Jurnal Pengabdian Magister Pendidikan IPA

Original Research Paper

Enhancing the Added Value of Fish through Dim Sum and Sausage Training in the Ampenan Fishermen Community

Setyaning Pawestri[1*], Riezka Zuhriatika Rasyda[1], Lingga Gita Dwikasari[1], Siska Cicilia[1], Nur Afni[1], Lalu Unsunnidhal[1], Ni Made Widiani[1]

[1] *Food Science and Technology Study Program, University of Mataram, Mataram, Indonesia.*

DOI: https://doi.org/10.29303/jpmpi.v9i2.15481

Sitasi: Pawestri, P., Rasyda, R. Z., Dwikasari, L. G., Cicilia, S., Afni, N., Unsunnidhal, L., & Widiani, N. M. (2026). Enhancing the Added Value of Fish through Dim Sum and Sausage Training in the Ampenan Fishermen Community. *Jurnal Pengabdian Magister Pendidikan IPA, 9(2)*

Article history
Received: 18 Mei 2026
Revised: 25 Meil 2026
Accepted: 30 Mei 2026

*Corresponding Author:
Setyaning Pawestri,
Food Science and Technology Study Program, University of Mataram, Mataram, Indonesia;
Email: setyaning_pawestri@unram.ac.id

Abstract: This program focused on empowering the Ampenan Fishermen Community through training in fish-based products such as dim sum and sausages, designed to support stunting prevention efforts and improve household economic resilience in West Nusa Tenggara. Stunting is a chronic nutritional problem that remains a national development priority due to its long-term impact on human resource quality and competitiveness. In 2022, the prevalence of stunting in West Nusa Tenggara Province (NTB) was still high at 32.7%. Contributing factors include inadequate nutritional intake, limited socioeconomic conditions, and suboptimal utilization of nutrient-rich local food sources. Fish, as a high-quality animal protein source, represents a local potential for stunting prevention. Bintaro Village in Ampenan District is one of NTB's major fish-producing areas; however, local fishermen's households have generally limited fish utilization to fresh sales or simple products with low economic value. This community service program, conducted on June 2, 2026, aimed to increase the added value of fish products by training participants (wives and young women) from the Ampenan Fishermen Community in the preparation of nutritious fish-based products, namely dim sum and sausages. The methods included nutrition education, product demonstration, and direct technical mentoring. The choice of products was based on their popularity, especially among children, making them potential supplementary foods to support stunting prevention while also opening new economic opportunities. The program demonstrated that simple, affordable technology combined with skill training can empower fishing community households to diversify fish products, improve nutritional intake, and strengthen local economic resilience.

Keywords: Ampenan Fishermen Community; fish processing; stunting prevention; nutrition education; woman empowerment.

Introduction

Although Indonesia has experienced significant progress and economic development in recent decades, the prevalence of stunting among children under five remains a serious issue. More than 30% of children under the age of five are recorded as stunted, a condition in which a child's height is lower than the standard for their age. This phenomenon is generally more prevalent among poor households, thereby reinforcing cycles of poverty and intergenerational health problems (Rizal

& van Doorslaer, 2019). Stunting, or low height-for-age, is a chronic growth disorder typically caused by prolonged inadequate nutritional intake and frequent exposure to illness, especially during the critical first 1,000 days of life. According to global data from 2013, as many as 161 million children under five experienced stunting, with the majority of cases occurring in low- and middle-income countries (de Onis & Branca, 2016). Based on the WHO definition, stunting occurs when a child's height is more than two standard deviations below the median of child growth standards (WHO, 2025). This condition is highly concerning because it is closely linked to impaired physical and mental development, increased risk of morbidity and mortality, and reduced intellectual capacity and productivity in the future. Its causes are multifaceted, including socioeconomic conditions, education levels, maternal nutritional status during pregnancy, infant illness history, and the lack of sustained intake of quality nutrition (Fauzia et al., 2024).

