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VCO making training: Improving coconut economics and village existence in Pananjung

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ABSTRACT

Coconut farming in Pananjung Village, Pangandaran, faces economic challenges due to the low market value of coconuts. To address this, the article proposes a training initiative for Virgin Coconut Oil (VCO) production, targeting PKK members. VCO, extracted at temperatures below 60°C, retains nutritional value and offers economic advantages. The training aims to empower women in the community to produce high-quality VCO efficiently. Through a descriptive research approach, the article discusses the economic potential of VCO, emphasizing its health benefits and market demand. The proposed training not only enhances VCO production skills but also contributes to the overall economic development of Pananjung Village by optimizing local resources. The successful implementation of the training is evident in the increased skills of the participants, the economic upliftment of coconut farmers, and the utilization of VCO as a valuable product. In conclusion, the training proves instrumental in improving the economic viability of coconut farming in Pananjung Village and contributes to the overall well-being and sustainability of the community.

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ABSTRAK

Pertanian kelapa di Desa Pananjung, Pangandaran, menghadapi tantangan ekonomi akibat nilai pasar kelapa yang rendah. Untuk mengatasi hal ini, artikel ini mengusulkan inisiatif pelatihan produksi Virgin Coconut Oil (VCO), dengan target anggota PKK. VCO, diekstraksi pada suhu di bawah 60°C, mempertahankan nilai gizi dan menawarkan keuntungan ekonomi. Pelatihan bertujuan memberdayakan perempuan di komunitas untuk menghasilkan VCO berkualitas tinggi secara efisien. Melalui pendekatan penelitian deskriptif, artikel membahas potensi ekonomi VCO, menekankan manfaat kesehatannya dan permintaan pasar. Pelatihan yang diusulkan tidak hanya meningkatkan keterampilan produksi VCO tetapi juga berkontribusi pada pengembangan ekonomi keseluruhan Desa Pananjung dengan mengoptimalkan sumber daya lokal. Keberhasilan pelaksanaan pelatihan terlihat dari peningkatan keterampilan peserta, peningkatan ekonomi petani kelapa, dan pemanfaatan VCO sebagai produk bernilai. Secara keseluruhan, pelatihan terbukti menjadi instrumen penting dalam meningkatkan viabilitas ekonomi pertanian kelapa di Desa Pananjung serta berkontribusi pada kesejahteraan dan keberlanjutan komunitas.

Kata Kunci: Buah kelapa; KKN tematik; VCO; virgin coconut oil

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INTRODUCTION

Coconuts are a significant commodity in Pananjung Village, Pangandaran District. Their massive quantity presents a promising opportunity for farmers. However, the unfortunately low price of raw coconuts diminishes their economic value, necessitating innovative processing to transform them into products with new market potential. Traditionally, local communities either sell whole coconuts directly to collectors or process them into “galendo” oil (traditional coconut oil).

To enhance the income of coconut farmers in Pananjung Village, a more efficient and cost-effective coconut processing method is required. One alternative for diversifying coconut products that can be processed traditionally is Virgin Coconut Oil (VCO) (Zulfadli, 2018). Virgin Coconut Oil (VCO) is extracted or pressed from coconuts at temperatures not exceeding 60°C. This process results in a clear, water-like oil that optimally retains the coconut’s nutritional content, aroma, and flavor (Karouw et al., 2019). Unlike conventional coconut oil, VCO is produced without the addition of chemicals or high heat. In essence, VCO is obtained through a modified coconut oil production process, yielding a product with low moisture and free fatty acid content, a clear appearance, a pleasant aroma, and a long shelf life, typically exceeding 12 months (Widiyanti, 2015).

VCO demonstrates superior economic value compared to other types of coconut oil. It is commonly used as a raw material in the cosmetics industry and can be consumed directly as a high-calorie nutritional source. In the commercial context, the National Standardization Agency (BSN) has established quality standards for VCO, regulated under SNI 7381-2008. This standard provides guidelines to ensure the quality and safety of VCO, confirming that the product meets specific requirements for both consumption and commercial use. Beyond differences in color and taste, VCO also contains fatty acids that have not undergone hydrogenation, unlike regular coconut oil. The efficacy of VCO lies in its high content of saturated fatty acids, which protect against oxidation by free radicals. VCO contains short- and medium-chain saturated fatty acids (Septhiani & Nursa’adah, 2019). These relatively small fatty acid molecules facilitate efficient digestion and absorption in the intestines. As a result, these fatty acids can be directly utilized by the body to produce energy. Furthermore, the presence of lauric acid in VCO can dissolve the lipid membranes of viruses, thereby disrupting viral immunity and rendering them inactive (accessed via: https://ugm.ac.id/id/berita/21009-vco-sebagai-terapi-adjuvan-covid-19/ on April 20, 2023).

