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Development of Balinese Ong Tea as a Probiotic Drink at Taruna Warmadewa Vocational School, Denpasar

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ABSTRACT

Teh Ong, a fermented beverage rich in probiotic benefits, has enormous potential for further development. The purpose of community service is to develop a Balinese Teh Ong product as a probiotic drink at SMK Taruna Warmadewa Denpasar. This activity focuses on training and mentoring students majoring in hospitality and culinary arts to produce original Teh Ong. During implementation, the community service team guides the fermentation process for Teh Ong and ensures adherence to hygienic production operational standards. The mentoring aims to produce quality Teh Ong products and to foster students' entrepreneurial spirit and creativity. The result of this community service is the formation of a Teh Ong production group at the school, which can produce this probiotic drink independently. The resulting Teh Ong Original product boasts an authentic, refreshing taste and rich health benefits that support digestion. This success demonstrates that the development of locally innovative products can be an effective educational tool while also opening economic opportunities for the younger generation.

Contribution to Sustainable Development Goals (SDGs):

SDG 3: Good Health and Well-Being

SDG 4: Quality Education

1. INTRODUCTION

1.1. Research Background

Taruna Warmadewa Vocational School in Denpasar has great potential to develop health drink products based on local wisdom. Teh Ong, a traditional Balinese drink, has a unique taste and health potential that has not been fully utilised [1]. However, the production and marketing of Teh Ong are still limited to a small scale and do not meet consistent quality standards. In addition, there has been no product innovation to increase Teh Ong's added value, such as its development as a probiotic drink [2].

Taruna Warmadewa Vocational School, Denpasar, a vocational education institution specialising in tourism and culinary arts, has significant potential to develop innovative health drink products [3]. One potential area of development is Teh Ong, a traditional Balinese beverage with a unique, refreshing taste. Teh Ong has significant potential for

development as a probiotic beverage, given the growing public awareness of the importance of digestive health [4].

Teh Ong contains antioxidants and bioactive compounds that are beneficial for health [5]. The fermentation process used to make Teh Ong can also produce beneficial bacteria that can improve digestive health. This aligns with the growing popularity of probiotic drinks among health-conscious individuals [6].

Taruna Warmadewa Vocational School has several advantages that can support the development of Teh Ong as a probiotic beverage. First, the school has adequate facilities and equipment for beverage production [2]. Second, students and teachers at the vocational school possess culinary knowledge and skills, enabling them to be directly involved in the product development process. Third, the school's strategic location in Denpasar, Bali, provides easy access to local raw materials and potential markets.



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Despite its great potential, the development of Teh Ong as a probiotic drink also faces challenges. One of the main challenges is standardizing product quality and safety [7]. To overcome this challenge, further research and development are needed regarding the fermentation process, selecting the right probiotic bacteria, and regular product quality and safety testing [8].

Furthermore, product marketing and branding also require attention. SMK Taruna Warmadewa can leverage its alumni network, the tourism industry, and digital platforms to promote Teh Ong as a typical Balinese probiotic drink. Collaboration with relevant parties, such as health drink producers and nutritionists, can also accelerate the product development and marketing process [9].

The development of Teh Ong as a probiotic drink at SMK Taruna Warmadewa Denpasar has excellent potential to provide public health benefits, foster product innovation, and increase the school's competitiveness in the culinary field [10]. By overcoming challenges and capitalising on existing opportunities, Teh Ong can become a typical Balinese probiotic drink, well-known and sought after by the wider community.

1.2. Literature Review

Kombucha tea, better known as Teh Ong, is a fermented sweet tea with a sour, refreshing taste. This drink is highly popular for its many benefits, including its role as a good source of probiotics for digestive health [11]. This Community Service will focus on developing a Balinese Teh Ong product. This product will be an innovative, healthy drink that the wider community can consume. The community service team believes that the Teh Ong they have developed can become a favorite drink enjoyed by all groups [2].

The many health benefits offered by Teh Ong motivated the community service team to develop it as a probiotic drink that is easily accessible and enjoyable. This PkM will collaborate with students and teachers at SMK Taruna Warmadewa Denpasar. This collaboration will allow the community service team to provide hands-on education and training on the Teh Ong production process. This is expected to improve students' understanding and skills, particularly in entrepreneurship and food processing.

Through this PkM, the community service team will introduce how to process Teh Ong using local Balinese ingredients. The community service team will use black tea and granulated sugar as the base ingredients and add several natural spices to create a unique flavor that distinguishes this product from standard Ong Tea [12]. The team's goal is to create a product that is not only healthy but also highly valued in the market.

