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Training on Making Healthy Dumplings from the Flesh of Manalagi Mango Typical of Local Fruit from SMA Muhammadiyah Kedawung School

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ABSTRACT

This training aims to improve students' skills through the utilization of manalagi mango pulp as a basic ingredient for making healthy dumplings to become a superior product for students of SMA Muhammadiyah Kedawung. The activity was carried out at SMA Muhammadiyah Kedawung with a participatory approach. The methods used included observation, implementation in the form of socialization and training, and evaluation in the form of pretests and posttests. Students were taught how to process mango manalagi into healthy dumpling filling that is nutritious and adds economic value. The results of the activity showed an increase in students' skills in the dumpling production process as well as knowledge about dumpling nutrition. Student response was very positive, with 85% of participants showing interest in improving their understanding of processing fruit pulp into nutritious and healthy dumplings.

Pelatihan ini bertujuan untuk meningkatkan keterampilan siswa melalui pemanfaatan buah daging buah mangga manalagi sebagai bahan dasar pembuatan pangsit sehat menjadi produk unggulan siswa SMA Muhammadiyah Kedawung . Kegiatan dilaksanakan di SMA Muhammadiyah Kedawung dengan pendekatan partisipatif. Metode yang digunakan meliputi observasi, pelaksanaan berupa sosialisasi dan pelatihan, serta evaluasi berupa pretest dan posttest. Siswa diajarkan cara mengolah mangga manalagi menjadi isian pangsit sehat yang bernutrisi dan menambah nilai ekonomi. Hasil kegiatan menunjukkan peningkatan keterampilan siswa dalam proses produksi pangsit serta pengetahuan tentang nutrisi pangsit. Respon siswa sangat positif, dengan 85% peserta menunjukkan minat untuk peningkatan pemahaman pengolahan daging buah menjadi pangsit yang bernutrisi dan sehat.

A. INTRODUCTION

Mango fruits are an important source of micronutrients, vitamins and other phytochemicals. In addition, mango fruits provide energy, dietary fibre, carbohydrates, protein, fat and phenolic compounds (Lucia C. Mandey, 2016). Mango fruits contain high

levels of vitamin C and can be consumed in fresh form or as preparations. The nutritional value of mango in general per 100 g consists of energy 272 kJ (65 kcal), carbohydrates 17 g, sugar 14.8 g, dietary fibre 1.8 g, fat 0.27 g, protein 0.51 g, vitamin A equiv. 38 mg, beta-carotene 445 mg, thiamine (Vitamin B1) 0. 058 mg, riboflavin (Vitamin B2) 0.057 mg, niacin (Vitamin B3) 0.584 mg, pantothenic acid (Vitamin B5) 0.160 mg, vitamin B6 0.134 mg, folate (Vitamin B9) 14 mg, vitamin C 27.7 mg, calcium 10 mg, iron 0.13 mg, magnesium 9 mg, phosphorus 11 mg, potassium 156 mg, and zinc 0.04 mg. (Fauziah et al., 2021)

Translated with DeepL.com (free version)Manalagi mango fruit, one of the leading mango varieties widely cultivated in Indonesia, has great potential to be processed into value-added food products. Manalagi mango is a mango variety that has its own distinctive flavour compared to other mangoes. It is recognised that manalagi mango is a very exclusive fruit, with a distinctive flavour, aroma and performance (Gusman & Badawi, 2019). In addition to its sweet flavour and soft texture, the nutritional content of manalagi mango makes it an ideal raw material for the development of healthy food products. The utilisation of manalagi mango as a filling for healthy dumplings not only offers innovation in food diversification, but also supports local resource-based entrepreneurship development (Anitasari et al., 2014). With rich nutritional content such as vitamin C, fibre, and phenolic compounds, these mango-based dumplings can be an alternative snack that is nutritious and adds economic value (Dwi Apriyanti Kumalasari, Nia Agus Lestari, Chitra Dewi Yulia Christie, Hasbi Ashshiddiqi W.K, Khusniyah, Novi Dwi Priambodo, 2020). In the context of service at SMA Muhammadiyah Kedawung, the use of manalagi mango fruit as the main ingredient in making healthy dumplings is expected to not only develop students' skills in processing food ingredients, but also encourage them to recognise local potential as a creative and innovative business opportunity (Aisyah et al., 2020).

