



THE ANALYSIS OF THE BEST WAY IN MAKING TILAPIA BROWNIES COOKIES AT UKM SALUYU SUKABUMI

Dita Rosani¹, Eddy Afrianto², Ibnu Bangkit Bioshina Suryadi², Rusky Intan Pratama²

¹Student of Fisheries, Faculty of Fisheries and Marine Science, Padjadjaran University, Indonesia

²Lecture of Fisheries, Faculty of Fisheries and Marine Science, Padjadjaran University, Indonesia

ABSTRACT

This research is conducted to analyze Good Manufacturing Practices (GMP) in the making of Tilapia Brownies Cookies which conducted in August 2019 at UKM Saluyu, Sukabumi Regency. The purpose of this research is to analyze the application level of GMP in the making of Tilapia Brownies cookies at UKM Saluyu with the regulation of the Minister of Maritime and Fisheries Affairs, Republic of Indonesia Number 52A/KEPMEN-KP/13. The method used in this research is case studies by following directly the entire process of tilapia brownies cookies production from raw materials until the product marketing. The data analysis used in this research is descriptive. The results show that the application of GMP in UKM Saluyu is not by 52A/KEPMEN-KP/13 from buildings, equipment, worker requirements, and product distribution aspects; while location, handling fishery products, labeling and packaging are by the regulation. The proximate analysis show that tilapia brownies cookies contain: 3,90% of moisture, 9,24% of protein, 22,30% of lipid and 1,69% of ash.

Keywords: Tilapia brownies cookies, GMP, Proximate

1. INTRODUCTION

Fish is the cheap food source of animal protein compared to other sources of protein. Fish also contains unsaturated fatty acids, vitamins, and minerals that are needed by the human body (Muchtadi 2007). One of the fish that content high protein is the tilapia of 18,70 (a List of Material Composition Food 2004). Tilapia is chosen as the raw material because it has a flesh that is thick, compact and has little thorns Fitria et al. 2014).

UKM Saluyu is a household industry that produces processed food fisheries or fast food without preservatives. One of the products of UKM Saluyu is brownies cookies fish tilapia. The texture of Brownies cookies fish tilapia is crispy like biscuit/cookies. Many kinds of fishery products can be used as one of the innovation to increase the domestic consumption of fish. Good Manufacturing Practices (GMP) is the way to process the fish well in order to fulfill the costumer's request. GMP is the guideline used to ensure the activities of the production both in quality and safety. The application of GMP needs to be implemented in each processing unit of the small industry to a large industry. GMP in the Decision of the Minister of Marine and Fisheries Number 52A/KEPMEN-KP/13 about the Requirements of Quality Assurance and Safety of Fishery Products in the Process of Production, Processing, and Distribution. The profit of GMP for industry is that it can produce and provide food which are safe and feasible for consumers, providing understandable information to public, for example by labeling, and the provision of instructions regarding tips how to keep the product, so that the community can avoid the food from possible contamination and damage of food by knowing of the handling, storage, and preparation of a good (Sutikno 2017).

This rules as a guideline or benchmark for businesses in the field of fisheries to implement the requirements of quality assurance and safety of fishery products in the process of production, processing, and distribution. Also, this regulation is to get the results of fisheries that meet the quality assurance and safety of fishery products. Safety of Fishery products is the condition and efforts required to prevent fishery products from the possible contamination of biological, chemical and other objects that can interfere, harm and endanger the human health as well as to ensure that the results of the fishery products will not cause harm to the consumer (Ministry of Marine and Fisheries, 2013).

The government regulates how food production (good Making Practices) in the Decision of the Minister of Marine and Fisheries Number 52A/KEPMEN-KP/13 about the Requirements of Quality Assurance and Safety of Fishery Products in the Process of Production, Processing, and Distribution.

Businesses that have implemented the feasibility of processing system that is How the Production of Processed Food (Good Manufacturing Practices) and meet the requirements of the standard operating procedure for sanitation (Sanitation Standard Operating Procedure) will be given a Certificate of Eligibility Processing (SKP) issued by the Director-General to Strengthen the Competitiveness of Marine Products and Fisheries.

