



TRAINING ON MAKING NATURAL MOUTHWASH BASED ON MINT LEAF EXTRACT TO IMPROVE THE CREATIVE ECONOMY OF THE FAMILY WELFARE EMPOWERMENT GROUP

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Abstrak

*Pelatihan ini bertujuan untuk memberdayakan kelompok Pemberdayaan Kesejahteraan Keluarga (PKK) melalui pemanfaatan tanaman herbal menjadi produk bernilai jual tinggi. Daun mint (*Mentha piperita*) dipilih karena mengandung senyawa antibakteri dan minyak atsiri yang efektif untuk menjaga kesehatan rongga mulut. Metode pelaksanaan meliputi penyuluhan, demonstrasi pembuatan, dan pelatihan pengemasan produk. Hasil kegiatan menunjukkan peningkatan pengetahuan dan keterampilan mitra dalam memproduksi obat kumur alami secara higienis, serta memberikan wawasan dasar kewirausahaan. Program ini berkontribusi pada usaha ekonomi kreatif yang berkelanjutan, sehingga dapat meningkatkan kemandirian dan kesejahteraan ekonomi keluarga.*

Kata kunci: *Obat Kumur Alami; Ekstrak Daun Mint; Ekonomi Kreatif.*

Abstract

This training aims to empower Family Welfare Empowerment groups to produce high-value products using herbal plants. Mint leaves (*Mentha piperita*) are chosen because they contain antibacterial compounds and essential oils that help maintain oral health. Implementation methods include counseling, manufacturing demonstrations, and product packaging training. The results of the activity showed an increase in partners' knowledge and skills in producing natural mouthwash hygienically, as well as providing basic insights into entrepreneurship. This program is designed to be an alternative, sustainable, and creative economic business, aiming to increase family independence and economic welfare.

Keywords: Natural Mouthwash; Mint Leaf Extract; Creative Economy.

INTRODUCTION

Dental and oral health are important indicators in supporting the quality of life of the community, but problems such as bad breath, plaque, and oral cavity infections are still found due to a lack of awareness in maintaining oral hygiene and a lack of access to safe and affordable care products (Dewi et al., 2025). The Family Welfare Empowerment Group, as a strategic partner for development at the village level, has great potential to be developed into a household-based creative economy unit (Fatimah et al., 2022). However, so far, there has not been much directed to the production of goods with selling value with abundant local raw materials, one of which is mint leaves that thrive but have not been utilized optimally (Kausar et al., 2025).

The solution offered is training in making a natural mouthwash based on mint leaf extract. Considering that mint leaves are known to contain essential oils such as menthol and antibacterial compounds that are effective in freshening the breath and inhibiting the growth of bacteria that cause dental plaque (Adil et al., 2021). The approach of utilizing herbal plant extracts as active ingredients in health care products has been proven to be effective in various community service activities (Mayangsari et al., 2022). The use of natural materials in an easy, safe way of processing, and using simple equipment, can be directly adopted by the community to improve skills while opening up new business opportunities (Arifin et al., 2025).

Similar service activities that have been carried out show that training in processing herbal ingredients into health and beauty products is able to have a significant impact on the target community (Setiawan et al., 2026). Training on making mouthwash from cinnamon and betel leaves for posyandu cadres succeeded in significantly increasing participants' knowledge and encouraging the formation of an independent community in producing natural mouthwash (Syaifudin et al., 2025). Educational and training activities for making antibacterial liquid soap based on mango leaf extract show active community participation through lectures, demonstrations, and hands-on practice (Kusmiyati et al., 2025). Meanwhile, training on making antibacterial transparent soap made from lime extract for PKK groups and farmer women also succeeded in fostering enthusiasm and entrepreneurial skills based on herbal products (Adys, 2025).

Although various service activities based on the use of herbal plant extracts for body care products have been carried out, such as soap, deodorant, and herbal medicine (Amiza & Stiawan, 2025). Although various service activities based on the use of herbal plant extracts for body care products have been carried out, such as soap, deodorant, and herbal medicine (Simanguncsong et al., 2025). The existing mouthwash training generally uses cinnamon and betel leaves (Budi et al., 2026). Meanwhile, the potential of mint leaves as an active ingredient for mouthwash with a fresh scent and natural antibacterial content has not been widely explored in the context of empowering the family's creative economy (Supriyana et al., 2024), (Gunawan et al., 2025).

