

Enhancement of PKK Skills in Processing Local Food Rebon Shrimp Into Crackers: A Functional Food for Preventing Dental Caries

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Abstract

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Abstrak

Pangan lokal di Desa Bagan Serdang, seperti udang rebon yang tinggi kalsium, memiliki potensi besar untuk dimanfaatkan dan dipasarkan secara lokal. Sayangnya, pemanfaatan ini sering terhambat karena minimnya pengetahuan dan keterampilan masyarakat. Tim pengabdian bertujuan untuk meningkatkan pemahaman dan keterampilan ibu-ibu PKK dalam mengolah pangan lokal guna membentuk kelompok yang mandiri secara ekonomi dan sosial serta menghasilkan produk yang bermanfaat untuk kesehatan, khususnya kesehatan gigi dan mulut. Kegiatan ini meliputi sosialisasi, penyuluhan, dan pelatihan, di mana hasilnya menunjukkan peningkatan pengetahuan dan keterampilan ibu-ibu dalam membuat olahan seperti kerupuk udang rebon.

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1. INTRODUCTION

Local food refers to food sourced from the local area. One example of commonly consumed local food is *rebon* shrimp (Puspita et al., 2018). As a maritime country, Indonesia has abundant marine resources, particularly in the fisheries sector, which directly impacts the economy and contributes to the well-being of fishermen. However, fishermen often still live in poverty.

Rebon shrimp is one of the marine products rich in micronutrients. According to the Ministry of Health (2009), as cited by Syarif et al. (2017), every 100 grams of dried *rebon* shrimp contains 295 kcal of energy, 62.4 grams of protein, 2.3 grams of fat, 1.8 grams of carbohydrates, 1209 mg of calcium, 1225 mg of phosphorus, 6.3 mg of iron, 210 mg of vitamin A, 0.14 mg of vitamin B1, and 20.7 grams of water. This is further supported by a study conducted in West Sumatra in 2017. The study analyzed *sala udang rebon* (a dish made from *rebon* shrimp), revealing that it contains 37.25% carbohydrates, 3.42% protein, 12.74% fat, 43.66% moisture content, and 2.92% ash content.

Bagan Serdang is a village located in Pantai Labu Sub-district, Deli Serdang Regency, North Sumatra Province. The village consists of three hamlets and had a population of approximately 1,500 people in 2021, comprising 765 males and 735 females, distributed across 424 households. The primary occupations of the residents are diverse, with the majority working as fishermen (395 people, or 83.86%). Additionally, some residents are engaged in home-based industries, including shrimp processing. Given its coastal location and the high number of fishermen, Bagan Serdang has developed *rebon* shrimp (also known locally as *kecepe*) as one of its flagship products. The *rebon* shrimp harvested in the village is notable for its high nutritional value, particularly its calcium content. This nutrient-rich profile makes *rebon* shrimp a suitable raw material for producing calcium-rich food products, such as healthy *rebon* shrimp crackers, which can serve as functional foods to promote public health.

The nutritional content of *rebon* shrimp provides direct health benefits, with its energy content playing a crucial role in preventing stunting. A study conducted in Brebes, as cited by Salsa, Ani, and Ali (2016), found that children with low energy intake are 7.71 times more likely to experience stunting compared to those with adequate energy intake. Additionally, *rebon* shrimp offers protective benefits by helping to prevent cancer, cardiovascular disease, depression, and diabetes, while its high iron content aids in combating anemia by improving oxygen transport throughout the body.

Women involved in the Family Welfare Empowerment (PKK) program in rural areas play a critical role in meeting family nutritional needs by processing local food ingredients. However, limited knowledge and skills in transforming raw materials into functional food products remain a significant challenge. Therefore, training programs are needed to empower PKK members by equipping them with the skills to process *rebon* shrimp into functional foods, such as calcium-rich crackers that also help prevent dental caries.

