Empowering Women Through Innovation In Processing Fishery By-Products Assisted By PT Pertamina Patra Niaga IT Makassar

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Abstract

The proliferation of businesses in the culinary sector and the increasing number of processed fishery products simultaneously increase the burden of organic waste resulting from community business activities in the Pattingalloang sub-district. One of the efforts made is need to develop Micro, Small, Medium Enterprises (MSMEs) that are able to manage fishery by-products into products with high selling value and high nutrition. This activity was carried out in the Pattingalloang sub-district involving the Srikandi Group assisted by PT Pertamina Patra Niaga IT Makassar. The method used was to provide product making training for women who are members of The Srikandi Group which was then carried out pre and post tests, apart from that, proximate testing was also carried out to ensure that The resulting products have good quality and nutritional content. The results of this activity were able to increase mothers' knowledge regarding the management of fishery by-products and produce fried meatball products from shrimp shells with a calcium content of 679.35 µg/g per 100 grams.

Keywords: *Shrimps shells, by-product food Ingredients, and nutrition.*

I. INTRODUCTION

Marine and fisheries resources are one of the enormous natural resource potentials and receive serious attention in Indonesia. In short, two-thirds of Indonesia's territory consists of sea, it has more than 17,000 islands and a coastline of 81,000 km. So far, the fisheries sector is considered to have been proven as a sector that is able to survive in crisis situations, both economic, financial and monetary and is able to provide important food for the community, a source of income and at the same time absorb a significant number of workers (Firdaus, 2018).Shrimp are generally used as a food ingredient that has high nutritional value. Shrimp in Indonesia are generally exported as raw materials that have had their heads, tails and shells peeled. Indonesia is one of the exporting countries for frozen shelled shrimp. As a result of the increase in demand for frozen shrimp for export, this has created quite a large problem of shrimp shell and head waste. This shrimp waste then becomes waste whose utilization is less than optimal, causing environmental pollution, especially bad odors and environmental aesthetics (Tyas Wara Sulistyaningrum, 2023).

This large amount of shrimp production will also produce a lot of waste considering that the by-products of production in the form of heads, shells , tails and legs are around 35% - 50% of the initial weight. Waste resulting from the process of freezing shrimp, canning shrimp, and processing shrimp crackers ranges from 30% - 75% of the weight of shrimp. The increasing amount of shrimp waste is still a problem that needs to be utilized. This not only provides added value to the shrimp processing business, but can also overcome the environmental pollution problems that arise, especially the problem of odors emitted and poor environmental aesthetics (Manjang, Y, 1993). Most of the shrimp waste produced by shrimp processing businesses comes from the heads, shells and tails. Shrimp shells contain protein (25%-40%), chitin (15%-20%) and calcium carbonate (45%-50%) (Marganof, 2003).Pattingalloang sub-district is one of the coastal areas of Makassar City, as one of the coastal areas in Makassar City. Pattingalloang sub-district is one of the sub-districts where the majority of people carry out business activities in the culinary sector or produce products from fisheries.

In home industries, this waste is only processed into shrimp paste or dried for poultry feed. To provide additional added value to shrimp waste, it is necessary to improve the quality of processing shrimp waste into a product with high economic value and broad benefits. (Tyas Wara Sulistyaningrum, 2023). Women's empowerment is one of the efforts made to optimize the role of women in managing shrimp shell waste through home industries. The Srikandi group is one of the home industries assisted by PT Pertamina Patra Niaga IT Makassar which is directed at carrying out industrial activities by utilizing shrimp by-products into products. with good sales value and nutritional content.

II. RESULT AND DISCUSSION

This service activity was carried out at the Srikandi Women's Empowerment Group under the guidance of PT Pertamina Patra Niaga IT Makassar. Activities carried out in March-June 2024.
Implementation of activities is carried out in 4 stages starting with planning, implementation, monitoring, and evaluation.

1. Planning
    a. Identify organic food by-products that are often found in society and cannot be processed properly into food products with good quality
    b. Conduct FGDs with the community regarding planned activities
2. Implementation
    a. Making the right formula for products by substituting fishery food by-products
    b. Proximate tests on products
    c. Pretest for all participants who will take part in the entire series of activities
    d. The training provides education to the public regarding the negative impacts of organic food by-products that are not processed properly, the nutritional content of organic food by-products, which is then followed by a product making demonstration.
3. Monitoring
    a. Product production house visit
    b. Product sales analysis
4. Evaluation
    a. Seeing the sustainability of community participation, especially MSMEs groups
    b. The impact of activities on the surrounding community

Organic waste is the waste that is most commonly produced in households and the food industry. Organic waste is in solid form and comes from unused food waste. Organic waste is classified as a type of waste that rots easily and decomposes easily. However, precisely because of this, organic waste is the most preferred place for bacteria. Bad odors are just one of the effects resulting from the decay of organic waste. If not handled properly, this waste can also be a source of disease.Pattigalloang sub-district is included in the coastal area of Makassar city where the majority of people depend on their income from fish auction activities.

Large and small scale food industries are often found around the Patigalloang sub-district area. For this reason, as a result of this activity, the community, especially women who do not have access to fulfilling employment opportunities, can see opportunities for economic empowerment in the management of fishery product by-products which up to now have only been thrown away in vain by the community and then become organic waste which can be a source of disease. This activity is an economic development activity for coastal women with socio-economically vulnerable conditions (PRES). The activity carried out in this program is the processing of fishery food by-products which have the potential to become non-B3 waste into food products that have higher taste, sales and nutritional value. One of the products produced is fried meatballs from shrimp shells. Shrimp shells are produced free of charge from the fishing industry in the sub-district. 15 Srikandi members process shrimp shells in such a way that they can be substituted into the processed ingredients for making fried meatballs.

