



## FISHERIES AGRO-BUSINESS DEVELOPMENT AS A STRATEGY IN IMPROVING FISHERIES ECONOMY POST COVID 19 USING FROZEN FILLET PRODUCTS SYSTEM

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### Abstract

Fillet is one type of ready-to-eat frozen food product. Fillet is made from ground meat, given spices, and a binder mixture, then cured, steamed, cut, and covered with flour adhesive (*dough*) and bread flour (*breeding*). Field Work Practice is to study and learn workers' personal hygiene in producing Fillets of dumbo catfish (*Clarias gariepenus*) at P2MKP Karya Lestari, Pamekasan. This Riset Activity uses the descriptive observative method, which is a method of solving a problem by describing and explaining the situation and condition of an object of observation based on direct observations and facts that occur in the field. Collection in this Risetactivity uses primary collection methods from interviews, active participation, observations, and secondary through literature study. The application of personal hygiene in P2MKP has been carried out well by standards, including using closed clothing, using gloves according to standards, maintaining the health and safety of workers, and prohibiting the use of personal equipment made of metal. But the knowledge of personal hygiene workers is not evenly distributed because some workers have yet to receive training facilities on personal hygiene, which is an obstacle in applying personal hygiene to workers.

**Keywords:** *Fillet, Hygiene Food, Covid19*

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## INTRODUCTION

Food is a basic human need at all times and requires good and correct management to benefit the body. Food that is not managed properly and correctly by food manufacturers can cause negative impacts such as disease and poisoning due to chemicals, microorganisms, plants, or animals, and can cause allergies. The hygiene factor of food managers, commonly called personal hygiene, is a procedure for maintaining cleanliness in managing safe and healthy food. Hygiene procedures are clean behaviors to prevent contamination of food handled. An important procedure for food processing workers is hand washing, clothing hygiene, and personal health. In the United States, 25% of all foodborne diseases spread due to infected food processors and poor personal hygiene (Fatmawati et al., 2013). Therefore, personal hygiene management is needed to ensure the food safety of processed products.

The Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari Pamekasan is a processing training center engaged in fisheries. The processed products produced are surimi, especially fillets, meatballs, shredded catfish, and catfish-based and seaweed processing.

Diversification of fish products is indispensable to provide options for processors. Diversification of fishery product processing in product formulation (diversification). Fishery

products have recently become a concern and are well-developed. The processing of fishery products aims to increase the added value of production, both from fishing and aquaculture. Another goal is to introduce fishery products to the market and be accepted by consumers widely (Thalib, 2011).

*Fillet* is one type of ready-to-eat frozen product. *Fillet* is very suitable for the conditions of busy people, so this type of food is in great demand by the public. In general, *fillets* are made with chicken or beef. Along with the growing creativity and needs of the community, fish-based *fillets* have developed that have higher essential protein than beef or chicken. *Fillets* are made from ground beef seasoned, mixed with binders, then molded, steamed, cut, and greased with flour adhesive (*batter*) and covered in bread flour (*breadcrumbing*) (Antara, 2012). *Fillets* are fried half-cooked and frozen to maintain their quality during storage.

Fillet is a form of ready-to-eat frozen food products, which are products that have been heated until half cooked, then frozen. This ready-to-eat frozen product only requires frying time for 1 minute at a temperature of 150°C (Ginting, 2015). Catfish fillet is a new processed product. Making fillets from catfish requires additional ingredients that act as fillers and binders in addition to herbs and spices, the filler commonly used is flour.

According to Priwindo (2009), in making fish fillets, ingredients containing carbohydrates are needed as binders so that the ingredients are bound to each other in one dough which is useful for improving texture. Often used binders contain carbohydrates, Such as flour from grains, namely wheat flour from wheat, rice flour and glutinous rice from grains, cornstarch from corn, and those made from tubers, namely tapioca from cassava, sago flour, and sweet potatoes.

Fillet is a processed meat product that uses meat restructuring technology, which is a meat processing technique by utilizing low-quality meat (laying hen meat) because the pieces of meat are relatively small and irregular to be attached to a larger size into processed and increase the added value of the meat (Purnomo et al., 2000). Fillets that use chicken meat as the basic ingredient are called Chicken Fillets. In addition to chicken meat, in making chicken fillets, which are restructuring products, binders, and seasonings are needed. The binder acts as an emulsion stabilizer, increasing water binding, minimizing shrinkage, adding product weight, and reducing costs.

