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_Earth_Environ._Sci._343_01216
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Submission date: 26-Dec-2022 12:13PM (UTC+0700)

Submission ID: 1986632966

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Analysis of knowledge level of human resources on GMP (Good Manufacturing Practice) in processing and fisheries group in Makassar city

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Abstract. Human resources (HR) in a group engaged in the processing of fishery products are required to have good knowledge of good manufacturing practice (GMP), how they conduct raw material selection, handling, processing, selection of additives and chemicals, packaging, storage, and distribution in order to produce quality food products that are safe for consumption. This study aims to analyze the level of Human Resource knowledge. The sampling method used is nonprobability. Samples were taken by using the Slovin formula with an accuracy limit of 10% so that the samples taken were 87 of 654 people. The research location is Makassar City, which was chosen based on the consideration that in Makassar, there are fishery product processing groups. Data collected includes knowledge of HR. Data analysis uses a combination of quantitative and qualitative analysis. The results showed that respondents' knowledge of the origin of raw materials reached 88%, the quality of raw materials reached 89%, washing of raw materials reached 75%, weeding raw materials reached 74%, washing the second stage raw materials reached 74%, imitation reached 91%, workers reached 77%, equipment reached 87%, additional materials allowed reached 46%, additional materials that were not allowed reached 54%, packaging materials reached 84%, weighing products reached 76%, information on packaging reached 99%, storage reached 91%, storage administration reached 95%, transportation facilities reached 90%, and the distribution procedures reached 91%. The highest level of knowledge is knowledge of storage administration, while the lowest level of knowledge is additional material that is allowed in the analysis of the level of human resources knowledge of GMP in the fishery product processing group in Makassar City.

1. Introduction

Makassar City has the potential of fisheries that can be managed optimally. The potential catch of Makassar City fishers is 18,000 tons, the cultivation of brackish water fish is 538 tons, and the processing of fishery products is 128 units with 292 tons of processed products.

Makassar City is one of the marketing centers for various kinds of agricultural, fishery and livestock products, both based on raw or processed materials. Seeing this good prospect, several fishers and homemakers in Makassar city took the initiative to create a group to take part in the processing of fishery products, intending to be able to help the family economy and improve the living standards of the group members [1].

Food quality and safety cannot be separated when talking about fishery products. This is based on the fact that fish including food products are very perishable, so the efforts to maintain their quality



and safety become a matter of concern. Food products such as fish and its products are required to fulfill various provisions before consumption [2]. Justification of quality assurance and safety of fishery products in order to respond to the growth of consumer demands today. As a consequence of the increasing world civilization of society [3]. To improve quality assurance and food safety of fishery products, the Directorate General of Fisheries Product Processing and Marketing (P2HP), the Ministry of Maritime Affairs and Fisheries (KKP) introduced the application of Good Manufacturing Practices [4].

Good Manufacturing Practices is a guideline for food production that aims to make food producers meet the requirements that have been determined to produce quality food products and safely consumed according to the demands of consumers. Good Manufacturing Practices must be applied by the industry that produces food products as a preventive effort so that the food that is ready to consume is safe, decent, and quality [5].

Makassar City through the Department of Agriculture Fisheries and build 64 group fishery product processing household scale that produces a wide range of products including shredded fish, fish balls, brains - brains, dried fish, fish nuggets and fish crackers. The group is a unity consisting of two or more people who perform activities to achieve a purpose [6]. Human resources in a group are precious assets in the group itself. The success of a group in achieving the vision and mission of the group is determined by the competence of human resources in it. Competence of human resources in a group engaged in the processing of fishery products is demanded to have good knowledge, attitudes, and skills towards the implementation of GMP, how they conduct a selection of raw materials, handling, processing, selection of additional materials and chemicals, packaging, storage, and distribution.

Knowledge is the result of knowing and this happens after someone senses a particular object [7]. Most human knowledge comes from human senses. Knowledge is needed as the primary determinant in the formation of attitudes and skills in human resources. The knowledge referred to in this study is that respondents can find out about work preparation, processes, work attitudes, and marketing in processing and marketing fisheries products.

