

Nutmeg-Flavored Tea With Skin Health Advantaged Product To Empower Farmers In Hanau Berak Village, Pesawaran Regency

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Abstract: *This article introduces a community service conducted by the PkM ITERA team in Hanau Berak Village, Pesawaran Regency, Lampung. Nutmeg, being a primary agricultural commodity in this region, reveals an underutilized surplus of nutmeg flesh, leading to organic waste accumulation. In response to the urgent need for minimizing organic waste and elevating the economic viability of nutmeg fruit flesh, this endeavor is driven by the realization that this waste represents an overlooked potential. Nutmeg flesh possesses intrinsic qualities, notably a rich concentration of antioxidants known for their role in promoting skin health, stabilizing cardiac rhythms, mitigating insomnia, alleviating angina, enhancing digestive processes, improving blood circulation, increasing appetite, and fortifying the immune system. The proposed solution involves the creation of nutmeg-flavored tea, intended to mitigate the issue of excess nutmeg fruit waste while simultaneously augmenting the economic worth of the produced merchandise. Thus, this initiative materializes as a strategy to optimize nutmeg fruit utilization, curtail waste generation, and amplify its market value. The Community Partnership Program administered by the ITERA team serves as a conduit for the enrichment of knowledge, insights, and competencies among local nutmeg farmers, empowering them to generate high-value commodities from an underexploited resource. The scope of activities encompasses the entire production process, extending to packaging design.*

Abstrak

Artikel ini memperkenalkan pengabdian kepada masyarakat yang dilakukan oleh tim PkM ITERA di Desa Hanau Berak Kabupaten Pesawaran, Lampung. Pala, sebagai komoditas pertanian utama di wilayah ini, menunjukkan adanya kelebihan daging pala yang kurang dimanfaatkan, sehingga menyebabkan penumpukan sampah organik. Menanggapi kebutuhan mendesak untuk meminimalkan sampah organik dan meningkatkan kelayakan ekonomi daging buah pala, upaya ini didorong oleh kesadaran bahwa sampah tersebut merupakan potensi yang terabaikan. Daging pala memiliki kualitas intrinsik, terutama konsentrasi antioksidan yang kaya yang dikenal berperan dalam meningkatkan kesehatan kulit, menstabilkan ritme jantung, mengurangi insomnia, meredakan angina, meningkatkan proses pencernaan, meningkatkan sirkulasi darah, meningkatkan nafsu makan, dan memperkuat sistem kekebalan tubuh. Solusi yang diusulkan adalah dengan menciptakan teh rasa pala, yang bertujuan untuk mengurangi masalah kelebihan limbah buah pala sekaligus meningkatkan nilai ekonomi dari produk yang dihasilkan. Oleh karena itu, inisiatif ini terwujud sebagai strategi untuk mengoptimalkan pemanfaatan buah pala, mengurangi timbulan limbah, dan memperkuat nilai pasarnya. Program Kemitraan Masyarakat yang diselenggarakan oleh tim ITERA berfungsi sebagai wadah pengayaan pengetahuan, wawasan, dan kompetensi petani pala

lokal, memberdayakan mereka untuk menghasilkan komoditas bernilai tinggi dari sumber daya yang kurang dimanfaatkan. Ruang lingkup kegiatannya meliputi keseluruhan proses produksi, hingga desain kemasan.

Kata Kunci: teh rasa pala; kosmetik, kesehatan kulit

INTRODUCTION

Hanau Berak is a village located in the administrative region of Padang Cermin District, Pesawaran Regency, Lampung Province, Indonesia. Hanau Berak Village, one of the eleven villages in Padang Cermin, spans an area of 389.3 km². Geographically, Hanau Berak is situated in low-lying terrain, with a significant portion designated for agriculture. The remaining areas are allocated for yards, offices, and other purposes. Notably, Hanau Berak Village boasts a prime position in the field of agriculture, with nutmeg cultivation as one of its flagship commodities. Figure 1 depicts the map of Hanau Berak Village.