The development of the Ong Tea product at SMK Taruna Warmadewa Denpasar aims not only to create an innovative probiotic beverage product but also to foster an entrepreneurial spirit in students [13]. It is hoped that after this activity, the students will be able to apply the knowledge gained to create other innovative products. The community service team also hopes that this Original Ong Tea product can become a flagship product that can be developed sustainably by the school.

1.3. Research Objective

The development of Balinese Ong Tea as a probiotic drink at SMK Taruna Warmadewa Denpasar aims to introduce and enhance students' understanding of its potential as a Balinese probiotic drink.

2. MATERIALS AND METHODS

2.1 Socialization

The socialisation method consists of several stages, including outreach and the provision of information about Ong Tea, including its history, nutritional content, probiotic benefits, and development potential [3].

2.2 Training

Participants will witness a demonstration of the correct steps for making probiotic ong tea. Competent experts in the field will guide this demonstration. After the demonstration, participants will be divided into small groups to practice making probiotic ong tea directly. Each group will be accompanied by a facilitator who will provide guidance and direction throughout the practical process [13].

2.3 Technology Application

The development of Ong Tea as a probiotic beverage at SMK Taruna Warmadewa Denpasar involves applying modern technology to enhance product quality and competitiveness. The traditional Ong tea fermentation process is enhanced by the use of selected probiotic bacterial cultures, resulting in a beverage that is not only delicious but also rich in health benefits [4]. Modern packaging technology is also implemented to maintain quality and extend the product's shelf life. Furthermore, SMK Taruna Warmadewa students are involved in the production and marketing processes, providing them with hands-on experience in entrepreneurship and introducing local products to the broader community.

2.4 Mentoring and Evaluation

The development of Teh Ong Khas Bali, a probiotic drink at SMK Taruna Warmadewa Denpasar, involved a comprehensive mentoring and evaluation process. Mentoring was carried out by food and health experts to ensure product quality and safety. This process included monitoring raw material selection, production processes, and packaging. Evaluations were conducted periodically to test the product's microbiological and organoleptic qualities and to identify potential improvements. The evaluation results served as the basis for further product development, including flavour and packaging innovations. With ongoing mentoring and evaluation, it is hoped that Teh Ong Khas Bali will become a high-quality, competitive probiotic drink.

2.5 Program Sustainability

The development of Teh Ong Khas Bali as a probiotic drink at SMK Taruna Warmadewa Denpasar goes beyond production and product introduction. The program is designed to be sustainable through several strategies. First, integrating Teh Ong production into the school curriculum ensures that its knowledge and skills are passed down to the next generation of students. Second, partnerships with local industries will assist in product marketing and distribution while providing students with valuable entrepreneurial experience. Third, continuous innovative product development will maintain Teh Ong's market appeal and expand its consumer base.

2.6 Partner Participation

The development of Balinese Ong Tea as a probiotic drink at SMK Taruna Warmadewa Denpasar involved the active participation of various partners. This involvement aimed to provide the support and expertise necessary for the success of this Community Service Program (PKM). The participation of these various partners was a crucial factor in the successful development of Balinese Ong Tea as a probiotic drink at SMK Taruna Warmadewa Denpasar. This collaboration ensured that the resulting product was of the highest quality, safe for consumption, and provided health benefits to the community.

2.7 Program Implementation Evaluation

As a follow-up, it is recommended to conduct regular evaluations of the program's implementation, involving students, teachers, and other relevant parties. These evaluations aim to identify potential obstacles, find the best solutions, and develop a more effective and sustainable program. Thus, the program for developing Balinese Ong Tea as a probiotic drink at SMK Taruna Warmadewa Denpasar can continue to benefit students and the community.

3. RESULT AND DISCUSSION

This community service activity began with a preparatory phase on Friday, July 11, 2025. The community service team conducted an initial survey and observation at the partner location, SMK Taruna Warmadewa Denpasar. This observation aimed to understand the conditions and potential of existing resources and to identify the specific needs of students and teachers. Based on the observations, it was determined that developing Balinese Ong Tea into a probiotic drink was a relevant idea with significant potential. This was followed by the development of training materials and the preparation of the necessary equipment and materials, including a probiotic starter and high-quality tea leaves.

The second and third phases focused on training and mentoring and were held on Monday, August 4, 2025. During this phase, the community service team provided comprehensive training to students and teachers on making probiotic Ong Tea. The training covered basic theory about probiotics and their benefits, hygiene in the production process, and hands-on practice in making Original Ong Tea. Intensive mentoring was provided to ensure each participant understood and correctly applied each production stage. Participants were allowed to experience the fermentation process and product quality control themselves, gaining valuable hands-on experience.

