

Nugget Processing with Addition of Egg Shell Flour in Kotabaru Village, Jambi

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Abstract

Calcium is an essential micronutrient for children to the postmenopausal women. In practice, consumption of calcium-rich foods sourced from animal protein foods for family members, especially children, is still low. Egg shells contain calcium which can be fortified into nuggets to produce calcium-rich nuggets. Thus, the high benefits of egg shells will be obtained and reduce the negative environmental waste impact. Kota Baru Village, Geragai Subdistrict, Tanjung Jabung Timur Regency was chosen as the location for community service because apart from being an UNJA's integrated laboratory village, this area is one of the locations for stunting reduction in Jambi Province. This community service project has target of producing nugget products with the addition of egg shell flour, as well as increasing the knowledge and skills of village business group members. Evaluation of participants' knowledge and skills was carried out using pre-test and post-test questionnaire and checklist of nugget-making procedures. The results of this community service showed that there was a difference in 10 participants' knowledge compared to before the training (test score from 72 to 88). The hedonic test showed that more participants really liked the eggshell and carrot nuggets formulation in terms of smell, texture, and taste. Processing of nuggets with the addition of eggshell flour can be an alternative local food source of animal protein which is also of economic value.

Keywords: Egg Shell, Nuggets, Waste

INTRODUCTION

Indonesia still faces a double burden of nutritional problems. Apart from the problem of excess nutrition, stunting is currently still a problem of malnutrition among toddlers which is the focus of treatment with an incidence rate in toddlers of 29.9% and is more common in rural areas than urban areas.(Indonesian Ministry of Health, 2018). One of the nutrients that plays an important role in preventing stunting is calcium (Ca). Calcium (Ca) is a micronutrient that has many benefits for children and postmenopausal women. For children, calcium is needed for growth. Low calcium intake due to inadequate milk consumption after weaning significantly contributes to increased stunting in the community(Stuijvenberg, 2015). Meanwhile, for postmenopausal women, calcium is needed to prevent a decrease in bone density(Hayati & Herwana, 2018).

Calcium (Ca) is the most abundant mineral in the human body. Almost all the calcium (Ca) in the body is in the bones and teeth. In bones, calcium plays a central role in bone structure and strength, moving according to need and functioning to replace up to

approximately 0.5 grams a day. In teeth, calcium makes teeth strong and permanent. Only a very small amount (1%) is in soft tissue, extracellular fluid and plasma which are required for many metabolic and regulatory roles. The adult body contains around 1000 – 1300 g of calcium which is less than 2% of body weight. The normal blood calcium content is 9 – 11 mg per 100 ml. About 48% of serum calcium is ionic whereas 46% is in blood protein compounds. The remainder is in the form of complex compounds that are easily diffused, such as citrate. Calcium mobilization and storage are influenced by a person's age, diet, hormonal status and psychological state(Hardinsyah et al, 2019).

School age children to postmenopausal women need calcium of 1000-1200 mg/day. In practice, consumption of calcium-rich foods derived from animal protein foods among family members, especially children, is still low. This is closely related to the socio-economic status of the community which is also still low. Egg shells are egg processing waste which, if not used effectively, has a negative impact on the environment, especially in relation to the health and discomfort of the

people around the location. Eggshells contain calcium which can be fortified into nuggets to produce calcium-rich nuggets (Merta et al., 2020). Nuggets are processed meat that is made by mashing the meat and then adding spices or flavorings, then forming it in such a way, then steaming it, then coating it with egg as a glue or other ingredients and then frying it. Nuggets are a type of processed meat that is processed by grinding and seasoning, then covering it with flour adhesive, coating it with breadcrumbs and frying it half-cooked and then freezing it to maintain its quality during storage. Thus, this activity will provide high benefits for egg shells and reduce negative environmental impacts.

Kota Baru Village, Geragai District, East Tanjung Jabung Regency was chosen as the location for community service activities because apart from being a UNJA integrated laboratory village, this area is one of the stunting handling loci in Jambi Province in 2019 with a stunting percentage of 54.15% ([BAPPENAS] National Development Planning Agency, 2020; Indonesian Ministry of Health, 2018). Kota Baru Village is a former transmigration village that has been handed over to the Regional Government in the District. Gear. On October 27 2008, Kota Baru Village was designated as the Center for the Development of an Independent Integrated City, East Tanjung Jabung Regency through the Regional Regulation of East Tanjung Jabung Regency No. 11 of 2008. An Independent Integrated City is a development area whose development is designed to become a growth center that has urban functions through management. sustainable natural resources. With its potential and the low use of eggshell waste as an alternative food rich in calcium, Kota Baru Village is the right location for community empowerment for the understanding and skills of partners in making nuggets with the addition of eggshell flour as a result of utilizing eggshell waste.

IMPLEMENTATION METHOD

The target partners for this activity are people who are not economically productive, namely the group of housewives in Kota Baru

Village, Kec. Geragai, Kab. East Cape Jabung. Community service activities that will be carried out include: (1) Focus group discussions involving the Village; and (2) Socialization and training on making nuggets with the addition of eggshell flour as a result of utilizing eggshell waste.