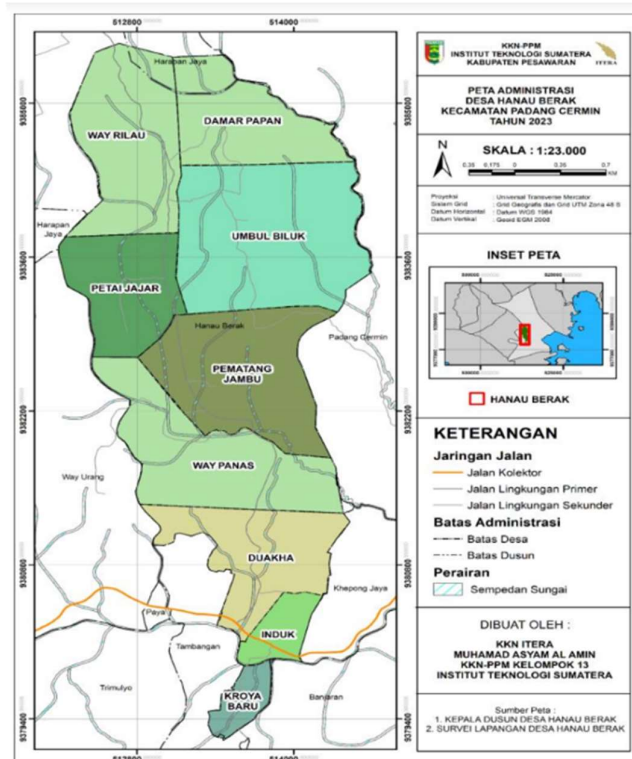


Figure 1. The map of Hanau Berak Village

In the current state of Hanau Berak Village, significant challenges persist, including the extensive disrepair of roads in various hamlets and the substantial accumulation of unutilized waste, predominantly comprising discarded nutmeg skins and flesh. These issues have been underscored through information provided by the Village Head, Mr. Alamsyah, revealing that local farmers

consistently experience financial losses attributed to suboptimal harvests, resulting in the sale of their produce at prices lower than their invested capital. To address these pressing concerns, the pivotal solution is the utilization of nutmeg flesh in the creation of marketable products. A noteworthy strategy, among others, is the production of nutmeg-flavored herbal tea.

To confront the challenges encountered by our partners in Hanau Berak Village, the project team has devised a multi-pronged approach. The primary initiative involves socialization and training, encompassing comprehensive education for the local farmers. This training will elucidate advanced techniques for processing nutmeg flesh, including drying methods and the formulation of blends with various ingredients to yield nutmeg-flavored herbal tea. This innovative tea not only offers the distinct advantages of promoting skin health but also presents an enticing flavor profile.

The secondary strategy pertains to farmers' assistance, whereby the project team will actively support nutmeg farmers in the packaging of their tea products. This comprehensive support extends to branding and package design, all aimed at augmenting the marketability of the nutmeg-flavored tea.

These community service endeavors were diligently executed by a multidisciplinary team possessing expertise relevant to the specific challenges experienced by our partners in Hanau Berak Village. Given the prevailing conditions, the PkM ITERA team recognizes the paramount importance of enhancing the economic value of nutmeg fruit flesh and, thus, has proposed a solution involving its utilization in the production of nutmeg tea.

LITERATURE REVIEW

Nutmeg

Nutmeg (*Myristica Fragan Houtt*) is an indigenous Indonesian plant originating from the Banda and Maluku Islands. Figure 2 illustrates various parts of the nutmeg plant. The cultivation of nutmeg was introduced to Java during Marco Polo's journey to China, which passed through Java between 1271 and 1295 (Suloi, 2021). This cultivation extended to Sumatra, and to date, the primary nutmeg-producing regions in Indonesia include the Maluku, North Sulawesi, West Sumatra, Nanggroe Aceh Darussalam, West Java, and Papua. In the time of Rumphius, nutmeg oil processing was carried out in the Banda Islands, Maluku. Presently, the processing is conducted in Europe, with the products being sold as nutmeg oil for perfumes, fragrances, soap, sugar, and food processing in Europe and the Middle East. In Europe and the Middle East, nutmeg seeds are processed into powder for use as a spice.

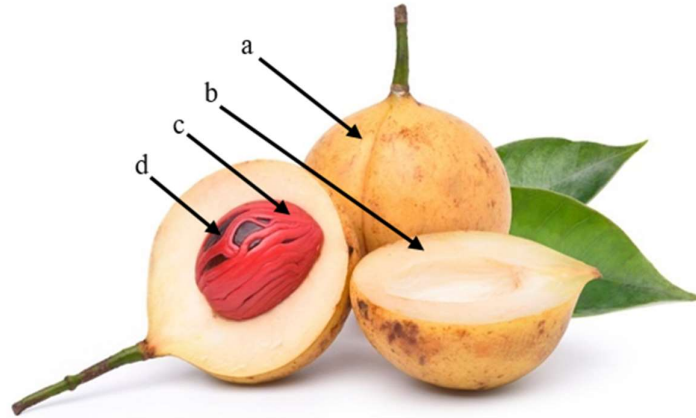


Figure 2. Components of Nutmeg Fruit: (a) Nutmeg Skin; (b) Nutmeg Fruit Flesh; (c) Nutmeg Aril (in red); and (d) Nutmeg Seed