2.1 Planning

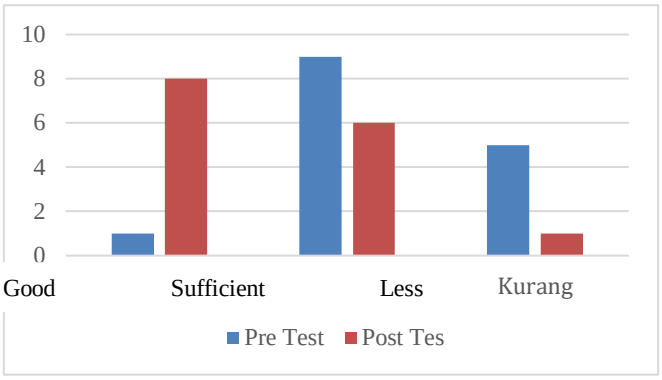
In the planning stage, identification and discussion were carried out with the community in the Pattingalloang sub-district to determine the by-products of fishery food that could be processed into a product. At this stage, it was carried out with a team of experts, namely Mrs. DR. Andi Asni so that the determination of what would be processed and the form of the processed product that would be produced could be identified by considering several supporting and inhibiting aspects. In the discussion, it was agreed that the by-products to be processed were shrimp shells and heads which would then become shrimp shells fried meatball products.

2.2 Implementation

The pre-test was conducted before the shrimp shells fried meatball making training activity while the post-test was conducted after the shrimp shells fried meatball making training. In this training, all participants were given insight into balanced nutrition, animal foods and their contents, and the nutritional content of shrimp shells . Then the participants were given training related to the process of making shrimp shells fried meatballs. The pre- and post-test processes were conducted directly to each member of the Srikandi group who participated in the training activity.

Table 1. Pre and Post Test Results of Training Participants

Knowledge Level	Pre Test		Post Tes	
	n = 15	%	n = 15	%
Good	1	6,7	8	53,3
Sufficient	9	60	6	40
Less	5	33,3	1	6,7



After the training on processing shrimp shells and heads, there was an increase in participants' knowledge regarding balanced nutrition, animal food nutrition, and the process of making fried meatballs.

Fig 1. Shrimp Shells Processing Training

Next, the activity continued with training on processing shrimp shells waste into healthy food innovations in the form of fried meatballs. The procedure for making shrimp shells fried meatballs is as follows:

a. Washing

The by-products of shrimp shells and head are washed using water and done 2-3 times in running water using a sieve container, then blended until smooth and no longer fibrous

b. Mixing

The shrimp shells and head that have been blended are mixed into a container containing wheat flour, starch, flavoring, garlic, pepper and salt then stirred until it becomes a smooth dough

Fig 2 . Shrimp Shells Processing Training for Fried Meatball

c. Printing

Printing is done by taking the dough little by little then making oval balls and cutting them into small pieces. The small pieces are placed in a container that has been sprinkled with wheat flour to avoid sticking between the pieces

d. Frying

Frying is done in two stages where the first stage of the initial dough is fried over high heat for 1 minute, then lifted and put into hot oil over low heat for ± 15 minutes

After making fried meatballs with shrimp shells and head, then the nutritional content of this food innovation product is assessed through a proximate test. The proximate test is carried out after group members have undergone training and obtained the most appropriate composition formula for each ingredient used to produce a product with good taste. The following are the results of the proximate test of the nutritional content of fried meatballs with food innovation.

Table 2. Proximate Test Results of Fried Meatball Products with Shrimp Shells

No	Parameter	Unit	Test Results	Methods Specifications
1.	Fat	%	0,22	Gravimetrik
2.	Protein	%	2,82	Kjehdai
3.	Calcium	µg/g	679,35	Atomisasi

The nutritional content in shrimp shells is very sufficient to be processed into nutritious food. While if not processed further, then the shrimp shells and head will only become waste and then potentially become a source of disease.

2.3 Monitoring

After the implementation stage is completed, monitoring is carried out in the 2nd month to see how the sustainability of the Srikandi MSMEs activities in producing fried meatballs so that it can be an alternative source of income for the group of mothers. At this monitoring stage, product sales analysis is also carried out to see the group's ability to promote and market and at this stage it was found that product sales were still in the Pattingalloang sub-district environment and participating in local exhibitions.

2.4 Evaluation

The evaluation was conducted to see the participation of all members of the Srikandi group in product production activities and how much influence this activity has on the community. This activity was

able to encourage 11 out of 15 group members to be active in product production activities and from this activity some people no longer throw away shrimp shells s and heads but give them to the Srikandi group to be processed into fried meatballs.

III. CONCLUSION

Based on the results of the activities carried out, it can be concluded that the substitution of shrimp shells and head in fried meatball products can produce fried meatball products with higher calcium content than fried meatball products in general, namely 679.35 µg / g per 100 grams of fried meatballs. This activity is also able to increase mothers' knowledge about the negative impacts of fishery by-products if they are not processed so that they become waste that can cause disease and how to process fishery food by-products into products with good quality.

IV. ACKNOWLEDGMENTS

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