According to the problems mentioned above, the author is interested in examining the level of knowledge of human resources towards GMP (Good Manufacturing Practices) in the processing and marketing of fishery products in Makassar City. This research is considered necessary to get a picture of the level of knowledge of fisheries processing and marketing groups to GMP. The output of this study is expected to be input for the group so that the goals of the group can be achieved.

2. Methods

This research was conducted in Makassar City. The type of this research was a survey with a descriptive analysis approach. The population in this study was a member of the fisheries product processing group under the auspices of the Fisheries and Agriculture Office of Makassar. The population of the group was 64 groups; wherein one group consists of 8-20 people with a total population of 654 people. The sampling method was done by nonprobability sampling. Samples were taken using the Slovin formula with a accuracy limit of 10% so that the samples taken were 87 of 654 people. The methods and techniques of data collection in this study were divided into; Primary data was obtained through; field observations, in-depth interviews, filling out questionnaires, and focus group discussions. Secondary data obtained through a search of the literature, reports on the implementation of the results of activities that had the same topic, the results of previous studies and other writings that were relevant to the problem under study.

3. Results

3.1. Knowledge of raw material selection

Figure 1. The respondents' average knowledge of the origin of raw materials reached 88%. This figure showed that the knowledge of the origin of raw materials was in the excellent category. Average respondents' knowledge of the quality of raw materials reached 89%. This figure showed that the knowledge of the quality of raw materials was in the excellent category.

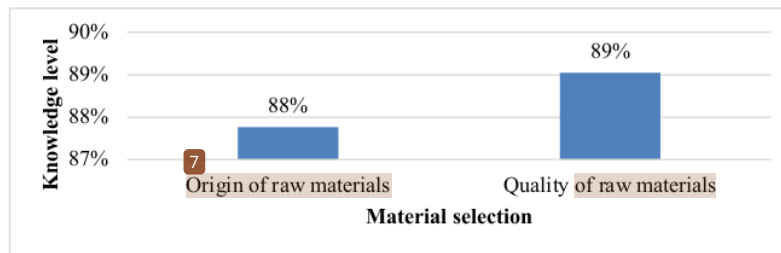


Figure 1. Level of knowledge of the raw material selection

Members of the group were coastal communities who were accustomed to handling fresh fish since the fish had just been transferred from fishing boats to fish auction sites. In this process, there had been sensing to acquire knowledge.

The level of knowledge of raw material selection was at the evaluation stage. This evaluation relates to the ability to make an assessment of a material or object of the judgments based on self-determined criteria or use existing standards.

The origin of suitable raw materials according to SNI 2729: 2013 is the standard derived from fishing vessels/fish transporters and fish suppliers who have fish handling certificates. While the excellent quality of raw materials according to SNI 2729: 2013 organoleptically has bright and brilliant eye characteristics, fresh aroma according to fish species and elastic and dense meat texture.

3. 2. Knowledge of handling raw materials

Figure 2. The respondents' average knowledge about washing raw materials reached 75%. This figure showed that the knowledge of raw material was in a sufficient category. The average knowledge of respondents to weeding raw materials reached 74%. This figure showed that the knowledge of weeding raw materials was in a sufficient category. The average of respondent's knowledge of second stage raw material leaching reached 74%, this number indicated that the knowledge of second stage raw material leaching was in the sufficient category. The average of respondents' knowledge about discharging reached 91%. This figure showed that the knowledge of retirement was in a proper category.

