Yellow pumpkin processing desimination as an alternative food product that of high nutritional value in Bendo Village

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ABSTRACT

Large tracts of land in the village of Bendo, by the local community the most widely used for agriculture. Although most extensive agricultural land and agricultural lots, the poverty rate in Bendo village is still relatively high even as many as 846 people (37%). It is probably because the majority of low-educated population Bendo village. Low education effect on knowledge and skills of the population in the processing of agricultural products. This is evidenced by the farmers in the village of Bendo is still lacking in the use of agricultural products. The purpose of this program is devoted IbM pumpkin farmer empowerment and mothers do not work in Bendo village which is expected to improve people's lives. The method of implementation: 1) training and direct practice of processing pumpkin into a various foods of high nutritional value, 2) provisioning marketing strategies and product promotion pumpkin, 3) the provision of equipment and supplies, 4) assistance manufacture of processed pumpkin 5) training harvesting and storage of pumpkin, 6) assistance pumpkin harvesting and storage. Achievement of the results of this activity: 1) the participant mothers households acquire the knowledge, understanding and skills in the processing and packaging pumpkin into various foods as an alternative food, 2) mothers who did not work the first did not work may have activity to process pumpkin into a variety of foods that have a higher resale value so that it can help the family economy, 3) the provision of equipment, 4) understanding of strategic marketing and promotion through social media, 5) an increase in the price of pumpkins.

KEYWORDS
Pumpkin;
Food alternative;
Nutrition

1. Introduction

The large area of land in Bendo Village is used by the local community for public facilities, settlements, economic activities and most widely used for agriculture. Even though the agricultural land is the most extensive and has many agricultural products, the poverty rate in Bendo Village is still relatively high, namely 846 people (37%). This is probably due to the fact that the majority of Bendo Village residents have low education. Based on the profile of Bendo Village (2014) the education level of the people in Bendo Village as follows 12.4% have never attended school, 43.7% have graduated from elementary school, 17.1% are junior high school, 12.6% are high school students, 10% have not attended school or are currently in elementary school and 4.2% graduated from college. Low education affects the knowledge and skills of the population in processing agricultural products. This is proven by the farmers in Bendo Village who are still lacking in utilizing agricultural products. Besides that, housewives are less empowered so that many mothers are unemployed without any activities outside of household activities.

Based on a preliminary survey conducted by the service team, agricultural produce in Bendo Village is very abundant and is sold in raw form, so the economic value is low. One example is a pumpkin (waluh) with a selling price of between Rp. 1,000.00/kg - Rp. 1,500.00/kg, even some farmers only use pumpkins as animal feed or residents of Bendo Village can only process pumpkins into compote. Besides that, housewives are less empowered so that many mothers are unemployed without any activities outside of household activities.

DOI: https://doi.org/10.59247/jppmi.v2i12.190

Research on pumpkin has been carried out by many previous studies. Holistic review of polysaccharides isolated from pumpkin: Method of preparation, structure, and bioactivity investigated by Li [1]. The effect of molasses interacting with formic acid on the characteristics of fermentation, proteolysis and the microbial community of pumpkin leaf silage used by seeds was studied by Song Song [2]. The potential role of pumpkin seed oil in methotrexate-induced pulmonary toxicity was investigated by Abosrea [3].

The role of cadmium on seedling growth by analyzing the composition of metabolites in pumpkin tissue was studied by Han [4]. Description of the Immature Stage Dacus bivittatus (Diptera: Tephritidae), the Large Pumpkin Fruit Fly studied by Steck [5]. Overview of the biochemical content of pumpkin and its role as a pharmaceutical food; a key strategy to improve health in the post COVID 19 period was researched by Hussain [6].

Corrigendum: Pumpkin Gene Expression CmbHLH87 Enhances Powdery mildew Resistance of Tobacco studied by Guo [7]. The functional properties of wheat-based bread were influenced by the combination of pumpkin flour and jackfruit seed flour studied by Minh [8]. Symbolic regression with feature selection of dye biosorption from aqueous solutions using pumpkin seed husks using an evolutionary computation-based automatic programming method was investigated by Arslan [9].

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The CmRCC1 gene from pumpkin confers cold tolerance on tobacco by modulating root architecture and photosynthetic activity studied by Wang [13]. Alternative Utilization of Vegetable Plants: Pumpkin Polysaccharide Extract and Its Efficacy on Skin Hydration was studied by Chanpirom [14]. The phytochemical and bioactive compounds of pumpkin seed oil which are influenced by different extraction methods were studied by Singh [15].

Ethnobotanical studies of pumpkin (Cucurbita moschata Duchesne) landraces in Benin were investigated by Ezin [16]. The effect of adding water and baking time on optimizing the pumpkin muffin process: a pilot factory scale study was investigated by Rismaya [17]. Direct Determination of Tyrosine and Tryptophan Enantiomers in Yellow Pumpkin (Cucurbita moschata) with HPLC-UV/Vis: The Effect of Cooking Treatment on Enantiomer Profile was studied by Botella [18].