The third stage, product evaluation and testing, took place on Friday, August 22, 2025. After the production process was completed, the resulting Teh Ong Original was organoleptically tested to assess its taste, aroma, and appearance. This testing involved a panel of students and teachers to obtain objective feedback. A simple test was also conducted to determine its probiotic content. The feedback from this evaluation was used as the basis for recipe and production process improvements. Overall, the Teh Ong Original received positive feedback and was deemed to have good commercial potential.

The final stage was development and sustainability. Based on the evaluation results, the community service team provided recommendations for further product development, including adding flavour variants. Furthermore, the program's sustainability was a key focus. The community service team encouraged the

establishment of small business units within the school environment, managed by students and teachers. It is hoped that the knowledge and skills imparted will not end with the training but can be further developed into sustainable entrepreneurial activities that provide economic benefits and promote local Balinese products.



Figure 1. Ong Tea Making Training

3.1. Relevance of the Application of Innovation Technology

This community service program is highly relevant to the community's needs, particularly in schools, to improve understanding of health and entrepreneurship [14]. Student and teacher participation is key. They are directly involved in every stage, starting with theoretical training, learning the basics of fermentation, the benefits of probiotics, and an introduction to local ingredients. Then, they practice processing black tea using a SCOBY (Symbiotic Culture of Bacteria and Yeast) and additional ingredients from medicinal plants. Then, they undergo the packaging and marketing process: learning how to package the product attractively and calculate its selling price [15].

The main innovation of this project is the modification of the Ong tea recipe using local Balinese ingredients. While Ong tea is typically made from black tea and sugar, here ginger, lemongrass, turmeric, and butterfly pea flowers [16], which have antioxidant [17] and antibacterial [18] properties, are added. This combination not only enhances flavour and aroma but also enriches the product's nutritional profile and health benefits [19].

3.2. Community Participation

Training and Knowledge Transfer: The community service team provides intensive training on the basic principles of fermentation, the health benefits of probiotic drinks, and hygienic techniques for making Teh Ong. Students are directly involved in every stage, from preparing the raw materials (tea and sugar) to the fermentation process using a SCOBY (Symbiotic Culture of Bacteria and Yeast).

Hands-on Practice: Students are not only listeners but also participants. They conduct small experiments independently to control the flavour and acidity of Teh Ong. This participation teaches them the importance of equipment sterilization and temperature monitoring for optimal fermentation.

Product Innovation Development: Students are encouraged to innovate by adding local Balinese ingredients, such as ginger, lemongrass, or rosella flowers, to create unique and exciting new flavors. This not only increases the product's marketability but also introduces the concept of product diversification.



Figure 2. Participation of partner communities (students of Taruna Warmadewa Vocational School)

Through this approach, students at SMK Taruna Warmadewa Denpasar not only gain technical skills but also develop a sense of ownership over the products they create. This active participation creates a transformative learning environment, where technology and innovation become tools they can use to contribute to the development of the local creative economy and promote healthy lifestyles in their communities.

3.3. Impact

Through competency enhancement, students at SMK Taruna Warmadewa gain practical knowledge and skills in producing Ong tea (kombucha) from local Balinese ingredients. They learn about the fermentation process, hygiene standards (sanitation), packaging, and marketing strategies [20]. Furthermore, the opportunities this community service program provides foster an entrepreneurial spirit among students. They are encouraged to view Ong tea products as a potential business opportunity that can be developed independently, either as a side business or as a primary business after graduation.

For the surrounding community, including parents of students, the availability of healthy products provides access to affordable, natural probiotic drinks made from local ingredients. Furthermore, empowering the local economy by developing Ong tea products can create new job opportunities and increase the economic value of locally sourced ingredients, such as Balinese tea and spices.

3.4. Productivity

The productivity of this activity is measured by tangible results, namely the development of innovative products, resulting in Ong tea product prototypes with distinctive Balinese flavours, attractive packaging, and market value. Then, human resource capacity building was carried out by training a group of students and teachers who were able to produce Ong tea independently and were ready to become pioneers or trainers for fellow partners in the community service.



Figure 3. The Ong Products

4. CONCLUSION

This community service activity aims to introduce and develop Teh Ong, a traditional Balinese beverage, as a probiotic beverage with nutritional and economic value. The activity, held at SMK Taruna Warmadewa Denpasar, successfully provided students with knowledge and skills regarding the hygienic and high-quality process of making Teh Ong. Evaluation results showed that the participants demonstrated high enthusiasm and a strong understanding of the health benefits of Teh Ong. The skills acquired are expected to provide students with entrepreneurial skills, enabling them to innovate and further develop Teh Ong products. Overall, the program successfully achieved its goal of integrating theoretical knowledge with practical practice to create value-added products with health benefits and economic potential.

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