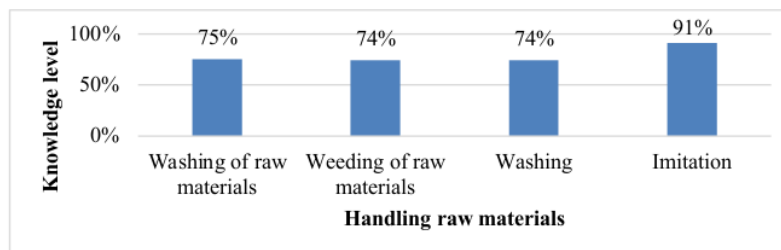


Figure 2. Level of knowledge of handling

Group members rely solely on their personal experience in handling fresh fish in daily life so that this continues to carry over to the processing of group businesses. The members of the processing group often got fish processing counseling, and it was just that the explanation on how to handle fish was felt to be less detailed in what temperature was right for washing fish to maintain fish quality. So that knowledge of this treatment was not optimal.

The common knowledge of respondents on how to wash fish was done by washing with running water at a temperature of 5°C - 9°C. In the draining process, the average respondent knew that draining was placed in a drainer and drained in a room that had good airflow and room temperature. According to SNI 2729: 2013 concerning fish washing, this is not quite right.

Good fish handlers according to SNI 2729: 2013 are fish washed with clean water that has been cooled to a temperature of 0 °C - 5 °C and is washed by water, after that it is placed on a drainer and drained in a room that has good airflow and cold temperatures.

3. 3. Knowledge of processing

Average respondents' knowledge of workers reached 77%, this figure showed that the knowledge of workers was in a good category. The average of respondents' knowledge of equipment reached 87%, this figure showed that the knowledge of equipment was in a proper category.

The fishery product processing group often got counseling about proper processing, only the group that had been given this counseling was affected by the socio-cultural conditions in its environment so that it affected the reasoning for the material given, causing the level of knowledge of processing to be less than optimal.

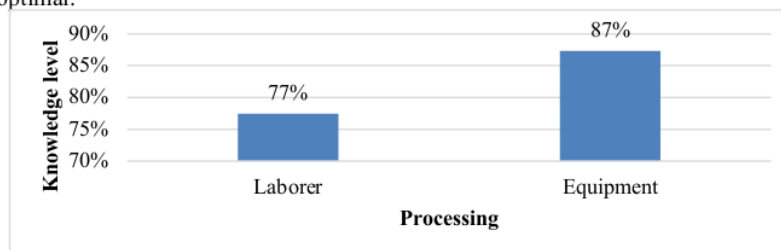


Figure 3. Level of knowledge of processing

The average respondent's knowledge of the operational standards of workers at the production site was washing hands, spitting was not allowed, smoking was not allowed, not doing activities that could contaminate the production area, and allowed to eat and drink during the production process. According to number 52a / ministerial Decree number 52a / m / ministerial decree-kp / 2013 regarding the requirements for quality assurance -kp / 2013 regarding the requirements for quality assurance and security of fishery products in the process of production, processing and distribution, this is not appropriate.

The operational standards of workers when doing proper processing according to Ministerial Decree number 52a / ministerial decree-kp / 2013 regarding the requirements for quality assurance number 52a / ministerial decree-kp / 2013 are; having a healthy body condition, using a special production clothes, cleaning hands before entering the production room, not using accessories and cosmetics that can contaminate raw materials, not smoking, spitting, eating and drinking at the production site.

The average respondent's knowledge of operation equipment production standards is by following Ministerial Decree number 52a / ministerial decree-kp / 2013 regarding the requirements for quality assurance and safety of fishery products in the production, processing and distribution processes.

Operational standards on equipment used in processing according to Ministerial Decree 52a / ministerial decree-KP / 2013 are easy to clean, always in a clean condition and storage of facilities and infrastructure is separated between materials that have been cleaned and have not been cleaned.

3. 4. Knowledge of adjuvants and chemicals

Figure 4. The average respondents' knowledge of the allowable additives reached 46%, this number showed that the knowledge of the allowable additives was in the inadequate category. The common knowledge of respondents about additional materials that were not allowed reached 54%, this number showed that the knowledge of additional materials that were not allowed was in the category of lack.