2. MATERIALS METHODS

2.1 Research Location

This study was conducted in SMEs at DJ auto RT 01/ RW 02 Kp. Babakan Limbangan Village, Sukaraja Subdistrict Sukaraja Sukabumi District in August 2019. the results of the chemical test brownies cookies tilapia fish issued by PT Saraswati Indo Genetech Bogor.

2.2 Materials and Tools

The materials used in this research are the chemical data results of test brownies cookies fish tilapia. A tool used to observe how the production of processed food is good for sheet feasibility assessment unit fish processing (Modification 52A/KEPMEN-KP/13).

RESEARCH METHOD

2.3 Research Procedures

The research procedures that have been done are the observation of the of brownies cookies fish tilapia making process and analyze the application of the best way to make it. The method used in this research is survey method. The data gained from this research were analyzed by descriptive comparative. The observation data of each process flow of application of CPPOB refers to the Regulation of the Minister of Marine and Fisheries of the Republic of Indonesia Number 52A/PERMEN-KP/2013.

3. RESULTS AND DISCUSSION

3.1 The Process Of Making Brownies Cookies Fish Tilapia

The process of making brownies cookies tilapia which done by UKM Saluyu consists of several stages, such as receiving of raw materials, weeding and washing, seperating meat, skin, and spines, grinding meats, mixing dough, putting in the oven, cooling and cutting, heating in the oven, packaging and labeling, keeping of final product and distribution. The quality of the raw materials used will affect the quality of the products produced.

Tilapia fish is cleaned from scales and entrails carefully to make the skin of the fish is not damaged. Disposal of the scales and the contents of the stomach aim to maintain the quality of freshness of the raw material to prevent contamination of bacteria from the skin/mucus (Hadiwiyanto 1993). Washing fish with running water so that the dirt does not stick to the fish and can reduce bacterial contamination on meat fish that will be used. After the body of the fish clean from scales, clean the belly of the fish away from eliminating the dirt and slime that sticks on the surface of the body (Dinstel 2013).

The separation of flesh, the thorns, and the skin are done manually with the fillet. The meat of tilapia fish already in fillets collected in a container and ground using a meat grinder. The purpose of grinding is to smoothen the flesh of the fish as well as destroy the thorns which still attached to the meat.

The meat of tilapia that has been milled is mixed with the eggs and sugar and then stirred using a mixer (i). The function of the stirring by using a mixer is to make the dough is stirred well. Put the flour and cocoa powder depth of the dough (i) stirred back in with a mixer, then put the candy bars and butter that has been melted, stirred using a spatula and added powder vanilla 1 packet. The function of the addition of vanilla to produce a fragrant aroma. Dough that is mixed and poured into the baking pan previously buttered, so that when cutting the brownies is not sticky on the baking sheet. Dough brownies roasted for 30 minutes at a temperature of 200°C. the high temperature will accelerate the rate of transfer of heat, browning, and changes in tastes of foods (Supriyanto et al. 2006).

Brownies which are already cooked, then it is cooled by aerating at room temperature. Once the brownie has cooled, do the process of cutting brownies or excision with 2 cm thick box-shaped. Brownies in pieces using a knife.

The brownie that has been cut, then it is arranged on a baking sheet and put in the oven back in temperature 165°C with the unspecified time, because when the second time brownie in the oven, it is flipped to avoid burn. When the brownie pressed and it has been hard, it means the brownies has been ready and it is called cookies.

The packaging of brownies cookies by using the aluminum foil which given sealer and labeled. The Label already contained a product name, nutritional content, expiry date, number P-IRT, the writings of halal by Majelis Ulama Indonesia and the recommendation dispose of the packaging in the trash. Brownies cookies that have been packaged then stored at room temperature and the next will be in distribution to food stores by in the District of Sukabumi.

