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Socialization of Yellowtail Fusilier (*Caesio cunning*) Processing to The Community of Langagedha 1 Village, Bajawa District, Bajawa Regency

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Abstract: Yellowtail fusilier, or Caesio cuning, is a type of marine fish commonly found in Indonesian waters. This fish is known for its distinctive bright yellow tail fin, bluish upper body, and white to pink underside and belly. Fish meatballs are typically prepared using ingredients such as fish meat, wheat flour, starch, chicken eggs, and several other spices. Furthermore, because meatballs are processed product with a high nutritional and water content, they have a relatively short shelf life, lasting only 12 hours to 1 day at room temperature. The purpose of this community service is to educate the community of Langagedha 1 Village on how to manage fish products. This is done to provide knowledge to the community to innovate and implement more modern fish management. Local villagers also have the opportunity to become entrepreneurs using fish as the main ingredient to increase their income. The methods used include discussion, socialization, and hands-on practice. The results of this activity showed that the community of Langagedha 1 Village was able to participate well and was very enthusiastic, thus mastering the process of making Yellowtail fusilier meatballs. Processing Yellowtail fusilier into meatballs can be a viable option, motivating people to start businesses. Yellowtail fusilier meatballs are easy to make because the raw materials are readily available and inexpensive.

Keywords: Yellowtail fusilier; Fish balls; Langagedha village 1; Caesio cunning.

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INTRODUCTION

The fisheries sector has various important objectives in agricultural and national development, such as providing raw materials for the fisheries industry, increasing community income and welfare, increasing employment and business opportunities, increasing protection and rehabilitation, and meeting the community's fish consumption needs (Pragina *et al.* 2022). Fish and other fishery products are rich sources of animal protein and are relatively inexpensive compared to other protein sources, such as beef, chicken, milk, and eggs. However, fish is a perishable food source, requiring special handling to maintain its quality. In addition to providing relatively high amounts of animal protein, fish also provide essential long-chain unsaturated fatty acids. Furthermore, fish is known as a major source of vitamin A, along with other vitamins and various minerals needed by the human body. To ensure fish is a quality food ingredient, proper handling and the ability to process fish-based products are essential (Ikhsanudin *et al.* 2023).

The yellowtail fusilier, or *Caesio cuning*, is a species of marine fish commonly found in Indonesian waters. This fish is known for its distinctive bright yellow caudal fin, bluish upper body, and white to pink underside and belly. Scientifically, the Yellowtail fusilier belongs to the Animalia Kingdom, Chordata Phylum, Actinopterygii Class, Acanthuriformes Order, and Lutjanidae Family. This species comes from the genus Caesio and is widely distributed in the Indo-West Pacific region. Its distribution includes the Indian Ocean and the West Pacific Ocean, stretching from Sri Lanka and southern India to Fiji, southern Japan, and northern Australia. In Indonesia, yellowtail fusilier is often found in the waters of the Seribu Islands, Natuna, Guraping Bay (Tidore), and the waters around the Maluku Islands. The favorite habitat of this fish is coastal waters, especially around coral reefs and rocky areas, although it is sometimes also found in waters with low visibility (Ahmad & Nadia, 2026).

Meatballs are processed meat foods that are quite popular among Indonesian people. This is proven by the census data on the 2022 Central Statistics Agency's Per Capita Consumption website, especially in Surabaya, which is around 6,676 in a week. Meatballs are also the third-ranked food chosen as an MSME (Micro, Small and Medium Enterprises) product in various cities in Indonesia. This data was taken from an article written by Santika Ferlina (2023) in (Patty et al 2023), whose data was taken from 5 major cities such as Jabodetabek, Surabaya, Medan, Makassar, and Bandung. With this, of course, many traders and business people in the food sector make meatballs a product opportunity offered to the public in various innovations in taste, texture, and shape by utilizing other raw materials.

Fish meatball is a food product made from crushed fish meat as the main ingredient, mixed with other ingredients, formed into balls and then boiled. The term meatball is usually followed by the name of the type of meat used as the main raw material, such as fish meatballs, chicken meatballs, beef meatballs. Fish meatballs are round-shaped food products, obtained from a mixture of fish meat (fish meat content not less than 50%) and starch or cereals with or without the addition of food ingredients permitted by SNI (Indonesian National Standard). The raw materials for making meatballs come from various types of livestock meat, including beef, pork, chicken and fish (Apriani R, 2018).

