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## **Analysis of GMP and SSOP Application in the Processing of Turmeric Fish Crackers**

**In PD Sri Tanjung, Indramayu Regency, West Java Province**

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### **ABSTRACT**

In effort to improve quality assurance and safety of fishery products, especially in fish cracker processing, the Directorate General of Fisheries Products Processing and Marketing, the Ministry of Maritime Affairs and Fisheries introduced Good Manufacturing Practices (GMP) and Good Production Methods (SSOP) ) or Sanitation Operation Standard Procedure (SPOS) for processing fish crackers to processors, including those in Indramayu. The purpose of this study is to find all the factors that influence the continuity of the process of applying GMP and SSOP for fish crackers and to see the latest conditions of GMP and SSOP application in crackers processing plants that do not continue. Processing and data analysis using the described method. Factors that influence the continued implementation of GMP and SSOP in fish cracker processing plants that are not very competent in running GMP and SSOP can be divided into internal factors, namely lack of education, and lack of experience, external factors, namely lack of government policies in socialization, lack of water portable and ice supply, lack of cold chain system facilities, lack of government policies in training, monitoring, no market requirements, and characteristics of innovation factors that have relative advantages in implementing GMP and SSOP. To encourage the application of GMP and SSOP in fish cracker processing plants that do not apply GMP and SSOP applications, it is advisable to increase socialization, guidance, training, monitoring and technical in a special locus, facilitate water and ice supply, carry out the application of GMP and SSOP in fishery products in the domestic market, and increasing education about the importance of applying GMP and SSOP in the fish fillet industry to the public.

**Keywords:** characteristic of innovation factors, external factors, fish fillet, internal factors, GMP and SSOP

## **PRELIMINARY**

Fish crackers are a type of food that people like. One of the commercial crackers is fish crackers. Fish crackers are processed fishery products with raw materials that undergo processing, boiling and drying treatment (BSN 2009). Crackers are quite numerous producers and are spread in various regions one of which produces fish is PD Sri Tanjung. PD Sri Tanjung was established in 1997 by producing shrimp fish crackers and other types of crackers.

Integrated processing and quality management processes are important to maintain food safety. Policies in implementing an integrated quality management program, one of which is the Hazard Analysis Critical Control Point or commonly called HACCP, the HACCP system can accommodate changes, such as progress in processing equipment or technological development (BSN 2011).

The processing unit that will implement HACCP should have a Certificate of Feasibility Processing (SKP) with basic eligibility requirements namely Sanitation Standard Operating Procedure (SSOP) and Good Manufacturing Practice (GMP). The processing unit that will implement HACCP must meet the basic eligibility requirements. The basic requirements of GMP and SSOP are important for the basis of making the HACCP program. This program is applied to fishery processing units to avoid and prevent the possibility of Hazard arising as well as to produce fishery products that are safe and prevent the possibility of hazards that arise as well as to produce safe and good quality fishery products. This is what underlies the study of HACCP planning and preparation of a Certificate of Feasibility Processing (SKP).

## **METHOD**

Research on the Analysis of the Application of GMP and SSOP in the Processing of Turmeric Fish Crackers was carried out in PD. Sri Tanjung Indramayu, West Java will be conducted in August 2019. The method used in this research is a survey method, a descriptive discussion with a qualitative approach. A qualitative approach is a research procedure that produces descriptive data in the form of personal documentation, field notes, written words from respondents, supporting documents and observable behavior. The goal is to find out the field activities in detail and thoroughly (Hayati, 2015). Research carried out include observing the flow of the processing of turmeric fish crackers, and analyzing good production methods and identifying sanitation and hygiene of fish cracker products. The handling and processing of turmeric fish crackers are done by observing, seeing and following the process of making turmeric crackers in PD. Sri Tanjung. The process of handling and processing turmeric crackers includes the receipt of raw materials, storage of raw materials, meat dozing, kneading, forming, cooling, slicing. Data obtained from this research were analyzed in a comparative descriptive manner. Comparative descriptive is an analysis of the data generated by describing it in writing in the form of narration, then concluding the analysis. Comparative descriptive research is generally carried out with the primary objective of systematically describing the facts and characteristics of the object being studied (Abidax 2009).

## **RESULTS AND DISCUSSION**

The process of processing fish crackers in general in PD. Sri Tanjung includes the acceptance of fish meat dozing ingredients, mixing spices, kneading, printing, steaming cooling, cutting, drying, and packing. The processing of fish crackers according to SNI 2713.3.2009, namely the acceptance of raw materials for mixing fish meat mixing, printing, steaming, cooling, cutting, drying, sorting, weighing, packing.