The development of fish as a raw material for fillets is very important because fish contains protein that is not inferior to chicken, especially to help increase the economic value of the product (Usmiati and Priyanti, 2012).

Food presenters can be a potential source of contaminants in transferring contamination, so food handlers must maintain their body cleanliness (Triandini et al., 2015). Through well-managed personal hygiene will minimize the possibility of foodborne disease. To find out directly about the application of personal hygiene management in fillet processing, research was carried out at the Karya Lestari marine and fisheries independent training center (P2MKP), Pamekasan.

Research activities are very important to be carried out because students can learn directly about the production process of fillet processing and the application of personal hygiene management and know the problems that arise in the application of personal hygiene management at the marine and fisheries independent training center (P2MKP) Karya Lestari, Pamekasan. The research aims to know the application of personal hygiene in producing catfish fillets (*Clarias gariepinus*) at the Karya Lestari Marine and Fisheries Independent Training Center (P2MKP), Pamekasan. In addition, in order to know the obstacles faced in the application of personal hygiene in the production of catfish fillets (*Clarias gariepinus*) at the Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari, Pamekasan. The benefits of this research are: Students can find out directly the application of personal hygiene in the production of catfish fillets (*Clarias gariepinus*) at the Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari, Pamekasan; Students can find out the obstacles faced in the application of personal hygiene in the production of catfish fillets (*Clarias gariepinus*) at the Karya Lestari Marine and Fisheries Independent Training Center (P2MKP), Pamekasan; Train soft skills for preparation before entering the world of work; Increase insight and knowledge about the application of personal hygiene in the field of fisheries.

## **METHOD**

The research will be conducted on January 23, 2023 – February 16, 2023. The Activity was carried out at P2MKP Karya Lestari Pamekasan, Jalan Pulau Nias, Ban District, Pamekasan Regency, East Java Province. RESEARCH participants are students of the Aquaculture study program with interest in Fisheries Product Technology (THP).

## **METHOD**

The method used during the implementation of RESEARCH is a descriptive method that examines the status of a human group, an object, a condition, a system of thought, or an event in the present. Descriptive research aims to make descriptions, images, or paintings systematically, factually, and accurately regarding the facts, properties, and relationships between the phenomena investigated (Nazir, 2011).

### **Data Analysis**

The research activity will describe the application of personal hygiene management of dumbo catfish fillets (*Clarias gariepinus*) products at P2MKP Karya Lestari Pamekasan to be able to describe the process. Data is needed, namely primary data and secondary data.

Primary data is obtained directly from the community or the source. The primary data collection method is carried out in 3 ways: active participation, observation, and communication (interview). Secondary data is data obtained from indirect sources or other parties to study primary data. This data is obtained from documentation data, magazines, newspapers, books, research institutions, supporting literature, available reports, the public, and other parties related to the processing of dumbo catfish fillets (*Clarias gariepinus*). The secondary data obtained is organizational structure, Standard Operating Procedures (SOP), and Fillet Product Quality Standards.

## **RESULTS AND DISCUSSION**

### **General State of Research Location**

The general state of the research location includes the history and background of the company's establishment, vision and mission, geographical location and location, organizational structure, employment, and products and market reach.

Karya Lestari Marine and Fisheries Independent Training Center (P2MKP) come from Karya Lestari's processing and marketing group (POKLASAR). This sustainable work processing and marketing group was founded because of a desire to improve skills. Good skills in meeting the needs of family dishes and increasing independence in creating jobs. Ultimately, it can give birth to new entrepreneurs who are reliable and competitive in processing various types of processed fish.

The name before P2MKP Karya Lestari was Poklasar, established on July 10, 2010, with 15 members. Its members come from mothers of Dharma Wanita Persatuan members in the Pamekasan regency. Poklasar Karya Lestari is a group of aquaculture product processors assisted by the fisheries and marine service of the Saronggi district. This group was inaugurated on November 8, 2010, by the perkebel (head) of Dauh Peken Village, with a beginner class according to the inaugural decree No. 05 of 2010. After obtaining the confirmation of the group, So began the group and managed to participate in various training carried out by the Ministry of Marine Affairs and Fisheries central, provincial, and district. Time went by in 2012 with the existence of a memorandum of understanding (MoU) between the Ministry of Marine Affairs and Fisheries (MMAF) and the local government of Saronggi regency through Fisheries and Marine Service, then Poklasar Karya Lestari was designated as a Marine and Fisheries Independent Training Center (P2MKP)

Sustainable Works. The head of the Marine and Fisheries Human Resources Development Agency of the Indonesian Ministry of Marine Affairs and Fisheries made the determination. The determination was made on May 24, 2012, with the Number 30/BPSDMKP/P2MKP/P/2012 as a beginner class. As a follow-up to the memorandum of understanding (MoU) starting in October 2012 through the Education and Training Agency (BP3) Banyuwangi, P2MKP Karya Lestari was given the trust to work in national training.