This study aims to enhance the skills of PKK members in producing functional *rebon* shrimp crackers, contributing to dental caries prevention. Additionally, this initiative is expected to have a positive economic impact on the community by creating value-added products from local food resources, promoting both health and economic well-being.

2. MATERIAL AND METHODS

The implementation method for this program includes orientation, socialization, training in *rebon* shrimp cracker processing, support, and monitoring and evaluation.

1. Orientation: This initial phase involves meetings

with the community to introduce the program's objectives and benefits while coordinating with relevant stakeholders. Socialization is conducted through group discussions and information campaigns using print and digital media. The goal is to raise community awareness about the nutritional benefits of *rebon* shrimp, the importance of dental health, and the objectives of the service program.

2. Socialization: The socialization activity aims to

provide an overview of the service activities to be conducted. Participants in this phase include 25 women from the local *dasawisma* (community groups) in Bagan Serdang Village. The socialization took place at 10:00 AM and included educational sessions related to the development of local food potential that can be processed from local resources. Presentations using PowerPoint highlighted various local food types, their benefits, and processing methods. This socialization and educational outreach was conducted on August 10, 2024. The success of this outreach will be evaluated at the end by summarizing feedback from participants.

3. Training: The training session took place on

August 24, 2024. Participants were provided with skill development materials related to local food processing and actively engaged in the training. Ten students participated as facilitators, assisting faculty members in delivering materials and guiding participants during the processing training. The partner organization provided the venue and equipment necessary for the training, such as stoves, pots, spoons, bowls, and knives. Training ran from 11:00 AM to 4:00 PM. During the session, participants gained knowledge and hands-on experience in processing the raw materials into finished products. Evaluation feedback indicated that participants were pleased and expressed a desire to recreate the products at home and market them locally.

4. Support Phase: This phase involves providing

ongoing support to the community through regular visits, consultations, and feedback sessions. Evaluations are conducted to assess progress, identify challenges, and measure program outcomes. The aim is to ensure that community members apply the knowledge and skills gained, assess the program's effectiveness, and make necessary improvements.

5. Monitoring and Evaluation Phase: The team

designs strategies to ensure the program's sustainability after the active phase concludes. This includes advanced training, establishing local support groups, and developing marketing networks. The goal is to ensure that the benefits of the program continue to be realized by the community in the long term, allowing for the program's continuation or further development by local stakeholders.

3. RESULT AND DISCUSSION

The outcomes of this community service include:

1. Educational Outreach on the Potential of Local Food Processing.

The outreach fostered significant interest among women in creating new food products. Participants received educational materials covering various types of local foods, their benefits, and potential processing methods. The training underscored the importance of calcium in preventing dental caries, specifically highlighting the high calcium content of *rebon* shrimp and its health benefits for teeth and gums. Local foods are often undervalued, frequently perceived as mere rural cuisine. However, these foods are readily available and generally healthier due to their nutritional benefits. This underappreciation may stem from a lack of understanding and limited processing skills among community members. Furthermore, innovations in local food processing remain scarce (Nugraheni, 2017). The availability of local food is crucial, as it can serve as a vital resource to meet daily nutritional needs. Presently, dietary patterns in Indonesia are shifting from local foods to national staples (like rice) and may eventually transition to international foods (such as wheat) (Utami & Budiningsih, 2015). Educational outreach is an effective approach to enhance knowledge and skills within community groups. By focusing on local food, this outreach provides a broader perspective on utilizing indigenous resources. As noted in the research by Kusmiyati et al. (2021), there was a significant increase in knowledge about local food and its role in ensuring family food security among elementary school students.



Figure 1. Educational Outreach on the Potential of Local Food in Bagan Serdang Village

2. Training in Local Food Processing

The next phase involved training on local food processing, conducted on August 24, 2024, at the Bagan Serdang Village Head's Office Hall. The training resulted in the production of *kerupuk* (shrimp crackers) made from *rebon* shrimp. This product was selected for its long shelf life and its popularity among children, which could increase market demand and, consequently, local incomes. The training aimed to enhance community members' income through the creation of marketable local products. Similar initiatives have shown success, such as the processing of cassava into innovative and technologically advanced products that fetch higher prices (Sophia et al., 2020). The following section outlines the training activities carried out in Bagan Serdang Village.



