Bubungan Tinggi: Jurnal Pengabdian Masyarakat
http://ppjp.ulm.ac.id/journals/index.php/btj/index
e-ISSN: 2722-3043 p-ISSN: 2722-2934
Vol 8 No 1 2026
DOI: https://doi.org/10.20527/btjpm.v8i1.17052

Improving Students' Skills through the Production of Aromatherapy Candles Using a Combination of Cinnamon and Citronella Essential Oils

Noverda Ayuchecaria[1], Defilia Anogra Riani[1]*, Muhammad Priyadi[1], Frans June Navirius[1], Thathit Suprayogi[2], Nathanael Neda Galeno[1], Jessica Alexandra Roselia[1], and Anggraeni Putri Esterlita[1]
[1]Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya, Palangka Raya, Indonesia
[2]Physics Studi Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya, Palangka Raya, Indonesia
*defiliadefilia@gmail.com

Article Info

Article history:
Received: January 2, 2026
Accepted: February 8, 2026
Published: March 1, 2026

Keywords:
Aromatherapy candles
Cinnamon products
Citronella

This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

© 2026 Bubungan Tinggi: Jurnal Pengabdian Masyarakat

Abstract

Aromatherapy candles are candles made by mixing a base material, such as solid paraffin, with essential oils derived from certain plants. Training activities aimed at increasing knowledge in developing new products are still rarely conducted. This situation also occurs at SMA Negeri 2 Palangka Raya, where there is a lack of practical skills training programs that utilize local potential, as well as limited entrepreneurship development among students. This program employed the Participatory Action Research (PAR) method and focused on producing aromatherapy candles using a combination of cinnamon and citronella essential oils. The main participants were 45 tenth-grade students. The improvement in students' skills was measured using pre-tests and post-tests, along with questionnaires regarding the aromatherapy candle-making training. The results showed that 53.33% of participants were interested in the skills to be acquired, 55.56% rated the implementation of the activity as very good, and 51.11% considered the theme of the activity to be very beneficial. Evaluation results indicated that 81.2% of participants demonstrated excellent knowledge in the candle-making process. The pre-test and post-test results also showed an improvement in scores after the training was conducted. In conclusion, the aromatherapy candle-making training using a combination of cinnamon and citronella essential oils at SMA Negeri 2 Palangka Raya was successfully implemented and achieved its intended objectives. This was evidenced by the high enthusiasm of participants and the improvement in their knowledge and skills after participating in the activity.

To cite this article: Ayuchecharia, N. A., Riani, D. A., Priyadi, M., Navirius, F. J., Suprayogi, T., Galeno, N. N., Roselia, J. A., & Esterlita, A. P. (2026). Improving students' skills through the production of aromatherapy candles using a combination of cinnamon and citronella essential oils. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat*, *8*(1), 108-116.

INTRODUCTION

Indonesia is a country rich in biological natural resources and is therefore known as an agrarian country. However, the utilization of these natural resources is still not optimal. Currently, the use of natural materials is increasing, one of which is the utilization of

essential oils. One application of essential oils is in the production of aromatherapy candles (Sofiani & Pratiwi, 2017).

Aromatherapy candles are candles that contain essential oils, producing fragrances that can refresh the mind, promote relaxation, and relieve headaches (Minah et al., 2017). Thus, aromatherapy candles made with essential oils are believed not only to help in the treatment and prevention of diseases but also to provide positive effects on emotional stability, mood, and overall well-being (Herawaty et al.,2021).

Citronella (Cymbopogon nardus) is one of the plants with the potential to produce essential oil. The main components of citronella oil include citronellal (32–45%), citronellol (12–15%), geraniol (12–18%), geranyl acetate (3–8%), and citronellyl acetate (2–4%) (Sulaswatty et al., 2019).