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The Effect of High Hydrostatic Pressure Combined with Vacuum-Freeze Drying on Aroma-Active Compounds in Blended Pumpkin, Mango, and Jujube Juices was investigated by Yuan [25]. Subcritical Water-Extracted Pumpkin Polysaccharides: Physicochemical Characterization and Anti-Diabetic Effects in T2DM Mice studied by Ti [26]. "Optimization and Evaluation of Quality Characteristics of Traditional Indian Snacks (Bake Balls) Made Using Pumpkin Peel Powder" was researched by Garg [27].

Biofertilizer Application Increases Drought Stress Tolerance and Changes Antioxidant Enzymes in Medicinal Pumpkin (Cucurbita pepo convar. pepo var. Styriaca) was studied by Najafi [28]. The size of iron oxide nanoparticles determines their translocation and their effect on iron and mineral nutrition of

pumpkin (Cucurbita maxima L.) was studied by Tombuloglu [29]. Changes in polyphenolic compounds and antioxidant activities of seed-used pumpkin during hydrothermal treatment were investigated by Chao [30].

Through a survey conducted by the service team in Bendo Village, the Nutrition Study Program ITS PKU Muhammadiyah Surakarta is engaged in holding community service in the form of training on processing pumpkin into a variety of foods that have high nutritional value and high economic value with a guidebook on processed pumpkin recipes. With this training it is hoped that the abundant pumpkin yield will have higher benefits. This community service activity involves nutritionists and food technology experts, so they can overcome the problems that exist in Bendo Village.

Fig. 1. Yellow Pumpkin Farming Area in Bendo Village.

2. Method

A. Implementation Method

This training activity is divided into several stages:

1. Counseling on processing pumpkin into products with high nutritional value and high economy.
2. Training on processing pumpkin into dry noodles
3. Training on processing pumpkin into pastries
4. Training on processing pumpkin into bakpia
5. Training on processing pumpkin into steamed sponge cake
6. Training on processing pumpkin into donuts
7. Training on processing pumpkin into blooming cakes
8. Training on how to turn pumpkin into snow white cake
9. Training on how to package processed products from pumpkin
10. Training on how to market processed products from pumpkin
11. Training on how to properly harvest and store pumpkin.

B. Work steps

To realize the solutions offered, several work steps have been prepared, namely:

1. Licensing Stage

The permitting stage is shown in Figure 2. The figure shows that permits were made to the village of Bendo Nogosari Boyolali

Fig. 2. Permit to Bendo Nogosari Boyolali Village

2. The preparation stage for processing pumpkin into various foods.

Preparation for activities is carried out to adjust processed products that are of interest to participants, time of implementation and place to carry out activities, as well as provision of tools and equipment for practice. Pumpkin processing practical equipment and practical materials are provided in advance so that the implementation of the training runs smoothly and efficiently, such as mixers, ovens, pasta makers, wooden rolling pins, donut molds, pipin baq, spluits, baking sheets, pots, pans, siller and other supporting equipment. as well as companion materials for processing pumpkin into various foods.

3. Implementation stage of training on processing pumpkin into various foods.

Prior to being given training on processing pumpkin pumpkin products, the training participants were given counseling so that the ultimate goal of the product of implementing this activity could be achieved. Counseling was given regarding the potential of pumpkin which can produce a variety of innovative home industry preparations as well as explanations about pumpkin having high nutritional value which is very suitable for all ages, especially for toddlers. In addition, counseling was also given on tips for success as an entrepreneur.

After that, followed by training in various skills. Experts from the food technology department and nutritionists, assisted by four students of the ITS Nutrition Study Program, PKU Muhammadiyah, provided training in the form of processing pumpkin into various foods. Striving to create a different taste from the others in order to seize market share, training and practice with processed pumpkin ingredients are as follows:

a. Yellow pumpkin donut

b. Pumpkin steamed sponge

c. Yellow pumpkin cookies

d. Pumpkin snow princess cake

e. Pumpkin dried noodles

f. Pumpkin blossom sponge

g. Pumpkin dumplings

4. Counseling on operational management and marketing of industrial products.

Counseling on operational management and marketing of industrial products, management of small businesses, development of market share and strategies to increase revenue are also a priority. Counseling on marketing strategy, ended with a discussion to agree on a marketing strategy in accelerating marketing such as ordering done directly to shops, stalls, school canteens, markets, and ordering online.

5. Monitoring and evaluation stage

The assistance for processing pumpkin into various processed products is carried out in Bendo II Hamlet as shown in Figure 3. From the figure it can be seen that besides that, communication is also carried out by telephone, so that the problems of the pumpkin product business can run smoothly.

Fig. 3. Yellow Pumpkin Processing Assistance.

6. Final stage

At this stage evaluation of the training implementation, preparation of progress reports, preparation of articles for publication of community service results, and preparation of final community service reports.