Langagedha 1 Village is a traditional village located in Bajawa District, Ngada Regency, East Nusa Tenggara. This village is a living witness to the rich culture and traditions of the Flores people, which are still preserved to this day. With its pristine natural landscape and strong traditional nuances, this village offers uniqueness through its traditional house architecture, sacred rites, and local wisdom passed down through generations. This village not only reflects the identity of the Ngada people but also symbolizes harmony between humans, ancestors, and nature. The majority of the people of Langagedha 1 Village

are farmers. Many also possess excellent carpentry skills. Therefore, some of them work as construction laborers to add their family income. In addition, some residents work as civil servants, private sector employees, and traders. Because this village is not a coastal area where fishing is the main source of income, villagers must travel 4 km to Bajawa City to purchase fish. The purpose of this community service is to educate the community on how to manage fishery products. This is done to transfer knowledge to the community about innovations in more modern fish management and its implementation. Local villagers also have the opportunity to become entrepreneurs using fish as the main ingredient to increase their income.

METHOD

This community service activity was carried out in Langagedha 1 Village, Bajawa District, Bajawa Regency on October 23-27, 2025, with the aim to socialize the knowledge and develop community skills in processing fish, i.e. Yellowtail fusilier meatballs. In this context, socialization was also carried out to educate the community about the benefits of utilizing processed fish as a source of nutrition. The implementation of the community service activity used the Participatory Action Research (PAR) approach. This approach was chosen because it orients itself toward community empowerment, which must consistently meet the needs and resolve existing problems within the community. Furthermore, PAR is also oriented toward the development and mobilization of knowledge within the community, enabling them to become agents of change, not objects of service (Afandi *et al.*, 2022). This approach was chosen to ensure that the community is not merely the object of training but also actively participates in the process of needs identification, implementation, and evaluation (Azi Maria & Kasi Yohanes, 2025).

The flow of community service socialization in Langagedha Village 1 regarding the utilization of processed Yellowtail fusilier is as follows:

1. Preparation Stage

   The preparation stage of the community service activity began with educational activities about the importance of nutritious fish dishes and the introduction of supporting ingredients for making fish dishes, i.e. Yellowtail fusilier meatballs. This phase also included an audience with the village head, housewives, and the entire community of Langagedha 1 Village.

Table 1. Ingredients used in community service activities

No.	Ingredients	No.	Ingredients
1	10 kg Yellowtail fusilier	11	5 Kg Noodles (Mie Belalang)
2	10 Chicken Eggs	12	50 Grams Sugar
3	200 grams of garlic	13	1 Kg Starch Flour
4	100 grams of shallot	14	1 Kg Wheat Flour
5	½ small chili	15	Lime
6	2 packets of ground pepper	16	Celery
7	1 bottle of sweet soy sauce	17	Chives
8	1 bottle of chili sauce	18	1 Pack of Salt
9	2 packets of flavor enhancer (MSG)	19	Cooking Oil
10	100 grams of salt	20	Ice Cubes

2. Implementation Stage

   At this stage, a series of activities were conducted in stages to ensure the effectiveness of community understanding in making yellowtail fusilier dishes. The process began with planning, asking several questions to identify their understanding of yellowtail fusilier dishes. Next, to determine the extent of community involvement in the yellowtail fusilier processing process, further exploration was conducted regarding the participants' experiences and insights of Yellowtail fusilier dishes. After obtaining an initial overview, the socialization was delivered systematically and comprehensively, covering various techniques and important stages in the yellowtail fusilier processing process to make fish balls, with the hope that the community would broaden their knowledge about fresh fish dishes.