The most valuable part of nutmeg is the rounded seed covering or "fuli pala," which yields essential oils commonly used in cosmetic and pharmaceutical production (Nasir & Marwati, 2022). Fuli pala is currently priced at approximately IDR 180,000 to IDR 200,000 per kilogram in the market (Waromi, 2021). On the other hand, nutmeg seeds are sold within the range of IDR 75,000 to IDR 85,000 per kilogram. Nutmeg seeds are used as a spice, among other applications (Linerisya Patty et al., 2022). Meanwhile, the flesh of the nutmeg fruit can be processed into snacks (cornice), preserves, and jam, constituting a component with a lower market value. In Hanau Berak Village, the utilization of nutmeg fruit flesh has not yet been optimized.

Nutmeg-Flavored Tea

This is evidenced by the widespread use of various skincare options and the consumption of nutraceuticals (foods and beverages beneficial for skin health). Indonesia, with its rich array of spices, has nurtured the practice of consuming functional beverages as part of skincare and health maintenance (Bhernama et al., 2022). Functional beverages are beverages that contain compounds capable of positively affecting physiological functions within the body (Lestari et al., 2018). Spiced tea falls within the category of functional beverages (Baszary, 2022).

Secondly, the active ingredients present in nutmeg, such as antioxidants that combat free radicals, have a profound impact on the protection of vital cells in the body from oxidative damage caused by free radicals (Rakhmah, 2019). Nutmeg contains myristicin, which possesses antioxidant, antibacterial, and anticancer properties beneficial to the body (Suaery & Akbar, 2022). In every 100 grams of fresh nutmeg fruit flesh, one can find 42 calories along with 11 grams of carbohydrates, 0.5 grams of fiber, 0.3 grams of protein, 0.2 grams of fat, 32 milligrams of calcium, 24 milligrams of phosphorus, 1.5 milligrams of iron, and 22 milligrams of vitamin C. It is precisely this nutritional

content that makes nutmeg fruit beneficial for health, including skin health (Saleh & Yusnaini, 2022).

METHOD OF ACTIVITIES

The Community Partnership Program executed by the ITERA team was meticulously designed to empower nutmeg farmers in Hanau Berak Village and concurrently elevate the economic worth of nutmeg fruit flesh. These comprehensive activities spanned a three-week timeframe, commencing on May 24, 2023. The program's inauguration was officiated by the esteemed Village Head, Mr. Ahmad Alamsyah, who warmly conveyed his unwavering support for this pivotal initiative.

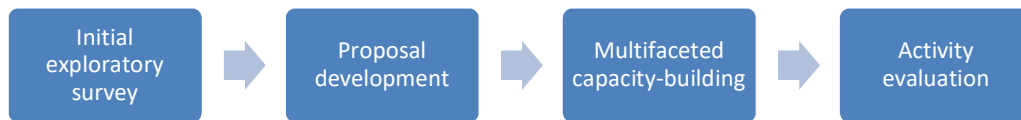


Figure 3. Flowchart method of activities

As shown in Figure 3, the program's implementation encapsulated the following fundamental stages (Naisin & Asyik, 2022). Firstly, an inaugural exploratory survey set the stage. The initiative initiated with a meticulous survey, delving into the intricate nuances of Hanau Berak Village, situated in the Padang Cermin District, Pesawaran Regency, Lampung. This preliminary investigation was instrumental in comprehending the specific needs and prevailing practices within the local community, particularly in the context of nutmeg cultivation.

Subsequently, the program advanced to the pivotal phase of proposal development. Gaining community consent and valuable feedback, an intricate proposal was meticulously crafted, delineating a comprehensive roadmap for the program's execution. This proposal intricately outlined the overarching strategies and precise objectives that would underpin the empowerment of nutmeg farmers and the concurrent enhancement of the economic value of nutmeg fruit flesh.

The program then transitioned into a multifaceted capacity-building stage for farmers. A comprehensive array of capacity-building activities was thoughtfully curated to equip nutmeg farmers with the knowledge and skills requisite for optimal nutmeg cultivation. These activities encompassed illuminating workshops, intensive training sessions, and instructive seminars, all meticulously designed to elucidate the significance of nutmeg fruit flesh and its multifaceted potential in the creation of high-value products, such as the coveted nutmeg-flavored tea.

Concomitantly, a robust system of continuous activity evaluation was meticulously integrated into the program's framework. These periodic evaluations served as a salient feedback mechanism, systematically assessing the meticulous implementation of each activity while actively collecting valuable insights and feedback from the participating nutmeg farmers. Through these evaluative measures, the program's effectiveness in realizing its objectives was diligently monitored and tailored.