The many nutrients contained in mangoes are very beneficial for human health, among others; the iron content is very good for pregnant women and anaemia sufferers, can improve digestion, lower blood pressure, lower cholesterol, nourish and increase endurance, reduce the risk of kidney stone formation, improve one's sex life, prevent cancer, urine decongestants, refreshers, appetite enhancers, mild laxatives, phlegm and antioxidants, good for eye, mouth and throat health. Beta-carotene (and vitamin C) in mangoes are also classified as antioxidants, compounds that can provide protection against cancer because they neutralise free radicals.(Rosalina et al., 2013).

Cirebon Regency is famous for having various mango trees that produce high-quality fruit, especially in the area around Muhammadiyah Kedawung High School. Mangoes are not only rich in nutrients and vitamins, but also inexpensive if further developed. Mango fruit is sweet and refreshing, and contains water, sugar, vitamins A, B1, B2, and C (Dewi et al., 1945). People can get many vitamins from mangoes. In fact, mango fruit can be used as an alternative for the treatment of diabetes, cancer, analgesic, renoprotective, antihyperlipidemia, antidiarrhoeal, and antibacterial because it contains lupeol, mangiferin, gallic acid, chlorogenic acid, vanilla acid, ferulic acid, ascorbic acid, and carotenoids.(Harsanto, Bovi Wira, 2022).

Mangoes are also often processed into several food products. Juice, puree, jam, pickles, canned fruit, and dried fruit slices are all processed mango products (Pisma Annisa, Tasya Dirida, Silvi, Silvia, 2023). Mango processing usually only utilises the flesh of the fruit. Meanwhile, mango peels are left as waste that is rarely utilised after processing. Plants are one of the natural resources that contain many health benefits, but the lack of literacy in the community causes a lack of innovation or utilisation of these plants (Gusman, et al., 2024).

Mango dumplings are a local ingredient-based food innovation that utilises manalagi mangoes as the main filling. The soft texture and natural sweetness of manalagi mango make these dumplings not only delicious, but also healthy as they contain rich nutrients such as vitamin C, fibre, and phenolic compounds (Yuliati & Kurniawati, 2017). The process of making mango dumplings involves simple but meticulous steps, such as processing the mango pulp into puree, mixing with natural additives, and packaging using thin dumpling skins. Furthermore, the dumplings can be steamed or fried according to taste to create interesting snack variations. One way to take creative steps is to turn mangoes into tasty and interesting snacks.

The mango dumpling-making training was held at SMA Muhammadiyah Kedawung as part of the student empowerment programme in the field of local-based entrepreneurship. The mango trees that grow abundantly around the school are the main source of raw materials that are easily available and abundant. This training aims to equip students with practical skills in processing school plantation products into high-value products (Ria Adriyan, 2019). Through demonstration and hands-on methods, students are taught the steps of making healthy dumplings, starting from selecting quality mango fruit, processing mango puree, to attractive and hygienic packaging techniques.(Umyati et al., 2023).

In addition to honing technical skills, this training also provides insight into the importance of innovation in food diversification and business opportunities based on local potential. Students are expected to be able to develop creativity and think critically in creating other processed mango products that have competitiveness in the market (Novalin Lawalata & Grace Sipahelut, 2022). The results of this training showed a positive response, where students not only understood the mango processing process, but were also motivated to start a small business based on processed healthy food. Thus, this activity successfully integrated chemistry education, entrepreneurship, and local resource empowerment as an effort to create an innovative and highly competitive young generation.(Charizah & Amrulloh, 2024)

B. METHODS

This training was implemented using an approach that included three main stages: observation, implementation in the form of socialisation and training, and evaluation in the form of a pretest posttest. Each stage is designed to actively involve students, provide hands-on experience, and allow reflection on the process. This activity uses a participatory experimental method to achieve the goal of improving the entrepreneurial skills of students at SMA Muhammadiyah Kedawung. Students were directly involved in making and marketing creative products based on Manalagi mango fruit, which was processed into healthy dumplings.

Implementation Time

The training activity on making healthy dumplings from the flesh of Manalagi mango, a typical local fruit, was carried out for 2 months, starting from November to December 2024, involving 28 students consisting of 11 male students and 17 female students. The training was provided in stages to ensure students understand each process thoroughly, from the introduction of ingredients to product manufacturing and packaging. During the training, students are given the opportunity to explore possible local materials and overcome technical challenges that arise, so that they can use the knowledge they gain in each stage of the activity most effectively.