3.2 The application of the the best way in Making Brownies Cookies Tilapia Based on DECREE No. 52A/KEPMEN-KP/2013.

3.2.1 Location and Environment

Location and environment including the indoor and outdoor production sites. The indoor section consists production space, raw material receiving and storage space which can protect the product from contamination and outside influences such as insects, air pollution from the outside, the sun and the other because it is equipped with air ventilation and waste disposal areas. The outdoor part includes the place of production or other facilities provided in the area of the place of production. Environmental conditions in UKM Saluyu quite clean and maintained an environment of the outdoor area and the indoor pool seen from the species listed in the ministerial DECREE No. 52A/KEPMEN-KP/2013 Location and Environment. The cleanliness of the room and the production environment is a responsibility. The placement of the trash is on certain parts, such as in the region outside of the production space, in production and raw material storage.

3.2.2 The Production Space

1. The floor in the production room of UKM Saluyu are made of ceramic which is easy to clean. Before production and after production, the floor is always cleaned using swept and mop using water floor and carbolic acid to mop the floor. The floor is one of the most important things to prevent the occurrence of contamination on the product, the floor must be easy to clean, made of materials that are water-resistant and durable (Winarno and Surono 2002).
2. The wall, the part of production space UKM Saluyu, is already flat and white. The surface of the wall must be considered properly in order to not to cause a danger to the processed product, and it is easy to clean. The surface of the wall is smooth and flat and light-colored, then if using coatings, it should be made of materials that are not toxic (Oktaviani 2012).
3. The ceiling in the production room has a bit peeled off because it is made from plywood. Although the material is made from plywood which is easy to clean, however, there is a gap which it is possible to facilitate rodent or insect enter into the production space. Also, the plywood that is already fragile makes small particles like the paint fall and contaminate products. These circumstances require improvements to minimize the occurrence of contamination physically.
4. Rectangular-shaped ventilation which has no cover in the production room UKM Saluyu, and it is not enough to filter the air in the room properly. Preferably to make the air filter properly and to prevent insects enter through ventilation, it should be covered using smooth wire. Winarno and Surono (2002) state that the ventilation must be equipped with sunscreen or other protective equipment that is not easily corrosive and easy to clean.

5. The door used for entering into the production room UKM Saluyu is made of wooden plywood because it is not the production of wet work. The door is coated with plastic to minimize flies entering into the production space. Although the wood material plywood is not easy to rust, the lack of the use of wood is not resistant to animals such as rats and easily weathered. The surface of the door should be rust-resistant, smooth and flat as well as water-resistant and easy to clean (Winarno and Surono 2002)
6. The lights in the production room has white color with the power of 24 watts amount to 3 pieces of lights bright enough for the space of its production. Lighting is very important to ensure that all equipment used in the production space in a clean state, also, it is very important to ensure the success of the work of preparation, processing, presentation, and storage of food (Purnawijayanti 2001).
7. The production halls are required to have a place to wash hands which has container of soap and clean running water so that employees who will do the production are obliged to wash hands first. In addition, employees also are required to use a disinfectant for their hands. The cleanliness of the employees is very important in production activities so that it will not contaminate the product.
8. In UKM Saluyu, there is only one bathroom because the number of employees only seven. The condition of the bathroom looks less clean because the bathroom floor is dull and there is a brownish stain that is difficult to clean.

3.2.3 Water

The water in UKM Saluyu to process of handling and processing used well is water that has collected in the reservoir (torn) then it is piped to the pipe to be drained to the faucet whirlpool laundering. The water used in UKM Saluyu has already done microbiological testing of water quality.

Quality standards the water used are clear, liquid, tasteless and odorless. This is supported by the theory of Elviana (2015) stating that the quality requirements of water used in the food industry odorless, tasteless, crystal clear, containing no metal (such as iron, manganese), not causing health disorders and not rotten products.

3.2.4 Employees

Employees who will enter the production room or before entering are required to clean themselves and wear the production clothes, washing hands in a sink that has been provided in the production room, wash the feet in the bathroom and using hand sanitizer. Hygiene personal refers to the level hygiene of the person. Employee health plays an important role in food sanitation because human is a potential source of disease-causing microbes moved on to other people through food. Avoid scratching parts of the body such as head, hair and face, avoid smoking while working, cut the nails, close the wound on the finger, do not wear jewelry during work, avoid using hand when testing food (Rauf 2013).