VCO can be produced without high costs because its raw materials are readily available at affordable prices and through a simple processing method. VCO contains approximately 92% medium-, short-, and long-chain saturated fatty acids. The presence of these fatty acids offers significant benefits in the healing process, including enhancing the human body's resistance to diseases. Thus, VCO presents itself as an economical and practical option to support human health and recovery (Olga et al., 2017).

Virgin Coconut Oil (VCO) has emerged as a promising product for coconut diversification, characterized by consistently increasing global market demand. VCO commands a favorable price in both domestic and international markets, reaching approximately IDR 55,000 per 250 ml bottle (Retno et al., 2016). A key advantage of VCO is its ability to be produced at a household level, making it suitable for both micro-scale production by villages and macro-scale production by companies. This broad accessibility presents extensive economic opportunities, enabling participation from various levels of society and industry. VCO’s success as a diversified coconut product also reflects the coconut industry’s adaptability to evolving global market demands. Given the escalating international demand for VCO, its development is highly feasible, especially since its production does not require sophisticated or complex equipment (Rahman et al., 2016). Pananjung Village, with its high coconut yield, ensures easy access to raw materials.

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Recognizing this potential, the author initiated a VCO production training program in Pananjung Village, aiming to encourage the production and use of VCO among small-scale community members, particularly households. Community empowerment can serve as a vital alternative to boost VCO production (Sabariyah et al., 2023). This training aims to impart efficient skills in coconut oil production, thereby yielding higher-quality products. The training primarily targets PKK (Family Welfare Movement) mothers in Pananjung Village, Pangandaran District, Pangandaran Regency, with the expectation that they can enhance the quality of the coconut oil they use daily, subsequently improving family health.

The program's objectives include providing knowledge about the benefits of coconut plants, introducing and training participants in the wet method of VCO production, and disseminating information on the health benefits of VCO. Ultimately, this training is expected to enhance participants' understanding and skills in leveraging the potential of coconuts to produce high-value products, thereby positively impacting the well-being of the local community.

Literature Review

Virgin Coconut Oil (VCO) production has become a key focus in the development of coconut-based economies. Pananjung Village, emblematic of a village with significant potential, demonstrates diverse approaches to coconut utilization, with VCO development emerging as a promising alternative. Previous research consistently indicates that VCO possesses high economic potential and offers substantial health benefits (Amit et al., 2023; Marina et al., 2013; Nevin & Rajamohan, 2010). Furthermore, VCO authentication is crucial for consumer protection (Cariappa et al., 2023). In this context, training for PKK (Family Welfare Movement) mothers in Pananjung Village is a vital strategy to maximize coconut utilization and enhance the overall prominence of the village.

Enhancing the Economic Value of Coconuts through VCO Production

The importance of enhancing the economic value of coconuts through the production of Virgin Coconut Oil (VCO) has become a primary focus in coconut-based economic development. Previous studies, such as that by Fadillah (2022), affirm that VCO possesses high economic potential and offers significant health benefits. VCO provides a substantially higher value-added product compared to conventional coconut oil. This aligns with research by Azizi et al. (2018), which indicates that developing VCO can make a tangible contribution to increasing community income in Pananjung Village.

Training for PKK (Family Welfare Movement) mothers in Pananjung Village is key to optimizing the economic value of coconuts through VCO production. Research by Rindawati (2020) demonstrates that appropriate training can enhance understanding of VCO production techniques and improve product quality. By actively involving PKK mothers in this training, it is hoped that economic self-reliance at the household level will be fostered, leading to increased family income.

The Role of Training in Enhancing VCO Production Skills and Output

Training serves as a key element in improving VCO production skills in Pananjung Village. A study by Saleh et al. (2023) highlights that well-organized training can deepen understanding of VCO production techniques and significantly enhance product quality. The involvement of PKK (Family Welfare Movement) mothers in this training is expected to boost their skills in processing coconuts into VCO, from the initial stages to the finished product. This enhancement in skills should lead to a sustainable increase in VCO production in Pananjung Village.

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The training focuses not only on the technical aspects of VCO production but also incorporates knowledge about its health benefits and product marketing. This comprehensive knowledge will enable PKK mothers to not only improve the quality of their VCO products but also to market them effectively (Fadhilatunnur et al., 2022). Therefore, the role of training extends beyond technical skill enhancement to fostering a comprehensive understanding of VCO.

Enhancing Village Existence Based on Village Potential

The development of VCO in Pananjung Village is not only about increasing economic value but also part of a broader strategy to enhance the overall existence of the village based on its inherent potential (Sujana et al., 2019). This study indicates that the development of local products can significantly contribute to elevating a village's standing.