### **Company Vision and Mission**

The vision of the Karya Lestari Marine Fisheries Independent Training Center is the realization of human resources in the processing of quality and competitive marine and fishery products in the market. The mission of the Karya Lestari Marine Fisheries Independent Training Center is to prosper the community by empowering the community through empowerment in the field of fish processing and marketing, Creating a productive and independent community, and playing an active role in creating jobs in the field of fish

processing and marketing, giving birth to new entrepreneurs who are reliable and competitive. Location and Geographical Location of the Company.

Karya Lestari Fisheries and Marine Independent Training Center (P2MKP) is located on Jalan Anyelir XII, No. 13, Deasa Dauh Peken, Saronggi District, Saronggi Regency. The land area is approximately 900 m<sup>2</sup>, with a processing training building area of 200 m<sup>2</sup>. The location of the Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari is quite strategic because it is near interprovincial highways. Hence, the delivery of goods and raw materials is easier.

### **Corporate and Employment Organizational Structure**

The organizational structure of the Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari is with a line of command that shows the position and responsibility of each member of the organization or staff based on leadership hierarchy. Top management is the chairman or manager who oversees the secretary, treasurer, admin, training, and public relations.

The Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari has a total number of employees of 15 people, with six permanent employees at the Marine and Fisheries Independent Training Center (P2MKP) Karya Lestari and nine other employees of Poklasar Karya Lestari.

### **Personal Hygiene Workers**

As people who work with or around food, high worker hygiene standards are required. Worker hygiene must be accomplished by keeping workers and their clothes clean by following special washing procedures. Workers are responsible for producing safe food products, and good worker hygiene is one of the important things needed to keep food products safe from microbial contamination.

The condition of workers at P2MKP shows that personal hygiene has been carried out because when processing and changing processes, workers start by washing their hands. Workers wear clean clothes that are guided to carry out the processing process. Besides that, workers have also complied with all the rules set so that the application at P2MKP itself is good, and some of its workers have attended the training.

According to Anwar Prabu Mangkunegara (2000), occupational health programs show conditions free from physical, mental, emotional, or pain disorders caused by the

environment. The situation at P2MKP Karya Lestari is that there needs to be a good health program for workers. Still, workers from P2MKP already have BPJS, so there is a separate guarantee even though it is not from P2MKP. To prevent contamination caused by workers' health, the head of the processing department always controls sick workers. When it is seen that there are workers who are sick, the Head of the Processing Section immediately takes preventive measures such as prohibiting workers from processing. It is advised to seek treatment at the nearest clinic or hospital.

### **Worker Health**

According to Anwar Prabu Mangkunegara (2000), occupational health programs show conditions free from physical, mental, emotional, or pain disorders caused by the environment. Employee health insurance increases worker productivity and supports preventing materials contaminated by pathogenic microbes from moving from sick or injured people. Thus, ensuring good and stable worker health is key to food security and successful economic operation in the long run.

Efforts should focus on (1) providing workers with a safe working environment and wellness programs with the goal of disease prevention; and (2) adequate attention or management of sick or injured workers to prevent pathogen contamination of vegetable products or transfer of disease to others. The situation that occurs at P2MKP Karya Lestari is that there needs to be a health program provided for workers properly. However, workers from P2MKP already have BPJS, so there is a separate guarantee even though it is not from P2MKP to prevent contamination caused by workers' health. The head of the processing department always controls sick workers. When it is seen that there are workers who are sick, the Head of the Processing Section immediately takes preventive measures such as prohibiting workers from processing. It is advised to seek treatment at the nearest clinic or hospital.

### **Worker Hygiene**

Good hygiene procedures are crucial to food safety in every production operation. Therefore, good practice must establish and incorporate employee training programs. In accordance with the functions of the worker, responsibilities, and areas of Activity, the level of knowledge and care will vary greatly.