3.2.5 Pest Control

The building is always guarded in a well-maintained condition, and 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 food processing areas (SNI CAC / RCP 1: 2011). Pest controlling has been done by UKM Saluyu by

closing ventilation in the production room using gauze to prevent the entry of insects or other animals. Another pest controlling is there is a light lamp as an insect catcher.

3.2.6 Waste Management

UKM Saluyu production landfill is located under the washing place to make it easy to dispose of the waste after washing, the waste is wrapped in two layers of plastic, then this waste will be brought in the morning to the place of public garbage disposal. According to Purnawijayanti (2001), waste from food processing must be handled as well as possible to avoid contamination of pathogenic microorganisms.

3.2.7 Equipment

Equipment and containers that contact with food should be designed and constructed to ensure that it can be cleaned disinfected and maintained to avoid contamination of food. Equipment and containers should be made of materials that do not have toxic effects. Equipment must be durable and can be moved or disassembled to allow the execution of maintenance cleaning disinfection monitoring and to facilitate inspection for pests (SNI CAC/RCP 1:2011).

The equipment used to cook, heat, cool, keep or freeze food should be designed to meet the desired temperature of the food as quickly as necessary to the interests of the safety and feasibility of food and maintained effectively. The equipment is designed in order to control the the temperature.

3.3 The Results Of The Chemical Test of Brownies Cookies Fish Tilapia

The chemical test was conducted to determine the content of protein, moisture, fat and ash in brownies cookies fish tilapia. The results showed that the levels of moisture brownies cookies tilapia is 3,90% with a maximum moisture content of 5%. moisture content is one of the characteristics that are very important in food because moisture can affect the appearance, texture, and taste of the foodstuff. High water levels affects bacteria to proliferate, so that will change the food material (Afrianto and Liviawaty 1989).

The moisture content in the brownies cookies fish has decreased due to the treatment of heating using roasting in the oven. According to Purnomo (1995), heating by using the high temperature will lead to the ability to absorb water decreased. The results of the chemical test brownies cookies fish tilapia are presented in Table 2.

Table 2. The result was the analysis proximate tilapia brownies cookies

Parameter Uji Proksimat/ Proximate parameter	Batas Standard*/ Standard limit	Hasil Uji/ Test results	Saturn/ Unit
Moisture	Maks 5	3,90	%
Protein	Min 5	9,24	%
Lipid	Min 9,5	22,30	%
Ash	Maks 1,3	1,69	%

Source : *BSN (2011)

The content of protein brownies cookies fish is 9.24% shows that the brownies cookies fish exceeding the minimum limit of protein by 5%. The results showed that the addition of fish meat on dough brownies cookies can improve the high protein content when compared with

the nutrient composition per 100 grams of brownies sweet potato flour, according to Sulistiyo (2006) by 5.5%. The function of the protein for the human body is a source of energy, forming a growth and the maintenance of the body, improve the body's resistance to disease and accelerate the physiological process (Adawyah 2007).

The fat content in brownies cookies fish by 22,30% with a maximum fat content of 9.5%. The fat content in brownies cookies fish has increased because of the addition of margarine on the dough.

Ash content is brownies cookies fish of 1.69% shows that the brownies cookies fish exceeded the maximum limit of ash content of 1.3%. The ash content of a material describes the number of minerals that are not burned into a substance that can be evaporated. The greater the ash content of food material showed the higher the minerals contained by these foods (Ningrum 1999). According to Sulaswatty (2001) the ash content is too high can cause a decrease in the durability of the dough against the development.

4. CONCLUSION

The best way in making Tilapia fish brownies cookies implemented in UKM Saluyu from the location and environment, the receipt of raw material, production process, packaging, equipment, health of employees until the distribution, overall from hygienity of production and completeness of the production are good enough based on the suitability of the 52A/KEPMEN-KP/13. The results of the chemical test of brownies cookies fish tilapia showed that the moisture content of 3,90%, protein content of 9,24%, lipid content 22,30% and ash content of 1.69%.

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