The active participation of the nutmeg farmers was a hallmark of this program's success. These industrious farmers engaged in an array of knowledge-sharing sessions, hands-on training, and practical demonstrations, arming themselves with the requisite proficiencies to fully capitalize on the value embedded within nutmeg fruit flesh. The program's profound suite of activities was meticulously designed to not only impart essential information but also inculcate valuable insights and skills among a dynamic cohort of nutmeg farmers. The program's purview encompassed the entire production continuum, commencing with the judicious harvesting of nutmeg fruits and culminating in the meticulous design of product packaging, packaging.

RESULT AND DISCUSSION

Exploratory Survey and Community Needs

The initiation of our Community Partnership Program commenced with an extensive exploratory survey of Hanau Berak Village, which played a pivotal role in comprehending the community's specific needs and the prevailing practices related to nutmeg cultivation. The survey laid a strong foundation for the subsequent program activities, enabling us to tailor the program to address the unique requirements of the local community. Figure 4 shown the commencement of the program was led by the respected Village Head, Mr. Ahmad Alamsyah, who wholeheartedly expressed his strong endorsement of this significant endeavor.



Figure 4. Discussion with Mr. Alamsyah (the Head of Hanau Berak Village)

The findings from the survey unveiled a pressing issue related to the suboptimal utilization of nutmeg fruit flesh, resulting in significant waste. Farmers expressed the challenges they encountered, including poor road conditions and limited access to markets. Furthermore, a notable lack of awareness was identified regarding the potential benefits of

nutmeg fruit flesh for skincare and the production of nutmeg-flavored tea. These insights guided the development of our program activities, ensuring that they directly addressed the critical issues raised by the community.

Proposal Development and Strategy

Following the comprehensive survey, we obtained community consent and feedback to guide the development of a detailed proposal. This proposal outlined the overarching strategies and objectives of the program. It was designed with the core purpose of empowering nutmeg farmers and enhancing the economic value of nutmeg fruit flesh by creating high-value products, with a specific focus on nutmeg-flavored tea.



Figure 5. The Nutmeg Tree in Hanau Berak Village

Farmers' Capacity Building

The The cornerstone of our program was the implementation of capacity-building activities, thoughtfully designed to equip nutmeg farmers with the knowledge and skills essential for unlocking the full potential of nutmeg fruit flesh. We organized a series of workshops, training sessions, and informative seminars. These sessions covered a range of topics, including optimal nutmeg cultivation practices, the significance of nutmeg fruit flesh, and its utilization in the production of high-value products, including nutmeg-flavored tea.



Figure 6. The Nutmeg

Through these activities, the participating farmers gained valuable insights into the multifaceted potential of nutmeg fruit flesh. They were educated about the health benefits of nutmeg, particularly in skincare, due to its high antioxidant content. Furthermore, they were trained in the art of producing nutmeg-flavored tea, which promised to enhance both the economic value of their produce and the utilization of nutmeg flesh.



(a)



(b)



(c)



(d)



(e)



(f)

Figure 7. The activity of community development

Activity Evaluation and Program Impact

Throughout the program's duration, we conducted regular evaluations to assess the implementation of each activity and to gather feedback from the participating farmers. The results of these evaluations unequivocally indicated that our program was effectively meeting its objectives.

Nutmeg farmers actively engaged in knowledge-sharing sessions, practical demonstrations, and hands-on training. This not only equipped them with the skills required for optimal utilization of nutmeg fruit flesh but also fostered a deeper understanding of the market potential for nutmeg-flavored tea and other high-value products.

To evaluate the pre- and post-test results (ten questions), it is crucial to conduct a comparative analysis of participants' performance before and after the community service program. Figure 8 provides a concise overview of this assessment. The data prominently indicates a substantial improvement in participants' understanding of nutmeg, its benefits, and the community service program. The post-test results reveal a significant increase in the number of correct responses to all questions, highlighting the program's effectiveness in enhancing participants' knowledge and awareness. This heightened comprehension represents

a positive outcome of the community service initiative, clearly demonstrating the successful transfer of knowledge to the participants.

Table 1. Pre and Post- Test Questions

No	Question
1	What is the primary utility of nutmeg fruit flesh?
2	What advantages can nutmeg-flavored tea offer for skin health?
3	When was nutmeg cultivation initiated in Hanau Berak village?
4	What challenges were voiced by the farmers before the program?
5	In which location did nutmeg originally establish itself in Indonesia?
6	What is the procedure for crafting tea from nutmeg flesh?
7	Are you familiar with the distinction between primary and secondary packaging?
8	Are you knowledgeable about creating the primary packaging for the tea?
9	Are you familiar with crafting the secondary packaging for the tea?
10	Can you describe the methods for tea sales?