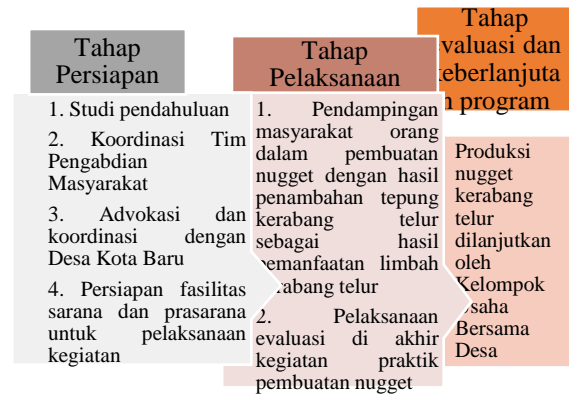


Figure 1 Flow of Community Service Activities

RESULTS AND DISCUSSION

Processing nuggets by adding eggshell flour

Training on processing nuggets with the addition of egg shell flour was carried out in Kota Baru Village, Geragai District, East Tanjung Jabung Regency, Jambi Province. This activity was attended by 10 members from seven Joint Business Groups (KUB) in the food sector of Kota Baru Village. The activity was opened by the Kota Baru Village Secretary, which was then continued with FGD and training in making egg shell nuggets which was accompanied by a demonstration on the first day, while on the second day there was a practice in making egg shell nuggets by KUB members.



Figure 2. Training on processing egg shell nuggets by the MIL community service team

The process of processing eggshell nuggets consists of five stages, namely:

grinding the meat, adding spices, steaming, coating with egg and other adhesives, and frying. The main ingredients used in processing egg shell nuggets are chicken breast meat and egg shell flour in a ratio of 15: 1. The result of this training is that KUB can directly apply the processing of egg shell nuggets to the packaging of the product by innovating by adding vegetables such as carrots, spinach, and cassava leaves (sweet potato shoots).

Nuggets processed with the addition of eggshell flour have the following advantages: they contain high levels of calcium and protein, can be used as a side dish or snack for children to prevent stunting, reduce eggshell waste which has a negative impact on the environment, and increase the selling value of MSME food businesses.

The Community Service Program (PkM) with the same activity focus, namely processing chicken meat into nuggets through counseling in an effort to fulfill the family's nutritional needs, is very important in order to build a healthy family that can carry out optimal activities.(Susanti, 2023). Apart from that, through other community service activities which are focused on mothers as family food providers, it is hoped that mothers will know how to prepare food that is healthy but still practical and economical.(Helmie & Putri, 2023). Research on making chicken nuggets with fortified chicken egg shell flour also uses ingredients that are almost the same as this activity, only with the addition of white bread without skin and fresh milk.(Sagita et al., 2021).

Increasing the knowledge and skills of joint business group actors in making egg shell nuggets

This community service activity, apart from having a target of producing nugget products with the addition of eggshell flour, also increases the understanding and skills of joint business group actors in making nuggets with the addition of eggshell flour as a result of utilizing eggshell waste. Evaluation of increasing partners' understanding and skills is carried out using pre-test and post-test questionnaires, as well as skills tests with a

nugget making procedure checklist. The results of this community service activity showed that there was a significant difference in the knowledge of the 10 participants compared to before the eggshell nugget processing training (test score from 72 to 88). A similar activity was also carried out with the title "Instruction and Training on Making Nugget, Meatballs, Meat from Impaired Laying Chickens Combination of Seaweed in the Group of Women Cadres of Posyandu "Mawar" West Housing, Karangduren Hamlet, Jati Village" with the results of the participants' activities taking part in in-class and practical training. In theory, making nuggets and meatballs is very enthusiastic and enthusiastic and can collaborate with each other, both between fellow participants and between participants and the service team. There was an increase in knowledge and skills among Mawar Posyandu cadre mothers participating in this service activity by 96.33%(Sukaryani et al., 2021).

The results of observations of the sequence of egg shell nugget processing activities showed that all participants carried out/practiced all processing stages correctly with good sanitation hygiene, such as using PPE (personal protective equipment), washing hands before and after the activity, separating tools for raw and cooked materials properly, correctly, and dispose of the processed waste in the rubbish bin provided. The same thing also results from community service(Winarsih et al., 2020)in the training on making cow's milk nuggets which succeeded in increasing the participants' knowledge and skills in making cow's milk nuggets.

Table 1. Comparison of Knowledge of Egg Shell Nugget Processing Training

Participant	Participants		
	Pre-test Value	Post-test scores	Difference in knowledge scores before and after training
1	80	80	0

2	40	60	20
3	100	100	0
4	100	100	0
5	40	60	20
6	60	100	40
7	60	100	40
8	60	80	20
9	100	100	0
10	80	100	20
Average	72	88	16

CONCLUSION

There was an increase in KUB Food knowledge and skills after being given training on processing eggshell nuggets with high preferences from the results of the hedonic test.

SUGGESTION

Processing nuggets with the addition of egg shell flour can be an alternative local food source of animal protein and calcium which is also economically valuable and easy to apply in the community. There needs to be additional improvement in the quality of eggshell nugget products, such as attractive packaging designs with high selling value.

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