The stages of making fish crackers in PD Sri Tanjung are initiated in the reception room for raw materials, namely the reception of turmeric fish fillets. Turmeric fish fillets are stored in cold storage at a temperature of -2 to -5 ° C which has been stored for 3 days and then ground using a fish grinder. The fish are then transferred to the kneading room.

Fish crackers have a product composition that is tapioca flour, pengembng, starch, baking soda, baking powder, salt sugar, and flavor enhancers. The process of product processing in one batch at PD. Sri Tanjung is called a recipe with approximately 64kg of input. The starch referred to in the manufacture of crackers is tapioca flour which is added to hot water then stirred and allowed to stand for 1 night. The purpose of adding starch in making crackers here is so that all the ingredients blend well with these ingredients and do kneading for about 15 minutes until the dough is fused and not sticky.

Crackers' dough is put into the printer. Cylindrical dough molding tool. The dough that comes out of the machine is then carried with the machine conveyor belt. The dough that has been printed is then arranged on a metal rack and taken to the steaming room. The cracker dough is steamed for 1 hour with a temperature of approximately 100 ° C. Cooked crackers are drained for 1 hour then transferred to a bamboo rack manually. The crackers are cooled for less than 16 hours at a room temperature of 30 ° C. hardened crackers are put in a basket and ready to be cut.

Crackers are inserted into the cutting tool. Crackers that have been cut are arranged in bamboo or covered with tapping. Determination. Determination is the technique of separating the crackers so that they do not stick together and then dried in the sun. The handsome of crackers are transported by truck and transported to the crackers drying field in the sun for approximately 1 day. Dry crackers are stored in the product storage room, then packaged on demand. The packaging is done with a size of 150 grams and 5 kg of crackers that have been packaged stacked in a storage warehouse.

### **Basic Feasibility**

Basic feasibility program or often referred to as "Prerequisite Programs" is a basic eligibility requirement program in every food processing industry that will implement a food safety system model HACCP (Hazard Analysis Critical Control Point) processing unit to be awarded a Processing Feasibility Certificate (SKP) according to the Directorate General of Fisheries Hail Processing and Marketing (DG P2HP 2010) must have and implement a Basic Requirement program such as the Standard Sanitary Operational Procedure (POSS) and the Good Sanitation Standard Operating Procedure (SSOP) and Good Manufacturing Practices (GMP) ) and sanitation standard operating procedures SSOP (Sanitation Standard Operation Procedure).

Application of Good Manufacturing Practices (GMP)

Good Manufacturing Practices (GMP) or CPPOB is a guide to good manufacturing methods used to produce quality and safe products. The application of GMP also

intends to prevent the contamination of processed food from biological, chemical, and physical pollution which can disturb, harm and endanger human health. The feasibility of production and consumption is very dependent on the process of processing food that is good and right. Good Manufacturing Practices (GMP) consist of Location, buildings, rooms, equipment, and facilities.

#### **4.3.1 Location (SNI CAC / RCP 1: 2011)**

Potential sources of contamination need to be considered when deciding the location of food production facilities and the effectiveness of reasonable actions that may be taken to protect food production facilities should be located far from areas that are polluted by the environment and industrial activities that pose a serious threat to food contamination, areas prone to flooding unless adequate security protection is available, areas are prone to pest attacks and areas that have either solid or liquid waste that cannot be effectively removed.

#### **4.3.2 Buildings and Rooms (SNI CAC / RCP 1: 2011)**

Means of food production should enable good food hygiene practices, including protection against cross-contamination and throughout the food process. Structures in food production facilities should be built from materials that are durable and easy to maintain, clean and can be disinfected. The conditions needed to protect the safety and suitability of food consist of surface walls, partitions, and floors made of waterproof materials and without causing toxic effects per the intended use. Walls and practitioners have smooth surfaces and heights that are suitable for food operations. The floor is constructed to facilitate drainage and cleaning. The ceiling and fixtures are constructed to minimize dirt and condensation buildup, as well as the chance of particles falling. The window is easy to clean and constructed to minimize the formation of dirt and if necessary be equipped with insect repellent gauze that is easily removed and cleaned if necessary disinfected. Surfaces that come in direct contact with food should be in good condition, durable, easy to clean, maintain and disinfect.

#### **Equipment (SNI CAC / RCP 1: 2011)**

Equipment and containers that come into contact with food should be designed and constructed to ensure that it can be adequately cleaned, disinfected and maintained to avoid food contamination. Equipment and Container should be made of materials that have no toxic effects in their intended use. Equipment must be durable and can be moved or disassembled to enable maintenance of surveillance disinfection cleaning and to facilitate pest inspection.