3. Results and Discussion

The problem in Bendo Village is that agricultural products are very abundant, but have low economic value, because they are only sold in raw form. One example is a pumpkin (waluh) with a selling price of between Rp. 1,000.00/kg - Rp. 1,500.00/kg, even some farmers only use pumpkin as animal feed or residents of Bendo Village can only process pumpkin into compote. Another problem is where housewives are less empowered so that many mothers are unemployed without any activities outside of household activities. The ITS S1 Nutrition Study Program service team, PKU Muhammadiyah Surakarta, has provided solutions that have been implemented, such as:

Availability of Supporting Equipment and Supplies

As revealed in the situation analysis that one of the problems faced by Bendo Village is not having equipment to support the production process. The procurement of pumpkin processing equipment includes mixers, ovens, pasta makers, wooden rolling pins, donut molds, pipin baq, spluits, baking sheets, pans, sillers, etc. The tools and equipment were handed over to the Head of Bendo Village as an inventory of Bendo Village which will be kept at the Bendo Village Hall. Housewives can use the equipment by borrowing it from the Head of Bendo Village.

Produce various processed foods from pumpkin

The products that have been produced through pumpkin processing training are: pumpkin donuts, pumpkin steamed cakes, pumpkin sago pastries, pumpkin princess snow cakes, pumpkin dried noodles, pumpkin blossom cakes, and pumpkin bakpia. This training was supervised by experts from 2 food technology experts, 4 nutritionists, and assisted by 4 students of the Nutrition Study Program ITS PKU Muhammadiyah Surakarta.

Housewives training participants were asked to directly practice the process of making food which was demonstrated by food technology experts and nutritionists to completion. Through this activity, pumpkin can produce a variety of products, highly nutritious, and has the potential to develop the potential of the home processing industry.

Training on processing pumpkin into various foods in Bendo Nogosari Boyolali Village was held for 5 days from Monday to Friday, 16 - 20 May 2016. The place used was the Bendo Nogosari Boyolali Village Hall building. Participants who took part in the training were 30 housewives who did not work in Bendo II Hamlet. The opening of the training activities was attended by Mrs. Lurah Bendo Nogosari Boyolali, Mrs. Head of Hamlet (Bayan) Bendo I, Mrs. Head of Hamlet (Bayan) Bendo II, and Mrs. Chancellor of ITS PKU Muhammadiyah Surakarta and Head of LPPM ITS PKU Muhammadiyah

Surakarta. The training was carried out using the hands-on practicum method where there was a cooking demonstration in front of the group followed by cooking mothers. Participants are divided into 8 groups, each group will be divided into food ingredients and equipment according to the dishes that day. The 5-day training activities include opening Monday, counseling and practice of making donuts and steamed sponge cake from pumpkin, Tuesday making cookies and Snow White cake from pumpkin, Wednesday making dry noodles and blooming sponge cake from pumpkin, Thursday making bakpia from pumpkin, and Friday counseling about the process of marketing, evaluation and closing.

Assistance to pumpkin processing women.

Assistance in processing pumpkin into various processed products is carried out in Bendo II Hamlet. In addition, communication is also carried out by telephone, so that the problems of the pumpkin product business can run smoothly.

Assistance in processing pumpkin into various foods in Bendo Nogosari Boyolali Village. Assistance in pumpkin processing is carried out 2 times a month or once. Assistance is carried out to see how far the women participating in the training can process pumpkin into various foods and can package the processed products for sale in shops, school canteens, markets, etc.

Training on pumpkin harvesting and storage.

Training on harvesting and storing pumpkins for 2 days on Friday and Saturday July 22 - 23 2016. Participants consisted of 10 members of a farmer group in Bendo I Hamlet. On the first day they conducted training on how to harvest pumpkins, and on the second day they conducted storage training summer squash.

Assistance to pumpkin farmers.

Assistance for harvesting and storing pumpkins in Bendo Nogosari Boyolali village which is carried out once a month.

4. Conclusion

Participants in community service activities increase their knowledge and skills in local food-based food processing, including: selection of ingredients, weighing, mixing techniques, processing techniques, product composition, packaging and food safety, so that the food produced is more standardized both in terms of taste, texture, color, portion, appearance and hygiene. The products offered through the pumpkin IbM program in Bendo Village have distinctive differences compared to other products as described above. The first difference is that the main ingredient for pumpkin is food from the village of Bendo and does not use chemical additives such as food preservatives. In addition, proper and clean food processing according to standards. The second difference is in the type of food produced, which is an innovative food product and has high nutritional value, making it very suitable for snacks, especially for toddlers. The emergence of a new business or home industry for processed pumpkin products, with this community service activity, can also improve the economy of Bendo Village, where housewives who previously could not have income can have income and increase the selling power of pumpkin.

Acknowledgment

Special thanks to the internal funder for community service from the ITS PKU Muhammdiayah Surakarta.

Author Contribution

Methods of implementation: 1) training and hands-on practice of processing pumpkin into a variety of high nutritional value foods, 2) provision of marketing strategy and promotion of pumpkin products, 3) provision of tools and equipment, 4) assistance in producing processed pumpkin 5) training on harvesting and storage pumpkin, 6) assistance in pumpkin harvesting and storage.

Funding

Special thanks to the internal funder for community service from the ITS PKU Muhammdiayah Surakarta.

Conflict of Interest

The authors declare no conflict of interest.

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