The novelty of this activity lies in the combination of the use of mint leaves as the main raw material for natural mouthwash, as well as the integration of production management and product marketing training aspects, so that the results of the training do not only stop at increasing knowledge, but are also oriented towards strengthening the family's creative economy through products with selling value. This training aims to empower the Family Welfare Empowerment group through the use of herbal plants into products with high selling value.



METHOD

The Community Service program, in the form of training on making herbal mouthwash from mint leaves, was carried out with PKK Women's group partners at Cafe Araya, Kranggan Permai Housing, Jatisampurna Village, Bekasi City. This activity uses the Participatory Rural Appraisal (PRA) approach, which emphasizes the active involvement of the community in all stages of the activity, from identifying needs to implementing programs and evaluating results. The participants in the activity numbered 20, consisting of housewives who were members of the PKK organization. The partner group was chosen because it plays a strategic role in improving family welfare and the community's economic empowerment. Most participants do not yet have productive skills that can be developed into business opportunities, so an empowerment program is needed that focuses on improving knowledge and entrepreneurial skills.

Through this training, participants were introduced to the use of herbal plants as raw materials for health products that have economic value and potential market opportunities. In addition to providing an understanding of the benefits of mint leaves for dental and oral health, this activity also equips participants with technical skills for making herbal mouthwash, including the selection of raw materials, simple extraction processes, product formulation, equipment sterilization, and hygienic, attractive packaging techniques.

The program is implemented in several stages, as follows: first, the counseling stage. The counseling activities aim to increase participants' knowledge of the importance of maintaining oral and dental health, the benefits of using herbal ingredients as alternatives to health products, and the long-term risks of excessive use of synthetic chemicals. Second, the demonstration stage and direct practice. At this stage, the implementation team demonstrated how to make an herbal mouthwash from mint leaves. Furthermore, participants engaged in hands-on practice, including selecting raw materials, extracting mint leaves using the infusion method, mixing ingredients according to the formulation, sterilizing equipment, filling the product into packaging, and labeling the product.

Third, the entrepreneurship training stage. Participants were given training on entrepreneurial aspects, including product packaging techniques, calculation of Cost of Production (HPP), digital and conventional marketing strategies, and an introduction to basic licensing needed to support product development into sustainable micro businesses. Fourth, the evaluation stage. The evaluation was carried out to measure the improvement of participants' knowledge and skills through the provision of pre-tests and post-tests (Nisa et al., 2026). In addition, a process evaluation was conducted to identify the advantages, obstacles, and participants' satisfaction with the program's implementation, as material for improving activities in the future.

Indicators of program success are measured based on several indicators, namely: (1) an increase in post-test scores compared to pre-tests; (2) the ability of participants to practice making herbal mouthwash independently; (3) the ability of participants to understand the basic aspects of entrepreneurship and product marketing; and (4) increasing interest in participants to develop herbal products as an additional source of income for families.

RESULTS AND DISCUSSION

RESULTS

This community service activity focuses on two main goals, namely improving family health and developing the creative economy for PKK cadres in partner locations. Both of these goals are achieved through training in making natural mouthwash from mint leaf extract, designed to be easy for cadre mothers to practice independently at home or as small businesses.

The activity began with counseling on the importance of maintaining healthy teeth and mouth, followed by a presentation on the benefits of natural antiseptics in mint leaves, especially the antibacterial menthol. After presenting the material, the service team demonstrated the stages of mint leaf extraction in a simple manner and how to combine it with complementary ingredients to produce a safe, usable mouthwash formula. Participants were then divided into several small groups to practice making mouthwash, from mixing ingredients to packaging the final product.

The training on making natural mouthwash from mint leaf extract is designed to be easy for participants to practice directly using standard kitchen tools commonly found in households. The first stage is the preparation of the ingredients, where fresh mint leaves are sorted to select high-quality leaves, then washed to remove impurities, and weighed according to the recipe's requirements. After the ingredients are ready, the process proceeds to the extraction stage using the infusion method, where mint leaves are boiled in a water bath or pot at about 80°C for approximately 15 minutes to extract the active compounds. The decoction solution is then filtered through a flannel cloth or a fine sieve to separate the leaf pulp from the pure extract, which will be used as the base for mouthwash.