This condition is also clearly reflected in West Nusa Tenggara (NTB) Province. After successfully reducing stunting rates significantly in 2023 by 8.1%—from 32.7% to 24.6%—the figure sharply increased again to 29.8% in 2024. This surge was influenced by various factors, including high rates of early marriage and the discontinuation of the integrated "Bakti Stunting" program, which previously involved all Regional Apparatus Organizations (OPD), institutions, and agencies within the NTB Provincial Government (Suara NTB, 2025). In efforts to address stunting, the contribution of nutritious food sources, particularly animal-based foods such as fish, must be considered. Fish is a highly nutritious food source containing high-quality protein, omega-3 fatty acids, vitamin D, B-complex vitamins, and various essential minerals. Its nutritional content plays a role in supporting physical growth, strengthening the immune system, and maintaining bone health and muscle function (Singh et al., 2025).

NTB Province has great potential in the fisheries sector. One prominent fishing center is the Bintaro Fishermen Village in Ampenan District, Mataram City. This area has been proposed as a "Kampung Nelayan Merah Putih" by the local Fisheries Office, with integrated development alongside a hygienic fish market as part of efforts to alleviate slum areas (Global FM Lombok, 2025). Nevertheless, the utilization of fish resources in NTB has not yet been optimal. In fact, fish such as tuna, which is widely caught by fishermen, has excellent nutritional content, with 68.35% protein and only 1.8% fat per 100 grams. To support food diversification while increasing the added value of marine catches, processing tuna into products such as dim sum and sausages is a strategic step.

As part of efforts to prevent and accelerate the reduction of stunting rates, community service activities in the form of counseling and training on fish dim sum and sausage processing are needed. These activities not only provide direct benefits to the community but also serve as contextual learning media for students within the framework of Merdeka Belajar Kampus Merdeka (MBKM). Students play an active role in knowledge and technology transfer, strengthening networks between universities, communities, and fisheries industry actors. This collaboration is expected to create product innovations based on local potential that positively impact nutritional status and community welfare.

Method

The implementation of community service activities for the Bintaro fishermen group highlighted the underutilization of fish resources available in large quantities. The activity was conducted at 2 June 2025. Limited knowledge regarding fish processing into value-added products emerged as the core issue. In addition, skills related to packaging, labeling, and storage were identified as challenges that needed to be addressed. Stages of implementation:

1. Socialization

Activities began with socialization to the partner fishermen group in Bintaro Ampenan. The implementing team introduced the objectives of the program, explained the benefits of processing fish into products such as sausages and dim sum, and emphasized the importance of product diversification as a strategy to increase market value. Socialization was conducted through group discussions and informal interviews, which also served to identify specific partner needs, such as available fish types, local taste preferences, and limitations in production equipment. The discussions revealed that most participants had never attempted to process fish into sausages or dim sum, but showed strong enthusiasm to learn and try.

2. Training

The training stage focused on enhancing technical skills in processing fish into sausages and dim sum. Training materials included fresh fish selection, mincing and emulsification techniques, formulation of additives, steaming and cooling methods, and the application of sanitation and food safety principles during production. Practical sessions ensured participants understood the production flow. The FIFO (First In, First Out) system was also introduced.

3. Technology Application

Appropriate technology was applied using simple tools that supported efficient and hygienic production of fish sausages and dim sum. The technology was practical, easy to operate, and suitable for household-scale capacity. Tools included blenders or choppers for mincing fish, digital scales for accurate measurement, manual molds and sausage casings for shaping, and stainless steel steamers for cooking. These tools were selected based on affordability and ease of maintenance. With this simple technology, production became more consistent, hygienic, and aligned with basic food safety standards. Partners were also taught simple labeling methods to implement FIFO in cold storage.

4. Assistance and Evaluation

During training, intensive assistance was provided, along with knowledge on sensory evaluation to assess product quality (texture, taste, color, appearance) and guidance on proper storage conditions.

5. Program Sustainability

6. For sustainability

A partner working group was established to manage production, develop packaging designs, and organize collective storage. Printed guidelines and video tutorials were provided as continuous learning media. Post-program monitoring visits were scheduled to evaluate business development and marketing efforts.