Training programs aimed at increasing knowledge in trade or new product development are still limited, mainly due to the lack of broad communication with sources of science and technology. Aromatherapy candles are made by mixing candle base materials, such as paraffin or soy wax, with essential oils derived from certain plants (Meilina et al., 2023). When burned, these candles release the characteristic aroma of essential oils, which provide both psychological and physiological benefits. Aromatherapy candles can be produced using herbal plant compositions that offer benefits such as relaxation, headache relief, room fragrance, and mosquito repellent properties (Kurniawan et al., 2024; Masriadi et al., 2023).

The problems currently faced by schools, including SMA Negeri 2 Palangka Raya, include the lack of practical skills programs that utilize local potential and limited entrepreneurship development among students. On the other hand, local natural resources such as cinnamon and citronella have not been optimally utilized. Therefore, a direct approach, such as aromatherapy candle-making training for students, is needed. This training serves as a relevant solution because it teaches skills based on local wisdom while introducing the potential for creative and environmentally friendly business opportunities. Aromatherapy candles also have economic value, are easy to produce, and combine elements of art, creativity, and basic chemistry (Oksal et al., 2025).

This training is intended for students of SMA Negeri 2 Palangka Raya, with support from supervising teachers and a community service team from a university or partner institution.

The school was selected because of its strong commitment to developing projects based on local wisdom and sustainable life skills. The supportive school environment and access to local materials provide additional advantages for implementing this activity. Training plays an important role in improving students' practical skills and creativity (Kristyanti et al., 2024; Oksal et al., 2025). In this training, a combination of cinnamon and citronella essential oils was used, both known for their relaxation benefits, natural antibacterial properties, and pleasant aroma (Djarot et al., 2019; Kristiani & Yobel, 2022; Sitohang et al., 2023).

The training method applied a participatory approach involving counseling sessions, direct demonstrations, group practice, and reflective discussions (Fitrian et al., 2024; Sipahelut et al., 2022). Students not only learned the theory but also directly experienced the production process, from measuring ingredients, heating, mixing fragrances, molding, and packaging the final product. This community service activity aims to provide skills training in producing aromatherapy candles using a combination of cinnamon and citronella essential oils, which have high economic value and therapeutic benefits, as an effort to enhance entrepreneurship skills based on local potential. The improvement in students' skills was measured using pre-tests, post-tests, and questionnaires related to the aromatherapy candle-making training. Through this

training, it is expected that students of SMA Negeri 2 Palangka Raya will experience an increase in knowledge and skills in producing aromatherapy candles, that aromatherapy candle products based on cinnamon and citronella essential oils will be created, and that student entrepreneurship groups will be formed to sustainably develop this product.

METHODS

The activity was conducted in October 2025 at SMA Negeri 2 Palangka Raya, located at Jalan K. S. Tubun No. 2, Langkai, Pahandut, Palangka Raya City. The target participants of the Supporting Program for Excellent Human Resources were 45 tenth-grade students of SMA Negeri 2 Palangka Raya.

This activity was carried out using a participatory approach method (Gunaedi et al., 2025; Mi'rajunnisa et al., 2024), adjusted to the school environment conditions at SMA Negeri 2 Palangka Raya. The implementation involved active participation from the partner institution. The stages of the activity were as follows:

1. Permission and coordination with the partner institution. The activity began with a visit by the community service team to SMA Negeri 2 Palangka Raya to coordinate and request permission to conduct the community service program. The team coordinated with the school leadership, explaining the objectives, purposes, and benefits of the activity, identifying existing issues at the school as the partner institution, and requesting student participation. Coordination also included discussion of the training schedule, sequence of events, and technical implementation.
2. Counseling and discussion on aromatherapy candles. Counseling sessions were conducted to provide a theoretical understanding of aromatherapy candles and the potential of cinnamon and citronella essential oils as raw materials. The materials delivered included the definition and benefits of aromatherapy candles, the chemical components of essential oils, the composition of aromatherapy candle materials, and the procedures for making them. The session was conducted through interactive presentations using visual media such as PowerPoint slides, leaflets, and pocketbooks to clarify the concepts presented. The first session consisted of material delivery on aromatherapy candles and their benefits, followed by a question-and-answer session.
3. Practical session on making aromatherapy candles. The practical activity included mixing essential oils with the candle base, adding coloring agents, and packaging the final product. Each participant was given the opportunity to try each stage under the guidance of facilitators (lecturers and students).
4. Monitoring dan evaluation were conducted to measure the success of the activity through pre-tests, post-tests, and satisfaction surveys.
5. Data analysis was carried out based on the results of monitoring and evaluation by examining the percentage increase in participants' knowledge and skills.