The equipment used for cooking, heat, cold, storing or freezing food should be designed to reach the desired food temperature as quickly as needed for food safety and suitability and is effectively maintained. The equipment is designed so that the temperature can be monitored and controlled. These requirements are intended to ensure that harmful (undesirable) or toxic microorganisms can be eliminated or reduced to a safe level and their growth is effectively controlled, the critical limits set in the HACCP plan can be monitored and the temperature and other conditions needed for food safety and suitability can be achieved and maintained quickly. Wada for waste, by-

products and non-consumable or hazardous materials should be identified, precisely constructed and made of impermeable materials.

#### **4.3.4 Facilities (SNI CAC / RCP 1: 2011)**

Adequate facilities, suitable design, should be available for food cleaning, equipment, and supplies. The facility should have an adequate supply of hot and cold drinking water, adequate facilities for hygienic hand hygiene and hygiene, hygienic designed toilets, adequate employee changing room facilities. Temperature control depends on the food operations carried out, adequate facilities should be available for heating, cooling, cooking, cooling (cooling) and pagan freezing. Adequate means of natural or mechanical ventilation should be available, especially to minimize food contamination through the air, for example, aerosols and condensation droplets to regulate room temperature, reduce odors that might affect food viability and control humidity.

Ventilation systems should be designed and contracted so that air does not flow from the contaminated area to a clean area so that air does not flow from the contaminated area to a clean area and can be adequately maintained and cleaned. Natural or artificial lighting should be available to facilitate hygienic operations. Lighting does not produce excessive color, intensity should be sufficient for proper operation, lighting fixtures are protected to ensure that food is not contaminated by lighting the lamp. The type of storage facility depends on the nature of the customer. Storage facilities should be safe and separate for hazardous substances and substances.

#### **Application of SSOP**

Sanitation Standard Operating Procedure (SSOP) is one part of the basic feasibility program. This program aims to prevent direct contamination of the products produced and improve quality and ensure products are safe for consumption. The application of SSOP refers to the key sanitation principles of the sanitation requirements namely water safety, surface cleanliness conditions that come in direct contact with food, prevention of cross-contamination, maintenance of sanitation facilities, supervision of employee health conditions, and pest control at the processing unit. To facilitate work instructions based on appropriate sanitation, a Sanitation Standard Operating Procedure (SSOP) was made.

#### **4.4.1 Water Safety (SNI CA / RCP 1: 2011)**

Water is a major component in the application of an SSOP. Food handling and processing use drinking water or water that meets the drinking water requirements that can be used. Water for steam production, fire control and other similar uses that are not related to food may not use drinking water requirements.

The water used in PD Sri Tanjung is well water. The water used in the production process does not yet have a water quality test certificate. The water used should use water with drinking water requirements according to the Minister of Health Regulation No. 49 / MENKES / PER / IV / 2010 for use in production related to products, both raw materials, and products. Drinking water quality requirements are by Health Minister Regulation No. 49 / MENKES / PER / IV / 2010.

#### **4.4.2 Surface Cleaning which is in direct contact with Food Materials (SNI / CAC / RCP 1: 2011)**

Foodstuffs that are used should meet the proper requirements to be used. The way to meet these requirements is to know the surface cleanliness conditions that come into contact with these foodstuffs. According to SNI CAC / RCP 1: 2011, equipment and containers that are in contact with food can be adequately cleaned, deflected, and maintained to avoid food contamination. Equipment and containers have no toxic effects in use. Packaging materials that come into contact with food must be non-toxic, must be durable and easy to set aside.

The observations showed that the condition of the cleanliness of the surface of the equipment that is in contact with food is not good, this can be seen with the process of washing the equipment used is still not clean. Cleaning tools don't use disinfectant. The cleaning methods and procedures according to SNI CAC / RCP 1: 2011 can be carried out separately or in combination with physical methods. The methods used are heating, rubbing, spraying with pressurized water, vacuum suctioning or other methods that avoid the use of water. Equipment that is cleaned according to the Minister of Health regulation No. 1096 / MENKES / PER / VI / 2011, should be cleaned with at least 550 ppm chlorine or hot water 80 ° C for 2 minutes.

#### **4.4.3 Prevention of Cross Contamination (SNI CAC / RCP 1: 2011)**

Pathogenic microbes can be from one food to another either through direct contact or through the air. Unprocessed raw materials must be effectively separated from ready-to-consume food. Systems must be in place to prevent food contamination by foreign objects such as broken glass or broken metal from machinery, dust, dangerous fumes and chemicals.

The chance of contamination in PD Sri Tanjung is very large, this is because the toilets of employees who are very close to the receiving point of raw materials, should not be adjacent to the reception room for raw materials. Another contamination is found in the fish meat grinder and the flow that is still inundated in the gutter of the raw material room, should the water flow in the raw material room be routinely cleaned so that the water does not stagnate. Fish that have been cleaned are left open in one container so that the flies are overflowing with raw materials, it is better than fish that have been cleaned and the ground is covered so that the flies do not descend the raw material.