The next stage is mixing, where filtered mint leaf extract is combined with complementary ingredients such as glycerin, which moisturizes the oral cavity, and peppermint oil, which enhances the product's fresh aroma, until all ingredients are uniformly mixed. The manufacturing process ends with the packaging stage, where the finished mouthwash solution is filled into sterile bottles and labeled with attractive packaging, making the product ready for use and marketing. The mentoring activity was concluded with a photo of the assisted participants, as shown in Figure 1.





Figure 1. Closing of Mentoring Activities

In addition to its health benefits, this natural mouthwash product also has economic potential that can be developed into an independent business by PKK cadres. In terms of capital, raw materials in the form of mint leaves are relatively easy to obtain and can be used with existing household appliances, making initial and operational costs very affordable for participants who want to start a home-scale business. In terms of selling value, packaging carried out in a modern, hygienic manner can enhance the image of this community's products, enabling them to compete as commercial goods with higher selling value in the market. The marketing strategies that can be pursued include social media marketing to reach a wider market, as well as direct distribution to local stalls and community networks in partner areas, so that products can be known and accepted by the surrounding community more quickly.

Through this training, PKK cadres gain new skills that have economic value and benefit family health. Mothers can now produce their own alternative breath fresheners that are hygienic and antibacterial, as a substitute for commercial mouthwash products. This skill opens opportunities for participants to start an independent business based on herbal products, which can increase family income while encouraging the growth of the creative economy at the community level. Evaluation is conducted through pre-tests and post-tests, as well as direct observation of Partner participants' skills. The results of the pre-test are described in Figure 2.



Figure 2. Partner Pre-test Results

The Utilization of Mint Leaf Extract (*Mentha Piperita*) as a Natural Mouthwash to Improve the Creative Economy In the PKK Women's Group, the results of data analysis in the form of a pretest, with the aim of finding out the extent of the seriousness of the partners in the training, participants showed poor results of 86 percent, had a poor understanding before participating in the training, while the other 15 percent showed poor results. Participants showed the good category at 4 percent and the very good category at only 2 percent, indicating that the partners had never conducted training activities in the manufacture of mint leaf extract herbal medicines.

The concept of the creative economy focuses on the use of individual creativity, expertise, and talent to create added economic value and employment, participant evaluation is carried out through pre-test (initial understanding), training on creative industry concepts, and post-test (final results) to measure the increase in knowledge, with the aim of measuring the increase in participants' knowledge about the material presented, such as the concept of the creative industry and its related with local wisdom.

The evaluation was carried out at the end of the training, the team distributed a questionnaire in the form of a Post test with the same instrument, by assessing the participants' active participation, understanding of the material, and the ability to apply the material to the real context. The post-test results are described in Figure 3.