Yellowtail fusilier Meatballs Production

The fish used to make meatballs is fresh yellowtail fusilier. The process for making fish meatballs (Nadia *et al.*, 2021 in Ginting *et al.*, 2022) is as follows:

1. Separate the bones and flesh of the fish by filleting. Fish fillets are prepared by placing the fish on its side. Using a knife, cut the flesh at the base of the gills down to the bone.
2. The fish, once deboned, is skinned to obtain skin- and bone-free fish. During this step, it's recommended to add sufficient ice to slow down the deterioration of the fish's quality.
3. The fish is thoroughly washed under running water or thoroughly rinsed to remove any remaining blood and dirt. A sufficient amount of ice should also be added throughout the washing process.
4. The fish fillet is then cut into small pieces and ground using a blender. The purpose of grinding or grinding the fish is to reduce the size of the fish into homogeneous particles or a paste. This allows the spices to be easily incorporated into the mixture. This process involves emulsification, where the finely ground fish is mixed with flour, starch, eggs, and other spices.
5. The amount of flour added is approximately 10-40% of the weight of the fish. Seasonings, such as garlic, fried shallots, pepper, and flavoring, are added according to taste, while salt is added at 2.5% of the weight of the fish or according to taste.
6. Next, the meatballs are formed into balls, ready to be boiled. Forming the dough into balls can be done using clean, plastic-gloved hands and a spoon.
7. Form the meatballs using your hands by taking a handful of dough and squeezing it into a ball until the dough releases between your thumb and forefinger, forming a ball. Then, scoop it out with a spoon and boil it in hot water on the stovetop.
8. Boil the meatballs for approximately 15 minutes. If the meatballs float to the surface of the water, they are ready. Remove and drain. Once cool, pack them in plastic bags and store them in a cool place (50°C). Meatballs can also be served

with noodles and other complementary ingredients such as celery leaves, spring onions, lime, sweet soy sauce, and chili sauce.

3. Final Stage

   In the final stage, a question-and-answer session was held with the public and a tasting session was held to evaluate the taste and texture of the Yellowtail fusilier balls.

RESULT AND DISCUSSION

Result

Fish balls are processed fishery products that use a minimum of 40% minced fish meat or surimi mixed with flour and other ingredients if needed, which are formed and cooked (Patty et al, 2023). Fish balls are usually produced using ingredients such as fish meat, wheat flour, starch, chicken eggs, and several other spices. In addition, meatballs are also processed products with a fairly high nutritional and water content, so meatballs have a relatively short shelf life, which is only able to last for 12 hours to 1 day at room temperature storage. Another reason is that meatballs are included in the type of perishable food, which is easily contaminated by microorganisms during storage. Therefore, meatballs are safer if stored in the freezer.

Community service activities in Langagedha 1 Village are in dire need of training or education on how to process fish. The local villagers are not fishermen, and their understanding of fish processing is very limited. Their daily side dishes are tofu, *tempeh* and dried fish. The village's distance from the city is one of the limitations of the local community in processing fresh fish, including yellowtail fusilier.

The socialization of how to make yellowtail fusilier meatballs received full support from the village community, starting from the preparation of ingredients, processing, to implementation because this activity is very beneficial both technically and economically, in a sustainable manner by the village community. The results of this activity turned out to increase the curiosity of the village community about the diversity of processed yellowtail fusilier products and at the same time awakened the entrepreneurial spirit of the village community because the village is not a fish producer and is not a coastal area. In addition, the local village community feels increasingly aware and smarter in consuming food based on fishery products that are cheaper but healthy and nutritious. Even more encouraging, the people of Langagedha 1 Village really like the meatballs made because they taste delicious, the meatballs are soft, and the fish meat is tasteful.

Figure 1. Activities to educate and introduce processed fish ingredients

Discussion

Efforts to improve community nutrition and increase interest in fish consumption in Langagedha 1 Village were implemented through a structured socialization and practical education program. This initiative was not merely informative, but also transformative—aiming to change perceptions, strengthen knowledge, and build practical skills related to fish consumption and processing. In coastal and rural areas, fish is often abundant; however, limited knowledge about its nutritional value and processing potential can reduce optimal utilization. Therefore, educational intervention becomes a strategic approach to enhance both public health and local economic resilience.