From observations during research, P2MKP Karya Lestari has carried out procedures well, especially regarding responsibility, because workers at the time of processing do not violate all the rules. Besides that, the head of the processing section always monitors all activities carried out by each worker because the head of the processing section always accompanies the workers during the production process. However, some things could be improved in terms of insight and knowledge of workers. According to Zulaikhah (2009), the level of education of employees or workers is very influential on the level of knowledge they obtain. The experience gained by workers will affect the way they handle food products so it needs to be considered, namely training problems for all workers or members because not all have received training aimed at increasing insight and knowledge about worker hygiene.

### **General Standards of Personnel and Protective Clothing**

Workers and visitors who come to the product handling area must be provided with protective clothing. The company guarantees the cleanliness of the protective clothing used. Protective clothing must be ensured that there are no pockets on the outside that can be a medium for foreign objects to enter the product handling area. The use of one or two (maximum) deep pockets will be better, and workers should be trained that only items needed in product handling should be brought into the product handling area.

The clothes used in P2MKP already meet good standards because they have covered parts that can allow foreign objects to enter. Milestone (2007) explained that the work clothes of workers in the food sector must be able to cover all limbs that have the potential to come into contact with the product. In addition, the pockets available in protective clothing only have one part located in front so that the available pocket capacity has met the requirements, for washing is done when the clothes look dirty or 3 to 4 times the use, and the SOP applied is appropriate, namely not allowed to bring clothes out of the production room and also not allowed to exchange production clothes because P2MKP has prepared clothes specifically for the production process.

#### *Head Covering*

Headgear and hairnet are important parts of workers' clothing that should be designed to be comfortable for workers to wear. The head covering is designed to cover all hair, ensuring adequate space for comfortable use. Comfort is needed to prevent workers from touching the head, neck, or parts of hair, which can transfer bacteria to the product.



The head covering used during the production process meets the standards but does not use disposable head coverings and cannot cover the entire hair, such as a hairnet. It is because the head cover is faceted so that parts still need to be completely covered, as well as a head covering material in the form of cloth can be used many times. However, if you refer to the standard, the head covering is appropriate because it can cover the hair even though it is not whole and comfortable. Washing is done the same as washing clothes, processing three or four times or if it looks dirty.

### **Glove**

Workers must use gloves to minimize contamination from workers hands (Mariot and Gravani, 2006) and protect workers' hands from work accidents. There are two types of gloves: rubber gloves that can be used repeatedly and disposable gloves (disposable).

Workers at P2MKP use disposable gloves made of plastic because, according to workers, the gloves are easier to use and more comfortable. The use of gloves applied at P2MKP is by standards because when carrying out a different process, the gloves will be replaced and not It is allowed to use gloves until the end of production as it may result in cross-contamination resulting from the use of the same glove until the end of production.

### **Footguard Pad**

The foot protection pad used by P2MKP workers is in the form of sandals instead of a boot so that it does not completely cover all parts of the foot. Rafferty and Hernessy (2009) explained that using boots can prevent the transfer of bacteria from one place to another. However, there is an SOP given, namely, the use of sandals is only used in the processing area, so the sandals should not be used outside the processing area so that there is no transfer of bacteria from one place to another.

The sandals used are washed 3 to 4 times during the production process to be safe, but some things are not applied, namely, chlorine for sandals when entering the processing room. It is known that before entering the processing room, it is required to soak sandals or shoes in water that has been given chlorine according to the dose so that bacteria or germs die. Spellman (2003) in Rosyidi (2010) explained that chlorine in water could bind to inorganic and organic compounds to function as a disinfectant. Limited costs underlie the non-use of chlorine, and the floor in the processing room is not watery, so if washing is done before

entering the processing room, it will wet the floor. Besides that because special slippers are provided and also always washed.

### **The Process Of Making Catfish Fillets. Material Preparation Process**

Material preparation is the first step to making a processed catfish fillet. The ingredients prepared include catfish, salt, tapioca flour, wheat flour, sugar, leeks, garlic, onions, vegetable oil, Panir flour, carrots, ground pepper, ginger, and ice water to taste. Fish used in making catfish fillets use fish that have been fillet, and the type of fish is dumbo catfish or large in size. The fish is obtained from farmers in the Saronggi area. Still, to obtain the material, P2MKP Karya Lestari takes it at the Saronggi Fisheries and Marine Service because the place provides catfish desired by the processor.