#### **4.4.4 Maintenance of Sanitation Facilities (SNI CAC / RCP 1: 2011)**

Production facilities and equipment must be maintained in a well-maintained condition to facilitate all sanitation procedures, the equipment will continue to function according to the procedure established especially at the critical stage. The cleaning procedure includes removing dirt from the surface, coating the soil and soaking it in detergent, rinsing it in water by the requirements to remove soil that has been released from the detergent residue.

Facilities included in PD Sri Tanjung include the number of toilets and kitchens. There is only 1 toilet with a total of 60 employees. The Questionable Processing Certificate (SKP) revised questionnaire requires that with a total of 60 employees, there should be 5 toilets. Which consists of only one not equipped with cleaning tools.

The equipment used for the cracker production process is equipment that is quite easy to clean. Most of the production equipment in the processing process uses equipment that is easily corroded such as tools to grind fish, tools to knead raw materials, molding machines, racks for preparing crackers to be steamed, and cutting tools that if not treated and cleaned regularly it is easy to contaminate the product. Instructions for using the tool and how to clean the tool can be found in each processing room. The process of cleaning the equipment is done after the routine production process by spraying water on the tools and rubbing. Tool cleaning according to 1096 / MENKES / PER / VI / 2011 can be done using 80oC hot water for 2 minutes.

#### **4.4.5 Monitoring the Health Conditions of the Cleric (SNI CAC / RCP 1: 2011)**

The employee's health condition also determines whether or not a product is contaminated. According to SNI CAC / RCP 1: 2011, personnel who are known or suspected of suffering from diseases or carrying diseases may be transmitted through food. It should not be allowed into the food handling area. Employees involved in the handling process must be able to refrain from spitting, smoking, mengunya and sneezing to prevent food contamination. Prevention of employees who are still working in these circumstances can be done by providing clean work clothes, always wearing a mask, maintaining cleanliness before and after processing activities, and regular health checks.

#### **4.4.6 Sanitation and Hygiene Product Packaging and Labeling**

Packaging using plastic packaging which will then be sealed and labeled. The way the sealer works is by gluing two separate pieces of plastic together to glue, closing making space in the plastic packaging. A label used on PD product packaging. Sri Tanjung has the name of the product, the nutritional content, the expiration limit, the P-IRT number, the halal writing from the Indonesian Ulema Council and the recommendation to dispose of the packaging in the trash.

This packaging process is intended to keep the products sold clean and protected from bacteria that can speed up the decay process. Some things that need to be considered in labeling are the original container must indicate the name of the material/solution in the container, the name, and address of the manufacturer and instructions for use (Winarno and Suroso 2002).

During the packaging process, employees do not use gloves and masks, the packaging to be used is stored under the floor, which may cause cross-contamination. This danger can be controlled to maintain the cleanliness of the production site and employees who come in direct contact with the production process. Preventive action that can be done is to maintain the cleanliness of the environment of the production site, maintain the cleanliness of the packaging and maintain the cleanliness and health of employees who are in direct contact with production activities.

#### **4.4.7 Monitoring the Health Conditions of the Cleric (SNI CAC / RCP 1: 2011)**

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#### **4.4.8 Pest Control in the Processing Unit (SNI CAC / RCP 1: 2011)**

Good hygiene practices must be implemented to avoid the creation of an environment conducive to pests. The building is always guarded in a well-maintained state, the building's drain holes are closed. Production facilities and the surrounding environment must be checked periodically for signs of pest infestation and waste should not be allowed to accumulate in the food processing area.

Pest control efforts have been carried out by PD Sri Tanjung. This can be seen that most of the vents in the production room have gauze as a cover to prevent the entry of insects or other animals. Another pest control is a light lamp that is an insect catcher.

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **Conclusion**

The application of the HACCP system is not yet done because there are several Good Manufacturing Practices (GMP) and Standard Sanitation Operating Procedures (SSOP) applications that have not been fulfilled. The implementation of GMP and SSOP in PD Sri Tanjung, in general, has been done quite well. Submission of a Certificate of Feasibility Processing (SKP) should be done to implement the HACCP system.

#### **Recommendations**

PD Sri Tanjung's employees should be given regular provisions regarding knowledge of the good and correct GMP and SSOP application systems. Some GMP and SSOP systems have been fulfilled, it should be maintained and the application of GMP and SSOP should be further improved. Periodic checks need to be done to minimize the dangers that may occur. PD Sri Tanjung can be a place of business that can be emulated by industries around the industrial complex.

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