RESULTS AND DISCUSSION

The community service activity began with a preliminary survey to select the location and participants. The site selection was based on the consideration that aromatherapy candle-making training had never been conducted in the school environment before. The activity was carried out at SMA Negeri 2 Palangka Raya and involved 45 tenth-grade students as participants.

The training began with a pre-test, followed by the presentation of material on aromatherapy candles aimed at improving students' understanding of the definition, benefits, essential oil content, and procedures for making aromatherapy candles. To facilitate participants' understanding of the material, a pocketbook was provided during the activity. After the presentation session, the next stage was the practical session on making

aromatherapy candles. Presentation materials and a pocket book on making aromatherapy candles are shown in Figure 1.

(a) (b)

Figure 1 (a) Aromatherapy candle-making materials and (b) Pocketbook on making aromatherapy candles

The activity consisted of mixing essential oils with the candle base, adding coloring agents, and packaging the final product. Each participant was given the opportunity to try every stage under the guidance of facilitators (lecturers and university students). The materials and equipment used were provided by the community service team, including paraffin, stearic acid, cinnamon essential oil, citronella essential oil, food coloring, candle wicks, a portable gas stove, pots, stirrers, aromatherapy glass containers, and a projector. The procedure for making aromatherapy candles (Mora, 2022) for a 50 g formula, the following steps were taken: first, 28 g of paraffin and 18 g of stearic acid were weighed. The paraffin was heated until melted, and the stearic acid was heated separately. The next step was adding the stearic acid into the melted paraffin and stirring until well combined. The mixture of paraffin and stearic acid was then allowed to cool slightly. After that, 1.5 mL of cinnamon essential oil, 0.5 mL of citronella essential oil, and an appropriate amount of coloring were added and stirred until evenly mixed. The final step was pouring the mixture into containers and allowing it to solidify. After completing these steps, the final product in the form of aromatherapy candles was obtained. The practice of making aromatherapy is shown in Figure 2.

Figure 2 Practice of making aromatherapy

After the presentation session and the practical activity of making aromatherapy candles were completed, participants were asked to fill out a questionnaire and complete a post-test. The questionnaire contained several statements related to the community service activity conducted for the students of SMA Negeri 2 Palangka Raya, as well as questions assessing participants' knowledge regarding the material presentation and the practical candle-making session. Statements from training participants regarding community service activities are listed in Table 1.

Table 1 Statements from training participants related to the community service activity

Statement	Amount	Percentage (%)
Reasons for Participating in the Activity		
Requested by the school	7	15.56
Invited by friends	10	22.22
Interested in the skills to be acquired	24	53.33
Wanted to get a door prize	4	8.89
Opinion on the Implementation of the Activity		
Very Good	25	55.56
Good	17	37.78
Fair	3	6.67
Poor	0	0.00
Opinion on the Theme of the Activity		
Very Beneficial	23	51.11
Beneficial	22	48.89
Less Beneficial	0	0.00
Not Beneficial	0	0.00
Reason for Participating in the Activity		
Requested by the school	7	15.56
Invited by Friends	10	22.22
Interested in the skills to be acquired	24	53.33
Wanted to get a door prize	4	8.89
Opinion on the Implementation of the Activity		
Very Good	25	55.56
Good	17	37.78
Fair	3	6.67
Poor	0	0.00
Opinion on the Theme of the Activity		
Very Beneficial	23	51.11
Beneficial	22	48.89
Less Beneficial	0	0.00
Not Beneficial	0	0.00
Knowledge After Participating in the Activity		
Highly Improved	18	40.00
Improved	27	60.00
Slightly Improved	0	0.00
Unchanged	0	0.00
Speakers/Facilitators		
Very Easy to Understand	21	46.67
Easy to Understand	20	44.44
Less Easy to Understand	4	8.89
Not Understandable	0	0.00