The use of master catfish is due to more meat and also a more savory taste because the processor has conducted experiments in making catfish fillets using consumption sizes and master sizes, the results obtained are still savory for master catfish when processed compared to catfish consumption sizes besides that the selection of master catfish is based on the assumption of obtaining more fish meat. The addition of ginger to processed manufacturing can reduce or eliminate the fishy smell in fish meat so that the smell is not too strong. Adding salt and cold water aims to extract actomyosin so that a product with good emulsion stability will be formed. In contrast, adding ice water aims to dissolve and distribute the salt evenly throughout the meat mass, ease muscle fibers, aid emulsion formation, and maintain low meat temperature during grinding. Proses Penggilingan Bahan serta Pencampuran Bumbu

The grinding process aims to reduce the mass of ingredients by blending or grinding using a grinding tool so that it becomes a dough that is ready to be molded. At this stage, ingredients such as leeks, white bottom, onions, carrots, and ginger are mashed using a blender, and then the drained fish meat is put into the grinding machine after everything is smooth. Put the ground meat into the mixer, coat it with salt, and stir the dough for 20 minutes. The calculation for 20 minutes includes the first 10 minutes to mix the spices into the dough, then in the 15th minute, the flour is put alternately, and in the 20th minute, the dough is removed.

The moving process that takes precedence is mixing spices before mixing flour because the spices added can seep into the meat. According to Rahardjo et al. (1995), the factors that affect the success of fillet products are focused on the ability to bind between meat particles and other ingredients added. While the function of adding flour is to form a texture and also

unification of ingredients, according to Priwindo (2009), good fillers containing carbohydrates and binders can unite all ingredients and form textures, one of the fillers and binders commonly used in processed food products, namely wheat flour and milk flour.

### **Printing and Steaming Process**

In this process, the finished dough is immediately molded by smearing using panir flour. However, the smearing of panir flour is done two times before and after steaming. Before steaming is done when molding the dough into the desired shape. Then, after steaming, sprinkle panir onto the dough that is still hot so that it sticks to the dough, so the panir flour sticks perfectly. Steaming is done for 20 minutes using a boiling temperature of 100C, the steaming time ° should not exceed 20 minutes because it can result in overcooking or overcooking, and if that happens the desired final product is not so good.

### **Packaging and Labeling**

Packaging is a way to protect products from contaminants and bacteria in the environment, and packaging is also useful for increasing the marketability of products to have a higher value. Materials usually used for packaging fishery products in the form of heat-resistant and airtight plastics such as plastic made from Polypropylene (PP) or Polyethylene (PE), Both types of plastic can reduce heat penetration from outside the packaging and can also protect the product from contamination outside.

Labeling is used to provide a brand of the product or can be used as information on the ingredients used to make the product, and it would be better when a product can include nutritional content to provide confidence to consumers who buy that the product is guaranteed safe and does not contain preservatives. In addition, the purpose of labeling is to provide information on the expiration period of the product for catfish fillet products from P2MKP Karya Lestari can last for six months.

In the packaging, process is not recommended to put fillets that are still hot because it can cause the plastic to dew. Besides that, the air in the plastic is removed, for 250 grams of fillets can contain about 13-15 pieces, while the yield of 1 kg of catfish meat will produce 2.5 kg of fillets.

### **Product Storage**

Product storage is the final process of the catfish fillet manufacturing process. Product storage aims to extend the shelf life of a product and can also inactivate bacteria that cannot withstand cold temperatures. The product is stored in a refrigerator or cold storage with a temperature of 5°C-10°C. The temperature must always be stable in the storage area so the product does not experience damage due to increased room temperature. *General Personal and Dress Standards*.

Workers and visitors to the product handling area must be provided with protective clothing. The company guarantees the cleanliness of the protective clothing used. Protective clothing must be ensured that there are no pockets on the outside that can be a medium for foreign objects to enter the product handling area.