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Series of Activities

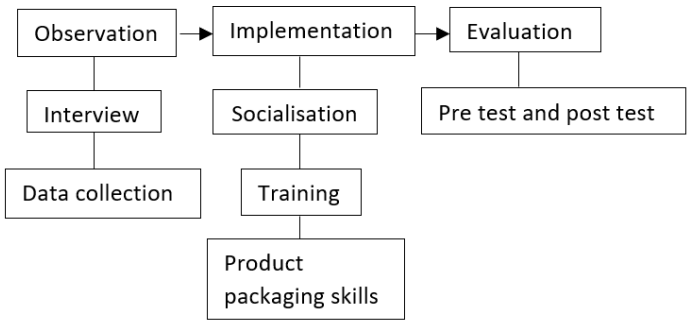

Figure 1. Flow of Community Service Activities

Fgure 1. Stated that the observation stage, the main focus was to identify the local potential of Manalagi mangoes from the school's plantation, as well as to record students' initial skills in food processing. This observation involved gathering information through interviews with students, teachers, and school officials, as well as direct observation of the environment and available resources. After the observation, the activities of making and processing training were continued. Dalam tahap ini, siswa mendapatkan materi dasar tentang manfaat pangsit, kandungan nutrisi, dan vitamin yang terkandung dalam bahan isian berbasis mangga, serta teknik pengolahan mangga menjadi isian pangsit sehat. Selain itu, siswa juga dilatih keterampilan pengemasan dan pemasaran produk. Pelatihan dilakukan secara intensif, dengan pembagian waktu antara teori dan praktik. Siswa diajak untuk langsung mengolah mangga manalagi menjadi produk inovatif dengan panduan dari tim pelatih, sehingga proses belajar lebih aplikatif dan relevan. In this stage, students received basic materials on the benefits of dumplings, nutritional content, and vitamins contained in mango-based filling ingredients, as well as techniques for processing mangoes into healthy dumpling fillings. In addition, students were also trained in product packaging and marketing skills. The training was conducted intensively, with time divided between theory and practice. Students are invited to directly process manalagi mangoes into innovative products with guidance from the training team, so that the learning process is more applicable and relevant.The last stage is evaluation, which is carried out by measuring the improvement of students' understanding and skills through pretest and posttest. The pretest was conducted before the training to determine the students' initial level of knowledge related to entrepreneurship and mango processing into healthy dumplings. The posttest was conducted after the training to evaluate the extent of students' knowledge and skills improvement, including aspects of concept understanding, manufacturing techniques, and product marketing potential.

C. RESULTS AND DISCUSSION

The training on making healthy dumplings from mango manalagi fruit at SMA Muhammadiyah Kedawung was conducted with the aim of improving students' entrepreneurial skills and utilising local potential as food with economic value. The method used in this training consists of three main stages: Initial Observation, Training, and Evaluation. Each stage was carried out with the aim of equipping students with practical skills and in-depth understanding of local product-based entrepreneurship. At the initial observation stage, the activity began with identifying local potential and student needs. This process was conducted through interviews with the school and students to gather information about the students' interests and skills. In addition, preliminary data was also collected on

students' skills in processing local materials, especially mango manalagi. Based on this observation, it was found that most students do not have the skills to make food products from mango manalagi, although they are familiar with the fruit. This indicates the need for more in-depth training on how to process manalagi mangoes into marketable products.

Figure 2. Observation Stage (Interview and Data Collection)

The next stage is Training, which is conducted in stages to ensure students understand each step of product making. The training began with the socialisation of the nutritional, nutritional, and vitamin content in making dumplings from manalagi mango pulp, which aimed to provide students with an understanding of the health benefits of the local ingredients used. Students were given an explanation on how to process manalagi mango into a healthy and nutritious dumpling filling. In addition, attractive and practical packaging techniques were also taught. In the practical session, students were asked to make dumplings with manalagi mango filling directly. Students learnt every step from selecting ingredients, processing mangoes, making dumpling skins, and packaging the product. Each student was given the opportunity to create and talk about the results of their practice. These results are then amended to improve the quality of the product. In addition, the mentor provides direct feedback on the taste, nutrition, and appearance of the product.

Figure 2. Socialization

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Figure 3. Tools and materials

Figure 4. Raw material processing

Figure 5. Packaging process

At the evaluation stage, an assessment was conducted to measure the quality of the products produced by the students. The assessment includes three main aspects, namely taste, nutrition, and aesthetics. This assessment is conducted by a team of assistants consisting of lecturers and nutritionists. Students were also asked to reflect on their experience during the training, which helped them to evaluate the understanding and skills they had acquired.