Based on Table 1, the results of the training implementation show that 53.33% of participants joined because they were interested in acquiring new skills. Regarding the implementation of the activity, 55.56% rated it as very good. In terms of the theme, 51.11% considered it very beneficial. Additionally, 60% reported that their knowledge improved

after participating in the activity. Overall, the questionnaire results indicate that the community service program was well implemented and met the participants' needs, especially since they had not previously received knowledge about making aromatherapy candles. Participants were enthusiastic from beginning to end, and numerous questions were raised about the candle-making process, indicating that their knowledge level was generally in the good category.

Participants' knowledge was assessed through a pre-test conducted before the training and a post-test conducted after the training (see Table 2).

Table 2 Knowledge and skills aspects regarding aromatherapy candle production based on pre-test and post-test scores

Knowledge and Skills Aspects	*Pre-test Score*	*Post-test Score*
Definition of aromatherapy candles	58.40	77.60
Preparation of materials	39.20	79.80
Production process	41.20	81.20
Quality of the final product	60.00	80.20
Proper packaging	57.90	73.80
Final Average	51.34	78.50

The knowledge and skills aspects assessed in this activity consisted of five indicators: understanding the definition of aromatherapy candles, preparation of materials, production process, quality of the final product, and proper packaging. Based on Table 2, the average pre-test score was 51.34, while the post-test average score increased to 78.50. This indicates a significant improvement in participants' knowledge and skills after receiving the aromatherapy candle-making training.

Aromatherapy candles made from cinnamon and lemongrass provide a combination of warm and fresh aromas that create a calming atmosphere. Cinnamon offers a warm and comforting scent suitable for relaxation, while lemongrass provides a refreshing touch that helps clear the mind. This combination is often used to relieve stress and fatigue after exhausting activities (Fransisca et al., 2022; Yulia et al., 2024) and also functions as a mosquito repellent (Fatina et al., 2021). When the candle is lit, its fragrance gradually fills the room and creates a peaceful ambiance.

Through the production of aromatherapy candles, partners can be empowered to meet personal needs and develop business opportunities. This is supported by the health benefits, use of local materials, and strong market prospects for the product within the community.

CONCLUSION

Based on the activities conducted, it can be concluded that the community service program involving partner participation in the production of aromatherapy candles was carried out smoothly and successfully improved the knowledge and skills of students at SMA Negeri 2 Palangka Raya.

CONFLICT OF INTEREST

All authors declare that there is no conflict of interest in this article.

AUTHOR CONTRIBUTIONS

NA: conceptualization, data analysis; DAR: documentation, drafting; MP: visualization, editing; TS: methodology, data analysis; FJN: documentation; NNG: description; JAR: documentation and visualization; APE: methodology and editing.

AI DISCLOSURE STATEMENT

The authors used Grammarly during the preparation of this work for English checking. After using the tool/service, the author thoroughly reviewed and edited the content as needed and takes full responsibility for the content of the publication. The authors declare that this research was prepared, researched, written, and edited without the aid of artificial intelligence (AI) techniques.

ACKNOWLEDGEMENTS

This community service activity was carried out through grant funding from the Faculty of Mathematics and Natural Sciences (FMIPA), University of Palangka Raya, Fiscal Year 2025.