Results and discussion

Community service activities with the fishermen group in Bintaro, Ampenan, were successfully implemented according to the planned stages: socialization, training, application of appropriate technology, and mentoring. The main focus was to enhance fish processing skills into value-added products such as dim sum and sausages, addressing the low utilization of catches and limited product diversification.

In the socialization stage, participants were introduced to the benefits of processing fish into ready-to-eat, nutritious products. This was followed by hands-on training, which covered mincing techniques, emulsification, additive formulation, steaming, and sanitation practices. Fish dim sum was prepared from fresh fish meat, tapioca flour, eggs, and seasonings, steamed for 15–20 minutes (Bill, 2023; Smith, 2023). Fish sausages were produced using emulsification, filled into casings, and steamed for 20–25 minutes (Agriculture Institue, 2025; Chuapoehuk et al., 2001). The fish dim sum and sausages produced during the activity are displayed in Figure 1 and Figure 2.

Figure 1. Training participants making fish dim sum

Fish sausages emerged as an innovative product that mimics the texture and appearance of traditional meat sausages but offers nutritional advantages, particularly protein and healthy fats from fish. Unlike conventional sausages made from ground meat, fish sausages are produced from minced fish combined with binders, seasonings, and food additives to yield a cohesive, elastic, and easily sliced product (Agriculture Institue, 2025; Chuapoehuk et al., 2001). Similarly, dim sum, traditionally a Cantonese snack made from dumpling wrappers with various fillings (Anggaina, 2025) was adapted with locally sourced fish fillings, producing items that were both tasty and nutritious, aligned with community preferences.

Figure 2. Training participants making fish sausage

To strengthen business capacity, participants were introduced to efficient inventory management, particularly the FIFO (First In, First Out) method. This principle ensures that products produced first are used or sold first, which is crucial for fish-based items with limited shelf life. FIFO helps maintain product quality, reduces losses from expired goods, and supports more accurate inventory tracking (Gavin Van De Walle, 2024; Kenton, 2025).

During practical sessions, participants independently tried the production process, from mincing and mixing to casing and steaming, with guidance from the team. Some experimented with adding vegetables and local spices to create distinctive flavors. Participants also learned simple product quality evaluation through organoleptic testing, which assesses attributes such as color, aroma, taste, and texture using the senses (Cell Instrument, 2026; Koyuncu, 2025; Literasi Unimus, 2025). Although laboratory testing was not conducted, this basic evaluation provided important assurance of product safety and market acceptability.

Evaluation results indicated significant improvements in participants' knowledge and skills in fish processing. They recognized that diversifying fish products was not merely an additional activity but a strategy to increase the economic value of their catches. Several participants expressed plans to routinely produce fish dim sum and sausages, both as household business products and as daily food items.

Conclusion

Based on the implementation and evaluation, the conclusion of the community service program with the Ampenan Fisherman Community is presented below:

1. The program successfully improved participants' knowledge and skills in processing fish into ready-to-eat products such as dim sum and sausages, addressing the issue of underutilized fish resources.
2. The products developed not only had good taste but also offered nutritional and economic advantages, strengthening the value of local fish catches.
3. The introduction of sanitation practices, FIFO inventory management, and organoleptic testing provided participants with practical tools for maintaining product quality and safety.
4. The use of simple, affordable technology was a strength of the program, enabling independent production and household-scale entrepreneurship; however, the absence of laboratory testing was a limitation that should be addressed in future activities.

This community service activity contributes to product diversification, income generation, and fishermen's economic resilience, with potential for further development through expanded training, market access, and nutritional validation.

Suggestions

1. Future programs should include laboratory testing of nutritional content and safety of fish dim sum and sausages to complement organoleptic evaluation.
2. Expanded activities can explore market acceptance and consumer preferences, ensuring that fish-based products meet wider community demand.
3. Development of new formulations using local vegetables and spices should be considered to enhance taste, nutrition, and cultural relevance.
4. Programs can incorporate packaging, storage, and shelf-life training to improve product quality and support broader distribution.

