall owners. The researchers then explained the research objectives and obtained informed consent from respondents before conducting interviews. Direct observations were then conducted at all stages of the food processing process to identify potential biological, chemical, and physical hazards. Observation results were then confirmed through interviews with food handlers regarding hygiene practices, sanitation, food storage, and food processing procedures. All data was recorded using a prepared observation sheet and interview guide.

The research instruments used included a HACCP implementation observation sheet based on the seven HACCP principles, an interview guide, stationery, a camera for documentation, and a hazard identification and Critical Control Point (CCP) determination sheet. The observation sheet was used to assess the suitability of hygiene and sanitation implementation and the implementation of each stage of food processing based on HACCP principles.

The data obtained were then processed descriptively by grouping the results of observations and interviews based on the seven HACCP principles, namely hazard analysis, determining Critical Control Points (CCPs), setting critical limits, monitoring systems, corrective actions, verification procedures, and documentation. Furthermore, the data were analyzed by comparing the observation results with the HACCP guidelines and applicable food hygiene and sanitation provisions. The results of the analysis are presented in the form of narrative descriptions, tables, and diagrams to illustrate potential hazards, critical control points, and control efforts at each stage of the food processing process at Warung Makan Ayam Geprek Dan's.

This research has obtained permission to conduct it from the owner of Dan's Ayam Geprek Restaurant. If the research requires ethical approval, it will be conducted after obtaining approval from the Health Research Ethics Committee in accordance with applicable regulations.

3. Results and Discussion

Table 1.Food Product Description

1.	Food Names	Fried Chicken Ready to Eat
2.	Food Composition	Chicken, oil, water, flour, flavoring (Masako), and pepper
3.	Important End Product Characteristics	It has the distinctive aroma of geprek chicken, golden brown color, crispy texture, not hard and not soft, savory taste.
4.	Processing Method	Receiving raw materials, first washing, storing chicken, second washing, mixing raw materials, cooking process, packaging, serving
5.	Packaging:	Food Dosage
6.	Storage Conditions	Refrigerator Temperature (2-3°C)
7.	Shelf Life :	1 hour
8.	Special Supervision in Sales	Pay attention to the smell of food, as well as the presence of biological, chemical and physical contamination.
9.	Where the Food Will Be Sold	At Dan's Fried Chicken Stall

This research was conducted at Dan's Ayam Geprek Restaurant, located on Jalan HM Yasin Limpo, Samata, Gowa Regency. Data were obtained through direct observation of the food processing process and the application of Hazard Analysis and Critical Control Point (HACCP)

principles. The research results include product descriptions, production process flow diagrams, identification of potential hazards, determination of Critical Control Points (CCPs), and monitoring and corrective actions at each stage of food processing (see Table 1).

The product under study was ayam geprek, a ready-to-eat meal consisting of fried chicken, white rice, chili sauce, and fresh vegetables. The product was packaged in a takeout box and served on greaseproof paper-lined plates for dine-in customers. The main ingredients were kept cold before being processed, while the cooked food was stored in a closed display case with a shelf life of approximately one hour. The product was intended for all age groups, except children under seven years old.