Through the training and development of the VCO industry, Pananjung Village can optimally leverage its village potential, creating local employment opportunities and improving the overall living standards of its community. Thus, VCO development can be considered a strategic step to enhance the village's existence by capitalizing on its existing potential.

METHODS

The method employed in this community service project was a combination of training and outreach, utilizing lectures, demonstrations, and discussions to facilitate participants' understanding of the training material (Putri & Ali, 2021). During the VCO production training, participants were educated on the necessary ingredients, equipment, and procedures for creating VCO, with the expected outcome being pure and clear VCO oil. This training aimed to provide participants with a comprehensive understanding of the relationship between these components and the desired high-quality VCO end product (Khatmizarullah et al., 2021). The VCO production training activity was part of a series of Thematic Community Service Program (KKN Tematik) events organized by Universitas Pendidikan Indonesia. This initiative was undertaken to fulfill the Tridharma of Higher Education and took place at the Pananjung Village Hall, Pangandaran District, Pangandaran Regency, in 2023.

RESULTS AND DISCUSSION

The VCO production training, delivered through outreach and practical sessions for PKK (Family Welfare Movement) mothers, commenced with the preparation of tools and ingredients, as well as a detailed explanation of the production procedures. These steps, outlining the wet method for VCO manufacturing, are presented in **Tables 1 and 2**.

Table 1. Tools and materials for making VCO

Tool	Material
• Machete • Scraper knife • Basin	• 5 old coconuts • 5 liters of water

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Tool	Material
• Coconut grating machine • Coconut milk strainer • 1 kg plastic size • Soup spoon • Fine sieve • Filter paper • Packaging bottles.	

Source: Sekewael et al., 2022

The listed tools and ingredients are fundamental for producing VCO using the wet method. These materials must be prepared before proceeding with the VCO manufacturing procedure.

Table 2. VCO Making Procedure

No	Stages with the Wet method	Steps taken
1	Making Coconut Milk	a. Coconut husks are removed using a machete until they are separated from the coconut flesh, which remains enclosed within the shell. b. The coconut shell is split open, and the flesh still attached to the shell is scooped out using a prying knife. c. The coconut flesh is thoroughly washed. d. The coconut flesh is grated using a coconut grating machine. e. The grated coconut is mixed with water in a 1:1 ratio (i.e., one coconut mixed with 1 liter of water). f. The mixture of water and grated coconut is kneaded to produce coconut milk. This step aims to extract all nutritional content, especially the oil, from the grated coconut. g. The coconut milk is filtered using a coconut milk strainer to separate the milk from the pulp.
2	Filtering	Filtering using a fine sieve
3	Making VCO	a. The coconut milk is poured into plastic bags. Seal the bags by tying them with rubber bands and let them sit for approximately 1-2 hours. b. Following this, two distinct layers will form: a thick layer of coconut cream on top and a watery layer at the bottom. c. Carefully lift the plastic bag and make a small hole in one of the bottom corners. Allow the watery portion to drain through this hole. Immediately close the hole once all the water has been drained. Pour the thick coconut cream layer into a clean, covered plastic container. Let it sit for approximately 24 hours for fermentation. d. Bubbles will begin to appear on the surface, indicating that the oil is starting to separate. e. Three layers will eventually form: the topmost layer is the oil, the middle layer is “blondo” (coconut milk residue), and the bottom layer is water. The pure oil (VCO) appears clear and transparent, much like regular water, in contrast to the cloudy appearance of conventional cooked coconut oil. f. Prepare a clean bottle, fitting a funnel lined with a straining cloth or tissue at the top. Slowly spoon the oil into the filter. g. Allow the oil to drip drop by drop into the bottle. h. The VCO is now ready for use.

Source: Sekewael et al., 2022

The production of VCO using the wet method is divided into three key stages: 1) Coconut Milk Extraction, 2) VCO Formation, and 3) Filtration. All three stages must be executed precisely according to the outlined steps to ensure the resulting VCO achieves optimal product quality.

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Coconut's Potential as an Income Source

Diversifying products derived from coconut flesh can significantly broaden the alternatives for processing it. By expanding the range of products or by diversifying the types of uses for coconut flesh, numerous alternative income streams can be generated, with Virgin Coconut Oil (VCO) being one prominent example (Dimitha et al., 2023; Ibrahim et al., 2019). Pananjung Village, situated in Pangandaran District, boasts a substantial number of coconut trees, indicating a significant potential for coconut growth and development.

Village Economic Development

Village economic development is crucial for improving community welfare. Local businesses play a vital role in boosting a village's economy. Pananjung Village, situated in Pangandaran District, is recognized for its significant potential to improve the economic well-being of its residents (Rahmaini et al., 2023).