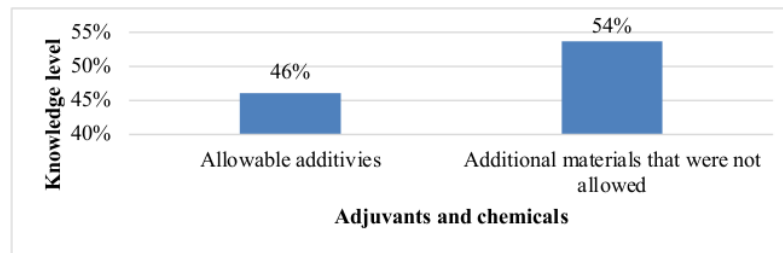


Figure 4. Level of processing of auxiliary materials and chemicals

The processing group rarely got counseling and training and the lack of active members of the group looking for sources of information independently was the leading cause of the lack of knowledge of adjuvants and chemicals. Group members believe that they did not know the terms and chemicals.

The average respondent did not know about adjuvants and chemicals. Chemical auxiliaries are allowed according to the regulation of the Minister of Health of the Republic of Indonesia No.722/Minister of Health / PER / IX / 88 concerning food additives are; Ascorbic acid, peroxy and azodicarbonamide acetone, calcium, stearyl-2lactylate, stearyl sodium, and L-cysteine. Whereas chemical aids that are not allowed are boric acid, salicylic acid, diethylpyrocarbonate, dulsin, potassium chlorate chloramphenicol, brightened vegetable oil, nitrofurazone, formalin, and potassium bromate.

3. 5. Knowledge of packaging

Figure 5. Average respondents' knowledge of packaging materials reached 84%, this figure showed that Knowledge of packaging materials was in a proper category. Average respondents' knowledge of product weighing reached 76%, this figure showed that knowledge of product weighing was in a good category. Average respondents' Knowledge of information on packaging reaches 88%. This figure showed that Knowledge of information on the packaging was in a proper category.

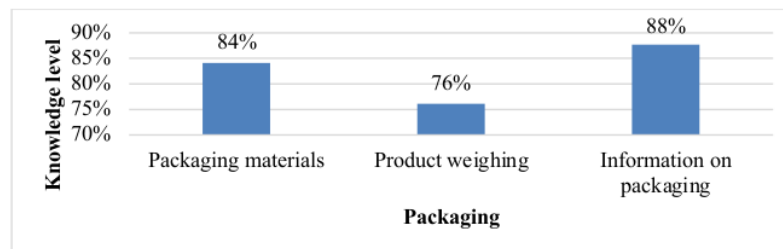


Figure 5. Level of knowledge on packaging

The Department of Fisheries and Agriculture of Makassar City has a packaging house to facilitate processing groups to package their products. Besides, experts are also provided to carry out consultations on the packaging. This certainly can help group observation to increase knowledge of packaging.

The average respondent's knowledge of packaging materials is following Law No. 7 of 1996 concerning Food. According to Law Number 7 of 1996 concerning Food the requirements for packaging materials used to package fishery of the products are; can protect and maintain the quality of external influences, does not affect the contents, materials do not interfere with or affect quality, can guarantee the content and expertise, resistance to treatment during processing, transportation, and circulation, do not harm or endanger consumers and are sterile.

The common knowledge of respondents to the stage of weighing the product was turning on the scales, *tera* (made the numbers on the scales zero), placed the packaging on the scales, filled the

packaging with the product according to the weight of the desired scale. This was not following Law Number 7 of 1996 concerning Food stages of weighing products that are good and right. The appropriate stages are; stabilize the numbers on the scales at zero, the packaging that will be used is placed on the scale, then it is reduced to zero, the product contents into the package that has been placed on the scales, the numbers listed on the scale are the net weight of the product.

The common knowledge of respondents to the information printed on the packaging label was under Law Number 7 of 1996 concerning Food on the packaging. The information that must be submitted including marketing authorization, trademark, product name, list of materials used or composition, weight/contents, name and address of the producer, expiration date, month and year. As well as halal information, storage instructions, instructions for use, nutritional values, particular statements (milk, pork, baby food, artificial sweeteners, substitutes for breast milk, additives, irradiated materials), claims are sought as close as possible to the facts to maintain brand integrity and barcodes.