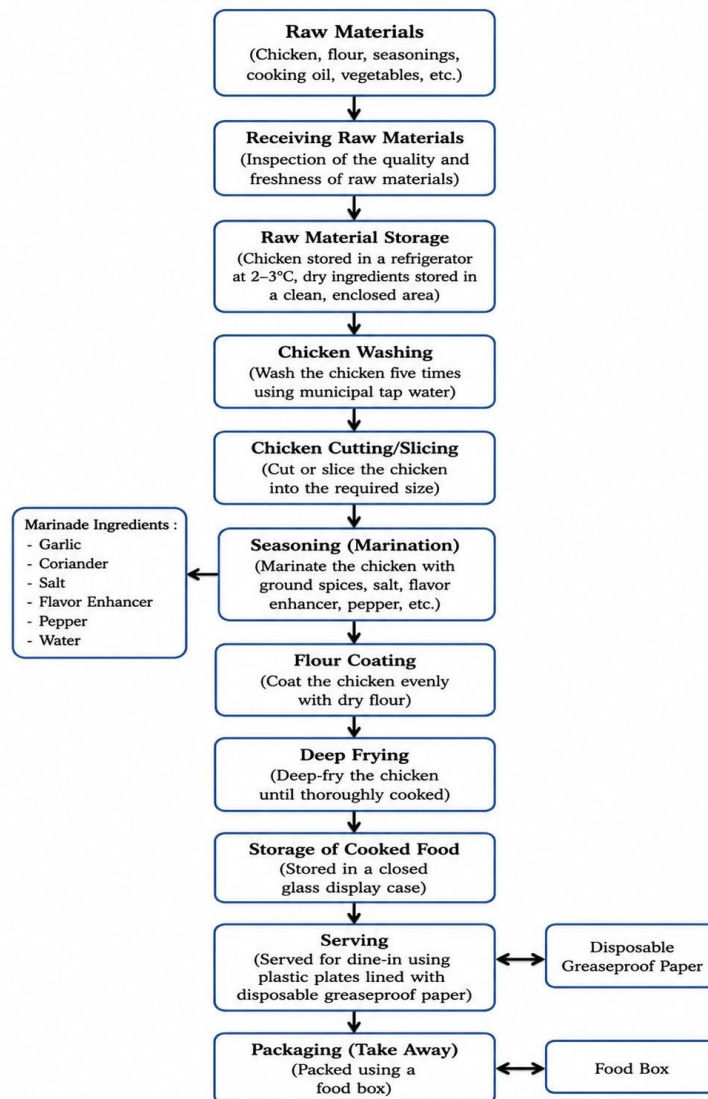


Figure 1. Dan's Fried Chicken Processing Flowchart

Observations show that the geprek chicken processing process includes receiving raw materials, storing, washing, seasoning, coating, frying, pounding with chili sauce, serving, and packaging. A process flow diagram was used to identify potential hazards and determine critical control points (see Figure 1).

The identification results indicate that at every stage of processing there are potential biological, chemical, and physical hazards. Biological hazards include the possibility of bacterial, fungal, viral, and insect contamination in raw materials and during processing. Chemical hazards stem from cleaning residues, the use of degraded cooking oil, and substandard food additives. Physical hazards include dust, hair, plastic fragments, metal, or other foreign objects that can contaminate food if hygiene and sanitation are not optimally implemented. Based on observations, the chicken used was fresh and refrigerated before processing. Water from the local water company (PDAM) was used to wash the raw materials and equipment. Processing equipment was clean, and cooked food was stored in closed display cases to minimize the risk of contamination. However, several non-conformities were found, such as the incomplete use of personal protective equipment by food handlers and the storage of chili sauce in unsealed containers (see Table 2 and Table 3).

The analysis using the HACCP decision tree shows that the stages considered Critical Control Points (CCPs) include raw material receipt, raw material storage, frying, and food serving. These stages pose a high risk to food safety and require strict control to prevent or reduce potential hazards to acceptable levels (see Table 4).

Monitoring is conducted at each CCP, taking into account raw material quality, clean water use, storage temperature, product maturity, equipment cleanliness, and food handler hygiene. Corrective actions implemented include using appropriate raw materials, replacing cooking oil if its quality declines, storing food in closed containers, and disposing of food that does not meet food safety requirements. Furthermore, food that falls on the floor is not re-served to consumers to prevent contamination. The implementation of Hazard Analysis and Critical Control Point (HACCP) at Warung Makan Ayam Geprek Dan's shows that most food processing practices comply with basic hygiene and sanitation principles, such as using fresh ingredients, clean water from the local water company (PDAM), clean equipment, and storing cooked food in closed display cases. These practices support contamination prevention and improve food safety. The identification results indicate the potential for biological, chemical, and physical hazards at every stage of food processing. Based on the HACCP analysis, the stages that constitute Critical Control Points (CCPs) include raw material receipt, raw material storage, frying, and food serving, as they pose a high risk to food safety if not properly controlled.

However, several non-conformities were still found, such as food handlers not wearing complete personal protective equipment and storing chili sauce in open containers, which could potentially increase the risk of contamination. Furthermore, HACCP monitoring, verification, and documentation were not optimally implemented. Overall, the implementation of HACCP at Warung Makan Ayam Geprek Dan's has been running quite well, but improvements are still needed in the aspects of personal hygiene, food storage control, and consistent implementation of monitoring, verification, and documentation so that food safety can be maintained optimally.