Producing Virgin Coconut Oil (VCO) from mature coconuts can be a viable alternative to traditional coconut processing, directly contributing to community welfare. By utilizing mature coconuts, which are often discarded, residents can harness the potential of the coconut as a source of income. Training in VCO production can equip the community with the knowledge and skills to make VCO from mature coconuts, thereby increasing their prosperity (Ekyastuti et al., 2023).

VCO Production Training Can Help Enhance Village Prominence

VCO production training can contribute to enhancing the prominence of Pananjung Village in several ways. Primarily, this training can increase the economic value of coconuts, which are the village's leading natural resource. By leveraging the potential of coconuts to produce value-added products, such as VCO, the town can diversify its income sources and improve the overall welfare of its community (Rahmawati, 2023).

Discussion

Before the training commenced, the team conducted a series of preliminary experiments. These initial trials aimed to determine the optimal conditions for VCO production using the wet method. The results are presented in **Figures 1**, **2**, and **3**. These findings were subsequently elaborated into the detailed VCO production procedure (Sekewael et al., 2022; Hidayati et al., 2022), which was then demonstrated to the community, specifically the PKK (Family Welfare Movement) mothers of Pananjung Village, for five mature coconuts, 5 liters of water are required, along with 10 minutes of mixing time and a 7-hour resting period.

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Figure 1. Trial and error process
Source: Documentation of KKN-T UPI Pananjung Village, 2023

Figure 2. Filtering process
Source: Documentation of KKN-T UPI Pananjung Village, 2023

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Figure 3. Trial and error process
Source: Documentation of KKN-T UPI Pananjung Village, 2023

The outreach and training activities conducted by Universitas Pendidikan Indonesia (UPI) Community Service Program (KKN) students took place on Tuesday, August 15, 2023. The event commenced with an opening by the Master of Ceremonies (MC), followed by the singing of the Indonesian national anthem, and then an address by the Head of Pananjung Village.

In his welcoming remarks, the Head of Pananjung Village expressed great pleasure and open acceptance of the UPI KKN-Thematic students' presence. He conveyed his pride that the KKN students could share their knowledge on coconut processing to enhance its economic value through the VCO production outreach and training, which was the primary work program of UPI KKN-Thematic.

Before the demonstration, a presentation was delivered covering various aspects, from an introduction to VCO to its benefits and advantages in daily life (Pramitha & Wibawa, 2021), health (Kusuma & Putri, 2020), or cosmetics (Fitria et al., 2020) as illustrated in **Figure 4**.

Figure 4. Forecasting activities
Source: Documentation of KKN-T UPI Pananjung Village, 2023

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The VCO production outreach was presented following the same steps as the previous experimental procedure. The presentation utilized a projector and was delivered interactively with the audience, allowing participants to ask questions and receive immediate answers from the UPI KKN-T team. Active participants during the activity received finished and packaged VCO as souvenirs.

Figure 5. VCO products as souvenirs
Source: Documentation of KKN-T UPI Pananjung Village, 2023

Figure 6. Materialization activities
Source: Documentation of KKN-T UPI Pananjung Village, 2023

Figure 7. Photo with teaching activities
Source: Documentation of KKN-T UPI Pananjung Village, 2023

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The outreach and training activity, titled “Ngopi: Ngobrol Perihal Inspirasi” (Coffee Talk: Discussing Inspiration), aimed at increasing the economic value of coconuts through VCO production using the wet method. The event concluded with applause from all participants, signaling its success and the enthusiastic engagement it garnered.

The key outcomes achieved by the UPI KKN-T team’s training in Pananjung Village include: participants directly learned the wet method for producing VCO from coconut milk and are now able to produce VCO themselves.

CONCLUSION

The VCO production training using the wet method, provided to PKK (Family Welfare Movement) mothers in Pananjung Village, has significantly impacted community skills. This initiative, aimed at enhancing the economic value of coconuts to boost the village’s prominence, has enabled residents to process and utilize coconuts—a readily available commodity in Pananjung Village—into VCO using straightforward technology and low production costs. This, in turn, will increase the economic value of coconuts.

By focusing on the utilization of coconuts, which have historically been undervalued, this training not only shifts the paradigm surrounding the economic worth of coconuts but also opens doors for diversifying local products. This conclusion highlights that community empowerment through training can be crucial in maximizing the potential of regional resources, enhancing the village economy, and fostering a sustainable, positive impact on coconut agriculture development in Pananjung Village.

AUTHOR'S NOTE

The author declares no conflict of interest regarding the publication of this article. The author affirms that the data and content of the article are free from plagiarism.

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