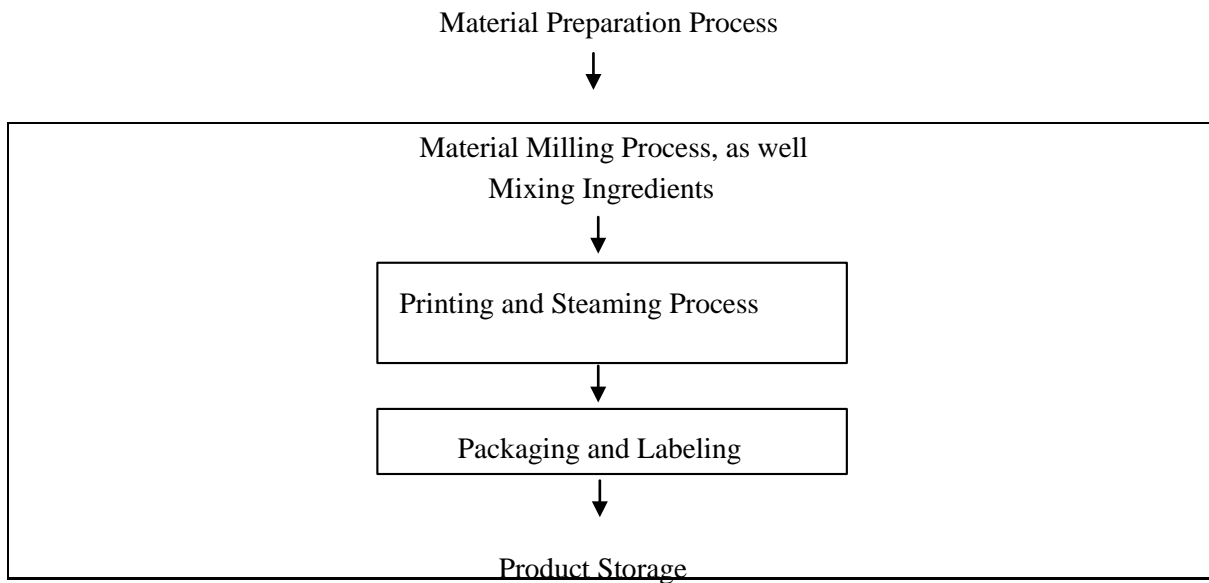
The clothes used in P2MKP already meet good standards because they have covered parts that allow foreign objects to enter. Elestone (2007) explained that the work clothes of workers in the food sector must be able to cover all limbs that have the potential to come into contact with the product. In addition, the pockets available in protective clothing only have one part in front, so the available pocket capacity has met the requirements.

Headgear and hairnet are important parts of workers' clothing that should be designed to be comfortable for workers to wear. The head covering is designed to cover all hair, ensuring adequate space for comfortable use. The head covering used during the production process meets the standards but does not use disposable head coverings and cannot cover the entire hair such as hairnet, this is because the head cover is faceted so that there are parts that are still not completely covered as well as a head covering material in the form of cloth and can be used many times, however, if you refer to the standard, the head covering is appropriate because it can cover the hair even though it is not whole and comfortable when worn.

Workers must use gloves to minimize contamination from workers hands (Marriot and Gravani, 2006) and protect workers hands from work accidents. There is more use and convenience. The use of gloves applied at P2MKP is in accordance with the standard because when carrying out different processes, the gloves will be replaced, and they are allowed to use gloves at the end of production.

The foot protection pad used by P2MKP workers is in the form of sandals instead of a boot so that it does not completely cover all parts of the foot. Rafferty and Hernesy (2009) explained that using boots could prevent the transfer of bacteria from one place to another.

However, there is an SOP given, namely, the use of sandals is only used in the processing area, so the sandals should not be used outside the processing area so that it does not occur.



**Gambar 1** Production Flow Chart (Source: P2MKP Karya Lestari, 2023)

Workers at P2MKP use disposable gloves made of plastic because, according to the glove workers, it is easier to transfer bacteria from one place to another.

### Stages of Catfish Fillet Making Process

The production process of catfish meatballs starts from the washing stage to product packaging. The flow chart of catfish meatball production is in figure 1:

### Factors and Constraints on the Application of Worker Personal Hygiene

The obstacle in implementing worker personal hygiene management at P2MKP is the lack of knowledge of workers about personal hygiene that should be applied to fisheries processing so that workers do not understand thoroughly about *personal hygiene*. The lack of knowledge of workers about *personal hygiene* is caused by the fact that there are still many workers who have not attended the Worker Hygiene Sanitation training so that when the application is still not optimal. Financially, P2MKP is also inadequate because all operational needs still need to be on the available funds. Several parts cannot be applied, including washing feet or hands when entering the production room, which should use chlorine so that bacteria from outside die. Personal hygiene must be applied because it is a fundamental problem always sidelined in fisheries processing.

## CONCLUSION

The implementation of *personal hygiene* at P2MKP has been carried out well by standards, including using closed clothing, using gloves according to standards, maintaining the health and safety of workers, and prohibiting the use of personal equipment made of metal. However, knowledge about workers' *hygiene* has not been evenly distributed because some workers have not received training facilities on *personal hygiene*. It is an obstacle in the application of worker *personal hygiene*.

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