REFERENCES

Djarot, P., Moerfiah, & Ambarwati, D. (2019). Lilin aromatik minyak atsiri kulit batang kayu manis (cinnamomum burmannii) sebagai repelen lalat rumah (musca domestica). *Ekologia*, *19*(2), 55–64. https://doi.org/10.33751/ekol.v19i2.1663

Fatina, A. Al, Rochma, N. A., & Salsabilah, N. (2021). Pembuatan minyak sereh dan lilin aromaterapi sebagai anti nyamuk. *DedikasiMU (Journal of Community Service)*, *3*(2), 837–848.

Fitrian, A., Pramahesty, Z., Prayoga, M. R., Syaharani, H., Abidah, N. F., & Anam, M. K. (2024). Pelatihan pembuatan lilin aromaterapi bagi ibu- ibu pkk kelurahan pondok cina kota depok. *Jurnal PKM: Pengabdian Kepada Masyarakat*, *07*(05), 617–626.

Fransisca, E., Wening, D. K., & Shafira, A. I. (2022). Pembuatan lilin aromaterapi dengan penambahan minyak serai (cymbopogon citratus) di kelurahan kalirejo, kecamatan ungaran timur , kabupaten semarang. *Indonesian Journal of Community Empowerment*, *4*(2), 164–169.

Gunaedi, T., Zebua, L. I., & Panjaitan, E. M. (2025). Pelatihan pembuatan lilin aromaterapi berbahan minyak atsiri papua bagi pengusaha muda di rumah bumn jayapura. *Jurnal Pengabdian Papua*, *9*(1), 52–56. https://doi.org/10.31957/jpp.v9i1.4469

Herawaty, N., Prabandari, S., & Susiyarti, S. (2021). *Formulasi dan uji sifat fisik lilin aromaterapi kombinasi minyak atsiri daun kemangi (ocimum sanctum l) dan sereh (cymbopogogon citratus)* (Doctoral dissertation, Politeknik Harapan Bersama Tegal).

Kristiani, R. B., & Yobel, S. (2022). Pengaruh aromaterapi kayu manis (cinnammoun bermanii) terhadap skala ansietas dan kualitas tidur pada lansia. *Adi Husada Nursing Journal*, *8*(2), 84. https://doi.org/10.37036/ahnj.v8i2.356

Kristyanti, Y., More, E., Beama, C. A., & Patty, Y. F. P. P. (2024). Pelatihan dan pembuatan lilin aroma terapi kayu manis di smp negeri 5 kota kupang. *SERVIZIO ALLA COMUNITA: Jurnal Pengabdian Masyarakat*, *1*(1), 35–38.

Kurniawan, Mhd. A., Nainggolan, L. P., Sibagariang, E. M. R., Perwandi, D., Azahra, A., Reno, R. A., Ummi, N., Khairo, Wahyudi, D., Salsabila, S. I., Razif, F., & Setiawati, C. (2024). Pemanfaatan tanaman herbal dalam pembuatan lilin aromaterapi di desa sungai majo pusako. *Pemberdayaan Masyarakat: Jurnal Aksi Sosial*, *1*(3), 92–99. https://doi.org/10.62383/aksisosial.v1i3.599

Masriadi, M., Padil, P., Maharani, M., Musalas, F., Sapar, S., Ilham, T., & Ratna, R. (2023). Pembuatan lilin pengharum ruangan aroma terapi dari sabun yang bernilai ekonomis. *JILPI : Jurnal Ilmiah Pengabdian Dan Inovasi*, *2*(1), 38–46. https://doi.org/10.57248/jilpi.v2i1.218

Meilina, H., Mulyati, S., Suparno, S., Yunardi, Y., Mukramah, M., Chairunnisak, A., Rinaldi, W., & Putri, K. S. (2023). Pembuatan lilin aromaterapi anti stress dan repellent sebagai peluang usaha di dusun mon singet, desa kajhu, aceh besar. *Jurnal Mitra Pengabdian Farmasi*, *2*(2), 54–59.