From a nutritional perspective, fish is one of the most complete and affordable sources of animal protein. Fish meat consists of approximately 15%–24% protein, 1%–3% carbohydrates, 0.1%–22% fat, 66%–84% water, and 0.8%–2% inorganic compounds. The variation in nutritional composition depends on biological aspects such as species, age, and sex as well as environmental factors including habitat, season, and feed availability (Ciptawati et al., 2021). Importantly, fish protein contains essential amino acids that are highly digestible and required for growth, tissue repair, enzyme production, and immune system function (PPN Sungailiat, 2018 in Usman et al., 2023). This makes fish particularly valuable for children, pregnant women, and elderly populations who require high-quality protein intake.

In addition to protein, fish is rich in polyunsaturated fatty acids, especially omega-3 fatty acids (EPA and DHA). These fatty acids play a critical role in cardiovascular health by reducing cholesterol levels and preventing atherosclerosis. Moreover, omega-3 intake is strongly associated with improved brain development, cognitive function, and memory, which is particularly important for school-aged children. Regular fish consumption has also been linked to reduced risk of degenerative diseases such as coronary heart disease, hypertension, and certain inflammatory conditions.

Fish also provides essential vitamins and minerals, including vitamin A, iron, phosphorus, iodine, calcium, magnesium, selenium, zinc, and copper. Iodine is particularly significant in preventing goiter and growth disorders such as stunting (Dewi et al., 2018 in Usman et al., 2023). Considering that iodine deficiency remains a public health concern in several regions, promoting fish consumption can contribute directly to improving micronutrient status in the community. Therefore, fish is not only a source of macronutrients but also an important contributor to micronutrient adequacy and overall nutritional balance.

Equally important in the discussion is the issue of fish quality and safety. Fish suitable for consumption must meet proper freshness and safety standards, including being free from heavy metal contamination and microbial spoilage. Indicators of fresh fish include a mild natural odor (not pungent), firm and elastic flesh, clear and bright eyes (not red or cloudy), shiny skin, and intact scales. Proper storage is crucial to prevent contamination and maintain quality. Fish should not be stacked with other seafood such as squid, crab, or shrimp without proper separation, as cross-contamination may occur. Educating the community about these practical quality indicators enhances food safety awareness and reduces health risks.

Beyond nutrition education, the program also emphasized practical skills in fish processing. Through hands-on training sessions, community members learned to transform fish into value-added products such as Yellowtail fusilier (*Caesio cuning*) meatballs. Processing fish into diversified products increases its acceptability, especially among children and individuals who may not prefer whole fish dishes. Fish meatballs, for example, offer a familiar taste and texture while maintaining high nutritional value.

Moreover, product diversification extends shelf life, reduces post-harvest losses, and creates economic opportunities for households.

From a community empowerment perspective, this activity has broader socio-economic implications. By developing skills in fish-based product processing, villagers gain opportunities to initiate small-scale home industries. Entrepreneurial activities such as producing and selling fish meatballs can generate additional household income, strengthen women's economic participation, and stimulate local economic circulation. This aligns with sustainable development principles, where health improvement and economic empowerment go hand in hand.

Furthermore, the participatory approach used in the socialization process—combining lectures, discussions, and practical demonstrations—encouraged active community involvement. Participants were not passive recipients of information; instead, they engaged in dialogue, asked questions, and directly practiced processing techniques. Such interactive methods increase knowledge retention and foster behavioral change more effectively than one-way communication.

In conclusion, the fish education and processing program in Langagedha 1 Village contributed not only to increasing awareness of the nutritional benefits of fish but also to strengthening community capacity in food safety, product diversification, and entrepreneurship. By integrating nutrition education with practical skill development, the program supports long-term improvements in public health and local economic sustainability.

Figure 2. Fish Processing Socialization Activities

CONCLUSION

The community service activity through socialization and training on yellowtail fish (*Caesio cuning*) processing in Langagedha 1 Village successfully achieved its main objectives, namely increasing community knowledge about nutritional content and the importance of fish consumption, as well as developing practical skills in processing fish into value-added products such as fish balls. Through a participatory approach, the community not only understood nutritional aspects and food safety, but also became capable of independently practicing the processing methods. The resulting products were well-received in terms of taste and texture, making them a potential alternative source of nutritious food as well as a household business opportunity that could support sustainable economic improvement for families.

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