Table 2.Hazard Analysis of Raw Materials for Dan's Fried Chicken Stall Production

Raw material	Danger	Types of Hazards	Source/Justification of Danger	Opportunity (L,M,H)	Severity (L,M,H)	Signification	Control Measures
Chicken	Biology	Salmonella spp., Campylobacter spp., Staphylococcus aureus	Chicken is not fresh/poor handling	M	H	Significant	Choose fresh chicken, store in the refrigerator, wash 5 times, separate damaged chicken.
	Physique	Hair, plastic debris, dust	Unhygienic handling	L	M	Not Significant	Maintain cleanliness of the work area
Water (PDAM)	Biology	Escherichia coli, coliform bacteria	Water does not meet the requirements	L	H	Significant	Using PDAM water that meets the requirements
	Chemistry	Heavy metals, excess chlorine	Water quality	L	M	Not Significant	Ensuring water quality
	Physique	Sand, rust, dirt	Waterways	L	M	Not Significant	Cleaning the drains
Pepper	Physique	Sand, small stones	Milling process	L	L	Not Significant	Selection and screening
Flour	Physique	Gravel, insects	Packaging/storage	L	L	Not Significant	Store in a closed container
Flavoring (Masako)	Chemistry	Expired product/damaged BTP	Damaged or expired packaging	L	M	Not Significant	Check BPOM permit and expiration date
	Physique	Packaging debris, dust	Damaged packaging	L	L	Not Significant	Store in a closed container
Cooking oil	Chemistry	High peroxide value, free fatty acids, acrolein, oxidation compounds	Repeated use of oil at high temperatures	M	H	Significant	Use cooking oil according to standards, change the oil regularly, filter out food residue, do not use oil that is dark in color or has a rancid smell.
	Physique	Burnt food scraps	Leftover frying results	M	M	Not Significant	Filter the oil after use and keep the oil container clean.

Table 3.Hazard Identification in Food Production Processes

HCCP MANUAL									
No	Stage	Danger	Types of Hazards	Source / Justification of Danger	HAZARD ANALYSIS		Control Measures	CP/CCP	Signification
					Opportunity (L,M,H)	Severity (L,M,H)			
1	Receipt of Raw Materials	Biology	Salmonella spp., E. coli	Raw materials are not fresh	M	H	Supplier & material selection	CCP	Significant
2	Raw Material Storage	Physique	Dust, hair	Transportation	L	M	Sorting	CP	No
		Physique	Dust, insects	Open container	L	M	Closed container	CP	No
		Biology	E. coli, Coliform	Washing water	M	H	PDAM water & wash 5 times	CCP	Significant
3	Raw Material Sorting	Biology	E. coli	Use of poor raw materials, dirty hands of handlers	L	L	Conducting the selection process	CP	No
		Physique	Insect	Uncovered raw materials, storage environment	L	M	Sorting raw materials, separating damaged materials, and storing materials in closed containers	CP	No
4	Raw Material Washing	Chemistry	Chlorine residue	Water quality	L	L	Water according to standards	CP	No
		Biology	Bacterial contamination	Handler hygiene	M	M	Use PPE & clamps	CCP	Significant
5	Seasoning and Coating	Physique	Hair, dust	Environment	L	M	Keep clean	CP	No
		Biology	Pathogenic bacteria	Not ripe	L	H	Fry until cooked	CCP	Significant
6	Frying	Physique	Oil damage	Repeated oil	M	H	Change the oil	CCP	Significant
		Biology	Microbial contamination	Open chili sauce	M	H	Showcases & closed containers	CCP	Significant
7	Storage of Prepared Food	Physique	Dust, insects	Environment	L	M	Glass display case	CP	No
		Biology	Cross contamination	Hand contact	M	M	Food tongs	CCP	Significant
8	Presentation	Physique	Dust	Environment	L	M	Keep clean	CP	No
		Biology	Post-process contamination	Handling	M	M	Clean food box	CCP	Significant
9	Packaging	Physique	Packaging debris	Packaging	L	M	Food grade packaging	CP	No
		Biology	Salmonella spp., E. coli	Chicken is not fresh/supplier	M	H	Selection of raw materials & suppliers	CCP	Significant