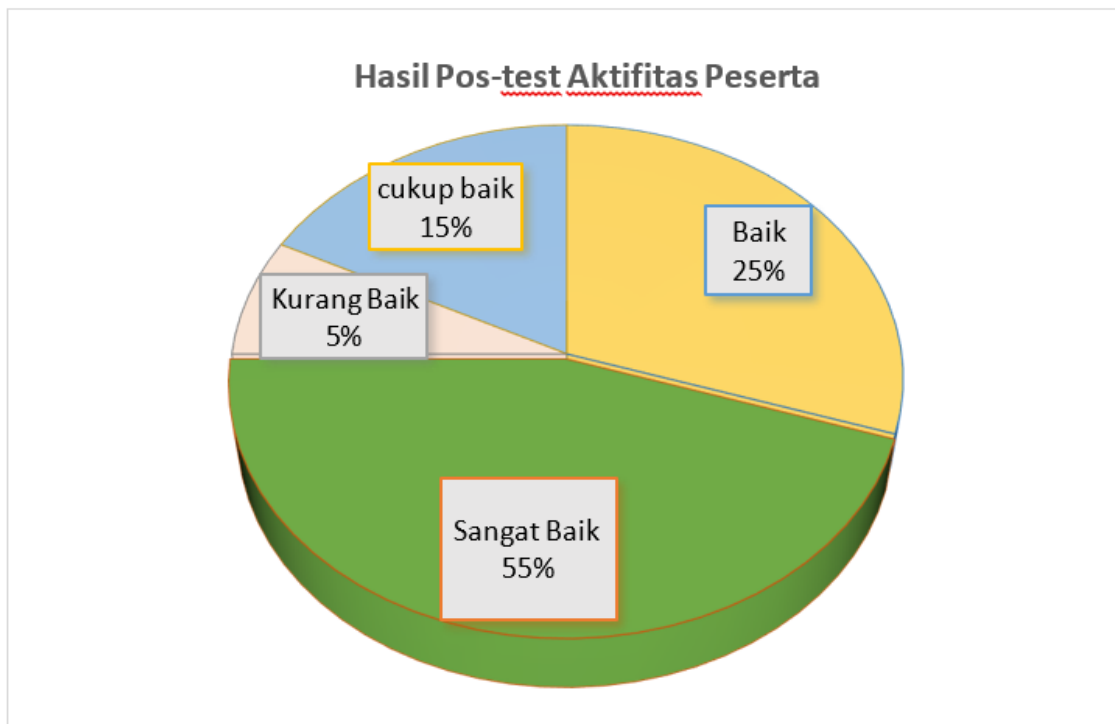


Figure 3. Partner Post-test Results

From the results of the pre-test and post-test analysis data, before and *after the community* service training treatment, the post-test data analysis was obtained with data results that showed that there was an increase in the seriousness of the partners in the treatment, as evidenced by the results of the data analyst from each indicator showing that 15 percent of participants still had a fairly good understanding, while 5 percent showed a poor category. Participants showed with a good category of 25 percent, participants showed results with a very good category, of 55 percent.

This evaluation is important to ensure that the training succeeds in improving the skills and potential of participants in developing the creative industry of the use of mint leaf extract (*mentha piperita*) as a natural mouthwash to improve the creative economy in the PKK women's group in Jatisampurna Bekasi village, showing that this training is very useful, although there are still some participants who need further understanding to improve their skills They are in the manufacture of herbal medicine from natural mint leaf extract.

Based on the analysis of the results of the evaluation of increased knowledge and skills, among partners, there was an increase in participants' understanding of the importance of alcohol-free herbal mouthwash and how to distinguish safe natural ingredients. Participants showed good ability in weighing ingredients, the extraction filtration process (simple maceration or infusion), and packaging (sterile labeling and bottles).

Based on the results of organoleptic and physical tests conducted on this natural mouthwash product, the evaluation includes three main aspects, namely

color and aroma, taste, and acidity level (pH) of the preparation. In terms of color and aroma, the mouthwash produced has a natural clear green color derived from mint leaf extract, accompanied by a distinctive mint aroma that is refreshing and well received by participants. In terms of taste, this product provides a cold sensation in the oral cavity without leaving a bitter or sore taste, making it comfortable to use by various age groups, from teenagers to adults. As for the pH of the preparation, the acidity level of the product is in the safe range for the oral mucosa, which is between 6.0 and 7.5, so its use does not risk damaging tooth enamel or causing irritation to oral tissues.

The success of this community service program is not only measured by the health aspect, but also by the extent to which the program succeeds in creating home business opportunities for PKK groups in partner locations. One of the benefits that is felt directly is the reduction in household costs, because participants are now able to make their own oral care products with very affordable capital, so that they can reduce routine family expenses that are usually allocated to buy commercial mouthwash products. In addition, this program also opens up entrepreneurial opportunities for participants, where products with attractive packaging, supported by basic education about digital marketing provided by the service team, have added value to be marketed through the PKK network, local stalls, and various online social media platforms.

The program also contributes to the formation of sustainable self-reliance at the community level. Through this training, PKK groups not only play the role of beneficiaries, but are also able to transform into agents of change or health drivers in their environment, who independently produce and utilize local herbal ingredients to support family health while developing the community's economic potential in a sustainable manner.

DISCUSSION

The selection of mint leaves (*Mentha piperita*) as the basic ingredient for mouthwash in this activity is supported by a number of scientific findings regarding their antibacterial properties. Mint leaf extract in a variety of organic solvents has been shown to have strong antibacterial activity against a variety of pathogenic bacteria, including *Staphylococcus aureus* and *Bacillus subtilis* (Oktaviani et al., 2021). These findings are reinforced by other studies showing that aquatic extract of mint leaves effectively inhibits the growth of bacteria that cause periodontal disease (Rahayu et al., 2024). The essential oil content in mint leaves, including menthol, is also reported to play a significant role in the antimicrobial activity (Sawu et al., 2025), while providing an antifungal effect against other oral microorganisms such as *Candida albicans* (Abadi et al., 2025). Thus, the results of the training that produce mouthwash with antibacterial properties are in line with the existing scientific foundation and strengthen the justification for choosing mint leaves as the main raw material in products developed with PKK cadres.