Further initiatives should assess the economic feasibility and scalability of household-based fish processing businesses, strengthening fishermen's livelihoods and resilience.

Acknowledgments

The author expresses sincere gratitude to the participants, especially the wives of fishermen in Bintaro, Ampenan, for their active involvement and support in this community service program. Appreciation is also extended to artificial intelligence (AI) technology, which assisted in refining the manuscript and enhancing its clarity.

Daftar Pustaka

Agriculture Institue. (2025). A Guide to Making Fish Sausage: Ingredients and Techniques -

Agriculture Notes by Agriculture.Institute.

Anggaina, M. (2025). Peluang Usaha Dimsum Rumahan vs Skala Besar: Mana yang Lebih Menguntungkan? | Bolekaka.

Bill. (2023). Steamed Crystal Dumplings, A Dim Sum Classic - The Woks of Life. https://thewoksoflife.com/steamed-crystal-dumplings/

Cell Instrument. (2026). Descriptive Sensory Evaluation - Texture Profile Analysis for Food. https://www.materialstests.com/news/descriptive-sensory-evaluation-unlocking-the-science-of-food-perception.html

Chuapoehuk, P., Raksakulthai, N., & Worawattanamateekul, W. (2001). Process development of fish sausage. International Journal of Food Properties, 4(3), 523–529. https://doi.org/10.1081/JFP-100108653

de Onis, M., & Branca, F. (2016). Childhood stunting: A global perspective. In Maternal and Child Nutrition (Vol. 12, pp. 12–26). Blackwell Publishing Ltd. https://doi.org/10.1111/mcn.12231

Fauzia, F., Achmad, G. N. V., & Yuda, A. (2024). Identification of factors causing stunting in Lamper Tengah primary healthcare centre, Semarang City. *Pharmacy Education*, 24(3), 273–279. https://doi.org/10.46542/pe.2024.243.273279

Gavin Van De Walle, M. R. (2024). First In, First Out (FIFO): What Food Handlers Must Know – FoodSafePal®. https://foodsafepal.com/first-in-first-out-fifo/

Global FM Lombok. (2025). Bintaro akan Dijadikan Kampung Nelayan Merah Putih - GlobalFMLombok.com. https://globalfmlombok.com/18/06/2025/bintaro-akan-dijadikan-kampung-nelayan-merah-putih/

Kenton, W. (2025). The FIFO Method: First In, First Out.

Koyuncu, G. (2025). Sensory Analysis Methods and Quality Characteristics of Foods. Sensory Analysis in Food Science [Working Title]. https://doi.org/10.5772/INTECHOPEN.1012198

Literasi Unimus. (2025). Pengujian Organoleptik - Literasi Unimus. https://literasi.unimus.ac.id/pengujian-organoleptik/

Rizal, M. F., & van Doorslaer, E. (2019). Explaining the fall of socioeconomic inequality in childhood stunting in Indonesia. SSM - Population Health, 9. https://doi.org/10.1016/j.ssmph.2019.100469

Singh, R. D., Arambam, K., Singh, A. M., & Singh, S. K. (2025). Health and Nutritional Benefits of Fish as Human Food. Food Security, Nutrition and Sustainability Through Aquaculture Technologies, 43–59. https://doi.org/10.1007/978-3-031-75830-0_3

Smith, C. (2023). Seafood Dim Sum Recipe (Keto, Easy) | I Heart Umami®. https://iheartumami.com/low-carb-seafood-dim-sum/

Suara NTB. (2025). Wagub Dinda Soroti Tingginya Angka Stunting di NTB - SUARANTB.com. Suara NTB. https://suarantb.com/2025/06/16/wagub-dinda-soroti-tingginya-angka-stunting-di-ntb/

WHO. (2025). Stunting in a nutshell. https://www.who.int/news/item/19-11-2015-stunting-in-a-nutshell