Table 4.Production Monitoring and Action

No	CCP	Potential Danger	Critical Limit	Monitoring			Corrective Action
				What	How	Frequency	
1	Receipt of raw materials	Biology	Significant	Salmonella spp., E. coli in chicken	Check the freshness of the chicken (color, smell, texture)	Every acceptance	Reject/return chicken that is not fresh
		Physique	No	Dust and hair	Visual inspection of material cleanliness	Every acceptance	Cleaning/replacing materials
2	Storage of raw materials	Biology	Significant	E. coli, Coliform	Ensure the refrigerator & container are closed	Every day	Separate damaged materials
3	Sorting of raw materials	Biology	No	E. coli	Sorting suitable materials	Every process	Discard damaged materials
		Physique	No	Insect	Visual inspection	Every process	Clean the area & cover the container
4	Washing of raw materials	Chemistry	No	Chlorine residue	Use clean PDAM water	Every process	Change the water
		Biology	Significant	Bacterial contamination	Wash the chicken 5 times	Every process	Wash again
		Physique	No	Dust and hair	Visual inspection	Every process	Wash again
5	Making seasoning and coating	Biology	Significant	Pathogenic bacteria	Observe hygiene of handlers & tools	Every process	Clean the tool
6	Frying	Biology	Significant	Microbial contamination	Make sure the chicken is cooked	Every process	Fry again
		Physique	Significant	Damage to cooking oil	Observe the condition of the oil	Every process	Change the oil
7	Storage of prepared food	Biology	Significant	Cross contamination	Closed display case	Every process	Close the display case
		Physique	No	Dust and insects	Check the display case	Every process	Clean the display case
8	Presentation	Biology	Significant	Post-process contamination	Use clean tongs & tools	Every process	Replace dirty tools
		Physique	No	Dust	Check the serving area	Every process	Clean the area
9	Packaging	Biology	Significant	Salmonella spp., E. coli	Check food box & products	Every process	Replace packaging, discard fallen chicken

4. Conclusion

The application of Hazard Analysis and Critical Control Point (HACCP) in the food processing process at Warung Makan Ayam Geprek Dan's shows that most processing stages have implemented good hygiene and sanitation principles, such as the use of fresh raw materials, the use of clean water, clean equipment, and the storage of cooked food in closed display cases. The analysis results indicate the potential for biological, chemical, and physical hazards at several stages of the production process. The stages that become Critical Control Points (CCP) include raw material receipt, raw material storage, frying process, and food serving because they have a high risk of food safety if not properly controlled. However, several aspects are still found that need improvement, such as the use of complete personal protective equipment by food handlers, storage of chili sauce in closed containers, and the implementation of continuous HACCP monitoring, verification, and documentation. Consistent implementation of HACCP is expected to improve product quality and ensure food safety for consumers.

5. References

- Abdul-rahiman, U. A., Nordin, N., & Abdul-mutalib, N. A. (2021). Holistic Approaches to Reducing Salmonella Contamination in Poultry Industry. 44(1), 1-23.
- Arumsari, F., Joko, T., & Darundiati, Y. H. (2021). Hubungan Higiene Sanitasi Depot Air Minum dengan Keberadaan Bakteri Escherichia coli pada Air Minum Isi Ulang di Kecamatan Mondokan Kabupaten Sragen. 492.
- Asmara, A. A., & Abidin, A. U. (2021). Hazard Analysis and Critical Control Point (HACCP) of Food Stall on Campus in Yogyakarta , Indonesia. 5(2), 45-53.
- Badan Standardisasi Nasional. (2019). SNI 7709:2019 Minyak Goreng Sawit.
- Codex Alimentarius Commission. (2022). General Principles of Food Hygiene CXC 1-1969. Rome: FAO & WHO.
- Ilmu, J., Teknologi, D., Karisma, U. D., Wiqoyah, N., & Pusarawati, S. (2021). Prevalence of Escherichia Coli , Salmonella Sp , Staphylococcus Aureus Bacteria in Chicken Meat of Traditional Market Surabaya City. 8(2). <https://doi.org/10.32668/jitek.v8i2.510>
- Lukman, D. W., & Kusnandar, F. (2015). Keamanan pangan. Bogor: IPB Press.
- Nurhayati, N., dkk. (2022). Pengaruh penggunaan minyak goreng berulang terhadap mutu minyak dan keamanan pangan. Jurnal Pangan dan Gizi.
- Pratama, R. E., Winaryati, E., & Astuti, A. P. (2025). Kualitas Minyak Goreng Ditinjau dari Bilangan Peroksida Berdasarkan Frekuensi Penggorengan dan Jenis Minyak. 14(3), 480-489.
- Rusdin. (2013). Higiene sanitasi makanan dan HACCP. Makassar: Alauddin University Press.
- Sasmita, A. G., & Aulia, L. M. (2025). Jurnal Implementasi. 5(2), 156-167.\
- Spanova, dkk. (2025). Implementation of HACCP in food safety management. (Lengkapi sesuai sumber asli).
- Suroso, A. S. (2020). Perubahan kualitas minyak goreng akibat pemanasan berulang dan dampaknya terhadap kesehatan. Jurnal Teknologi Pangan.

- Wardhana, D. K., Erika, A., Haskito, P., Thohawi, M., Purnama, E., Safitri, D. A., & Annisa, S. (2021). Detection of microbial contamination in chicken meat from local markets in Surabaya , East Java , Indonesia. 14, 3138-3143.
- World Health Organization. (2022). Five Keys to Safer Food Manual. Geneva: World Health Organization.