The results of organoleptic and physical tests of the products in this activity, particularly the pH of the preparations, which ranged from 6.0 to 7.5, are also consistent with the standards commonly used in herbal mouthwash formulations. Research on mouthwash preparations based on other plant extracts, such as kalangkala leaves and bundung plants, also emphasizes the importance of pH tests as a key parameter of stability and safety of preparations for the oral mucosa (Indriani et al., 2025). This is in line with the findings that herbal mouthwash formulations based on natural ingredients are generally designed to approach pH neutral to avoid the risk of tooth enamel erosion or soft tissue irritation of the mouth (Kausar et al., 2024). In addition, a study on the effectiveness of post-tooth brushing emphasizes that safe and comfortable formulations are a determining factor for user compliance in maintaining dental and oral health in a sustainable manner (Mustasfa et al., 2025). The cold sensation without bitter taste reported by participants in the organoleptic test of this product also strengthens the product's potential to be widely accepted by various age groups (Aisyah et al., 2024).

In terms of economic empowerment, the results of this activity reinforce the pattern observed in various community service programs led by PKK cadres in Indonesia. Training in processing local natural ingredients into products with selling value has proven to be effective as a recovery and strengthening strategy for the household economy, as demonstrated in a similar program that transforms local vegetables into nugget products with high economic value (Nurcholidah et al., 2020) as well as the development program of processed vegetable products by women farmers' groups (Wedowati et al., 2025). An empowerment pattern that combines digital processing, packaging, and marketing education was also found in other PKK cadre entrepreneurship training programs, which shows that attractive packaging support and online marketing literacy are the main driving factors for the successful commercialization of community products (Damayanti et al., 2025).

The findings from this activity confirm that empowering PKK cadres through the processing of local herbal ingredients not only improves health knowledge but also paves the way for sustainable family economic independence. The PKK's strategic role as a driving force for family welfare at the village level has long been recognized in the literature on community empowerment (Mandala et al., 2025), and herbal plant-based health product processing activities, such as those carried out in other PKK groups, also strengthen the position of cadres as agents of health change in their environment (Rahmawati et al., 2024). By integrating aspects of health, production skills, and marketing literacy as practiced in various local product-based community service programs (Jam'an et al., 2025). This natural mouthwash training program has the potential to serve as a model for sustainable, replicable interventions for PKK groups in other regions.

CONCLUSIONS AND SUGGESTIONS

Training in making mouthwash from mint leaf extract has proven effective as an innovative solution for increasing the knowledge, skills, and economic independence of the PKK group. In terms of practical skills, PKK members have successfully practiced hygienic extraction of mint leaves to produce ready-to-use mouthwash products of value. This program also provides a basis for empowering the creative economy, as the household skills acquired can be converted into new micro-business opportunities (MSMEs) that can reduce family spending while increasing income. From a family health perspective, participants gained insight into the importance of choosing oral care products free of harmful chemicals and safe for long-term use. In addition, business sustainability is strengthened through attractive packaging, education, and digital marketing strategies, so that the products are competitive and can be marketed more widely.

This training activity still has several shortcomings, including the duration of implementation which is only one meeting so that the participants' skills have not been standardized consistently, product evaluation which is still limited to organoleptic and pH tests without microbiological tests or direct shelf life tests, new distribution permit assistance (PIRT/BPOM) is limited to insights, the target range is still limited to one PKK group, Digital marketing materials that have not been accompanied by hands-on practice, as well as a business sustainability monitoring period of one to three months that is considered too short to validly measure economic impact. Based on this, the next service activities are suggested to be carried out in stages through several sessions accompanied by continuous production assistance, in collaboration with laboratories for microbiological tests and empirical product stability, involving health offices or related institutions in technical assistance in managing distribution permits, expanding targets to PKK groups and MSME actors in other regions, adding direct digital marketing practice sessions such as the creation of online stores and social media management, as well as extending the monitoring and evaluation period so that the economic impact and business independence can be measured more accurately and sustainably.

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