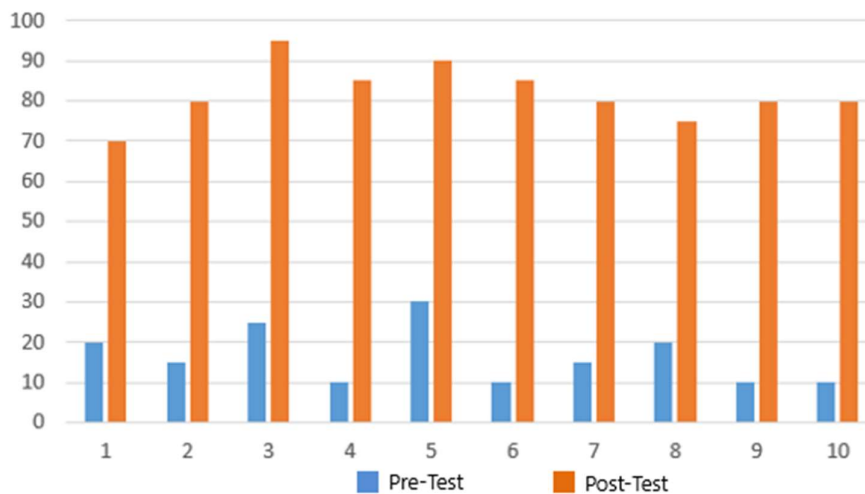


Figure 8. The Result of Pre and Post-Test

CONCLUSION AND SUGGESTIO

Conclusion

Based on the implementation of the Community Partnership Program (PKM) by the ITERA team in Hanau Berak Village, Pesawaran Regency, Lampung Province, it can be concluded that this community engagement initiative has yielded several significant outcomes. The primary objective of these activities was to enhance the economic value of nutmeg fruit flesh through the production of

nutmeg-flavored tea, which offers skin health benefits. Several key findings and conclusions are detailed in the subsequent paragraphs.

Firstly, nutmeg-flavored herbal tea has the potential to increase the economic value of both nutmeg skin and flesh. The PKM program has effectively elevated the economic value of nutmeg fruit flesh by transforming it into nutmeg-flavored herbal tea products. This has opened up improved economic opportunities for nutmeg farmers in Hanau Berak Village, who were previously unable to fully optimize the utilization of nutmeg flesh.

Secondly, this community engagement initiative contributes to the reduction of organic waste. The processing of nutmeg fruit flesh into herbal tea not only enhances its economic value but also aids in diminishing organic waste. This aligns with environmental conservation efforts and the reduction of negative consequences resulting from the accumulation of organic waste.

Thirdly, the herbal tea products resulting from this initiative offer skin health benefits, primarily due to their antioxidant content. This aligns with the growing trends in skin health and beauty within society.

Lastly, the empowerment of farmers is a crucial aspect. This community engagement initiative imparts knowledge and skills to groups of nutmeg farmers, enabling them to utilize nutmeg fruit flesh as a raw material for herbal tea. This not only enhances their economic prospects but also empowers them with sustainable knowledge and skills.

Through the application of a holistic community engagement model, these activities do not solely deliver economic benefits but also yield positive impacts on the environment and health. The success of this initiative in Hanau Berak Village serves as concrete evidence that collaborative efforts can significantly benefit local communities and inspire similar initiatives in the future.

Suggestion

These suggestions are intended to serve as a guide for further development in the utilization of nutmeg fruit flesh and nutmeg-flavored herbal tea products.

First, we propose further development of nutmeg-flavored herbal tea products. Exploring additional flavor variants, enhancing production quality, and implementing broader marketing strategies can facilitate the expansion of these products into larger markets.

Second, continuous training programs should be provided to nutmeg farmers in Hanau Berak Village to help them maintain and improve their skills in producing high-quality nutmeg-flavored herbal tea. Regular training sessions and access to the latest information regarding innovations in herbal tea production should be facilitated.

Third, in conjunction with product development, further collaboration with external stakeholders,

such as the cosmetics or skincare industry, research institutions, and universities, can yield additional benefits. Partnerships of this nature can enhance research and development, as well as the marketing of nutmeg-flavored herbal tea products.

These recommendations are intended to guide future initiatives and further research in the utilization of nutmeg fruit flesh and the development of nutmeg-flavored herbal tea products.

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