Figure 2. Presentation of the Processing Steps



Figure 3. Activity of Processing One of the Products

During the training session, the involvement of the women was exceptionally high. Their curiosity about the process of making the food products led to enthusiastic participation. Throughout the training, the women were divided into groups for different stages of product preparation. This grouping facilitated organization during the training activities. The partner organization provided all necessary equipment for product preparation, including stoves, pots, spoons, basins, and more. After creating the products, participants had the opportunity to taste their creations, allowing them to directly experience the results of their efforts. Following the training, the women expressed a strong desire to try making these products at home. The products resulting from the training can be seen in the following images :



Figure 4. Products Resulting from Food Processing Training

4. CONCLUSION

The community service, which provided education and training in local food processing to the members of the Family Welfare Empowerment (PKK) group in Bagan Serdang Village, was conducted smoothly and effectively, meeting the expectations of the service team. This success is evidenced by the high level of enthusiasm and curiosity exhibited by the participants, particularly during the practical sessions focused on local food processing.

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REFERENCES

Agrovani , M. P. (2022). *Pengaruh Suhu dan Tekanan Penggorengan dengan Vacuum Frying pada Pembuatan Keripik Sirsak*. <http://digilib.unila.ac.id/id/eprint/62761>.

Badan Pusat Statistik. BPS Kabupaten Deli Serdang. 2021.

Bambang H. (2011) *Promosi Kesehatan: Sejarah dan Perkembangannya di Indonesia*. Jakarta: Penerbit PT Rineka Cipta.

BPS Kabupaten Deli Serdang. Kecamatan Pantai Labu dalam Angka 2021. 2021;1-139. Available from:<https://deliserdangkab.bps.go.id/publication/2017/09/25/7401bf167c1f1bc9a8814c5/kecamatan-pantai-labu-dalam-angka-2017.html>

Badan Pengawas Obat dan Makanan Republik Indonesia (2011) *Pengawasan Klaim Dalam Label Dan Iklan Pangan Olahan*. Farmakovigilans. 2011;53:1689-99.

Johansson I, Lif Holgerson P, Kressin NR, Nunn ME, Tanner AC (2010). *Snacking habits and caries in young children*. *Caries Res*;44(5):421-30.

Kemenkes RI. Laporan_ Nasional_ RKD 2018_FINAL.pdf [Internet]. Laporan Nasional RISKESDAS. 2018. p. 198.

Marlindayati (2019). *Efek konsumsi biskuit ubi ungu terhadap saliva dalam upaya pencegahan karies*. *J Kesehat Gigi dan Mulut*;1(1):17-22.

Persagi. Tabel Komposisi Pangan Indonesia 2017. Kementerian Kesehatan Republik Indonesia. Jakarta: PT Elex Media Komputindo; 2018. 1-135 p.

Yanti GN, Yustina I, Primasari A, Rochadi RK. Effectiveness of Rebon Shrimp in Preventing Dental Caries among Elementary School Children in Bagan Serdang Village. *J Int Dent Med Res.* 2022;15(4):1718-23.

Yanti G, Yustina I, Primasari A, Rochadi K. Utilization of Local Food in the Prevention of Dental Caries among the Elementary School Children in the Fishing Community. *Malaysian J Med Heal Sci.* 2019;15 (September):5-7.

Yanti GN, Kosasih C. Efektifitas Mengunyah Keju Cheddar Terhadap Peningkatan Konsentrasi Ion Kalium Saliva Sebagai Alternatif Pencegahan Karies Gigi. *Talent Conf Ser Trop Med.* 2018;1(1):176-80.