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Figure 6. Product Assessment

In addition, to measure the extent of students' skill improvement, a pretest and posttest were conducted. The pretest was conducted before the training began, while the posttest was conducted after the entire series of training was completed.

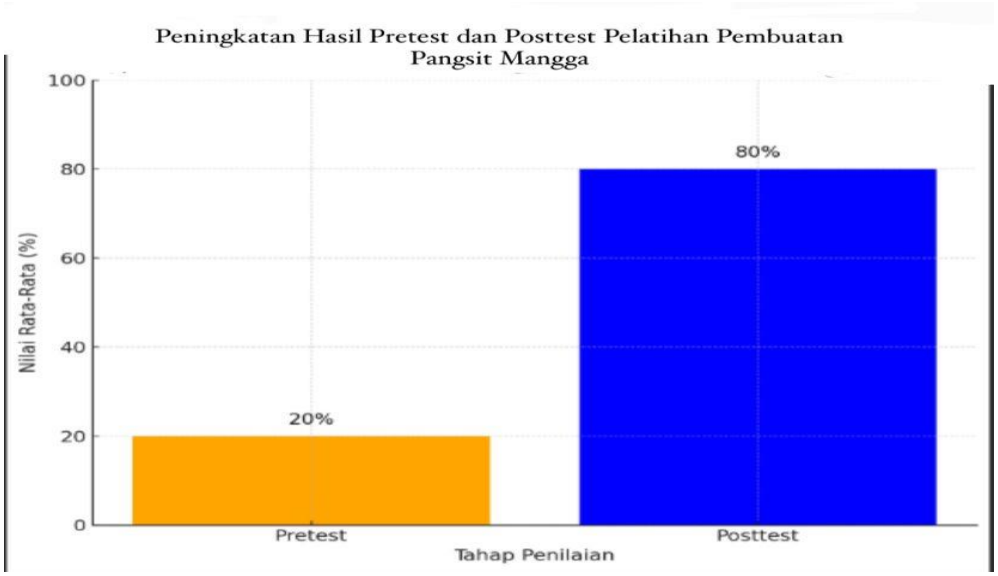

Figure 7. Graph of Improvement in Pretest and Posttest Results

After the training, there was a significant increase in students' knowledge and skills related to processing manalagi mango fruit into value-added products. Before the training, the students' average pretest score only reached 20%, indicating that they still had limited understanding of the process of processing local ingredients into healthy dumplings, including aspects of manufacturing techniques, packaging, and marketing. However, after the training, the students' average posttest score increased significantly to 80%, indicating a better understanding of the steps in making healthy dumplings, from the selection of

ingredients, processing, to packaging strategies to make the products ready for marketing. The graphs of the pretest and posttest results show a sharp increase, so it can be concluded that the training effectively improved the students' skills.

D. CONCLUSION

Based on the results obtained from this activity, it can be concluded that the training on making healthy dumplings from mango manalagi fruit has had a positive impact on the understanding and skills of students at SMA Muhammadiyah Kedawung. The low pretest results show that students have limited initial knowledge related to the utilisation of local potential and basic concepts of entrepreneurship. However, through intensive mentoring and hands-on practice, students were able to develop new skills and understand each stage of product manufacturing, from material processing to packaging. The significant increase in posttest results, with an average score of 80%, shows the effectiveness of the participatory experimentation method applied in this activity. The success of this activity is not only limited to improving students' theoretical understanding, but also to their ability to apply the knowledge gained in real practice. Students became more skilled in processing local raw materials into products of economic value and more sensitive to the potential of their surrounding environment. Thus, this training not only provides practical skills, but also builds students' mindset to utilise local potential as a first step towards economic independence and improved community welfare in the future.

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F. Author contribution

In the making of the article entitled 'Training on Making Healthy Dumplings from Manalagi Mango Fruit from the Plantation at SMA Muhammadiyah Kedawung School', each author has significant contributions in various aspects:

1. Preparing logistics and ensuring that all equipment and materials needed for the training are available. Supervising and mentoring the participants during the activity, providing practical guidance on the technique of making healthy dumplings, and evaluating the training results: Tania Avianda Gusman, Uswatun Hasanah.
2. Collaborate in drafting and developing training concepts, ensuring that the topics covered are relevant to the programme objectives and provide maximum benefits to participants: Tania Avianda Gusman, Dewi Nurdiyanti
3. Preparing training reports, documenting participant feedback, and analysing the results of the training: Uswatun Hasanah, Dewi Nurdiyanti.

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