3. 6. Knowledge of storage

Figure 6. Average respondents' knowledge of storage reached 91%, this figure indicated that knowledge of storage was in the excellent category. Average respondents' knowledge of storage administration reached 95%, this figure showed that Knowledge of storage administration was in the excellent category.

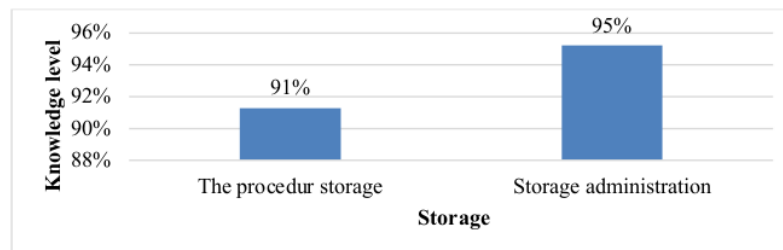


Figure 6. Level of knowledge of storage

Every month there is always monitoring and evaluation of the production results of processing groups carried out by the Department of Fisheries and Agriculture (DP2) from the City of Makassar. This monitoring and evaluation can be seen from the administration of storage and procedures for storing products that have previously been fostered by the Makassar City DP2, so that the processing group is accustomed to doing so. This showed the authority of DP2, which affects the knowledge of group members.

The average respondent's knowledge of the storage of products was following the Minister of Health regulation number 23 of 1978 proper production guidelines for food. The procedures for storing products according to are; the produce is stored separately in a clean place, free of insects, and or other animals. After that, a record of the storage administration is carried out so that the total number of products produced is known. The record of the results of production is recorded: date and amount of product receipt, date and amount of product release and total product stock.

3. 7. Knowledge of distribution

Figure 7. Average respondents' knowledge of means of transportation reached 90%, this figure showed that knowledge of means of transportation was in a good category. Average respondent's knowledge of distribution procedures reached 91%, this figure showed that knowledge of the distribution procedure was in a proper category.

Average respondent knowledge of the means of transport in the process of distribution of the product conforms to Ministerial Decree number 52a / ministerial decree-KP / 2013 concerning the quality assurance requirements and safety of fishery products in the process of production, processing, and distribution. According to KP Ministerial Decree NO 52A / Ministerial Decree-KP / 2013 Vehicle

conveyance used should not be transporting commodity / other objects simultaneously, clean and able to avoid potential contamination of the product.

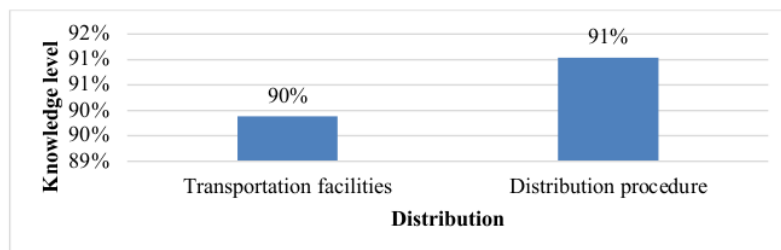


Figure 7. Level of knowledge of the distribution

The common knowledge of respondents to right distribution procedures is following the decree of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia number 52a / ministerial decree-kp / 2013 regarding the requirements for quality assurance and security of fishery products in the process of production, processing, and distribution. Right distribution procedures are carried out by transporting fishery products that are not mixed with the types of wet fishery products [8]. The distribution process does not damage the product.

4. Conclusion

Knowledge of storage administration is the highest criterion in the analysis of the level of human resource knowledge of GMP in the fisheries product processing group in Makassar City. Members of the fisheries product processing group in Makassar must be more active in seeking information to increase knowledge so that the level of their knowledge becomes even more optimal.

Acknowledgements

My gratitude goes to all those who have helped in this research, namely as follows: a) Companion Staff of the CCDP - IFAD Village in Makassar City; b) Makassar fisheries product processing group; c) Department of Fisheries and Agriculture of Makassar City.

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