Mi'rajunnisa, Mulyani, T., Alief, M. N., Noormayanti, A., Laisa, A., Fatihah, A. N., & Sari, Y. T. A. (2024). Pemanfaatan limbah kulit jeruk sebagai lilin aromaterapi yang bernilai ekonomis di desa karang bunga. *Jurnal Pengabdian Masyarakat Panacea*, *2*(4), 225–235. https://doi.org/10.20527/jpmp.v2i4.14131 in

Minah, F. N., Poespowati, T., Astuti, S., Muyassaroh, M., Kartika, R., Elvianto, E., Hudha, I., & Rastini, E. K. (2017). Pembuatan lilin aroma terapi berbasis bahan alami. *Industri Inovatif: Jurnal Teknik Industri, 7*(1), 29–34

Mora, L. (2022). *Kombinasi Minyak Atsiri Kulit Kayu Manis (Cinnamomum burmannii), Sereh (Cymbopogon citratus) Dan Minyak Nilam (Pogostemon cablin) Sebagai Pengikat Lilin Aromaterapi*. Universitas Aufa Royhan.

Oksal, E., Fatah, A. H., Pereiz, Z., Fauzi, M. Z. L., Komara, N. K., & Pangestika, I. (2025). Pelatihan pembuatan lilin aromaterapi dalam peningkatan kreativitas siswa sman 1 kasongan. *JMM (Jurnal Masyarakat Mandiri)*, *9*(2), 1575–1583. https://doi.org/10.31764/jmm.v9i2.29185

Sipahelut, S. G., Mailoa, M., & C. D. Tuhumury, H. (2022). Pembuatan lilin aromaterapi dengan penambahan minyak jeruk manis di dusun seri, desa urimessing, kota ambon. *Hirono : Jurnal Pengabdian Masyarakat*, *2*(1), 9–16. https://doi.org/10.55984/hirono.v2i1.79

Sitohang, A. J., Sunardi, S., & Hastuti, H. (2023). Pembuatan lilin aromaterapi variasi perbandingan asam stearat dengan beeswax dan penambahan minyak kayu manis. *Agroforetech*, *1*(1), 520–535.

Sofiani, V., & Pratiwi, R. (2017). Review artikel: Pemanfaatan minyak atsiri pada tanaman sebagai aromaterapi dalam sediaan-sediaan farmasi. *Farmaka*, *15*(2), 119-131.

Sulaswatty, A., Rusli, M. S., Abimanyu, H., & Tursiloadi, S. (2019). *Quo vadis minyak serai wangi dan produk turunannya*. Jakarta: LIPI Press.

Yulia, M., Safitri, R., & Rahmayulis, R. (2024). Formulasi lilin aromaterapi kombinasi minyak atsiri sereh wangi (cymbopogon nardus) dan minyak atsiri nilam (pogostemon cablin). *SITAWA : Jurnal Farmasi Sains Dan Obat Tradisional*, *3*(1), 18–29.

AUTHOR PROFILES

Apt. Noverda Ayuchecaria, M.Farm.
Lecturer in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya. Email : noverdaayuchecaria@mipa.upr.ac.id, Google Scholar ID : https://scholar.google.com/citations?user=65jI614AAAAJ&hl=id, SINTA ID : 6823563

Apt. Defilia Anogra Riani, M.Sc.
Lecturer in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya. Email : defilia@mipa.upr.ac.id, Google Scholar ID : https://scholar.google.com/citations?user=qfrdIu4AAAAJ&hl=id, SINTA ID : 6852323

Apt. Muhammad Priyadi, M.Farm.
Lecturer in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya. Email : muhammad.priyadi@mipa.upr.ac.id, Google Scholar ID : https://scholar.google.com/citations?user=tR4tmmUAAAAJ&hl=en, SINTA ID : 6814928, ORCHID ID : https://orcid.org/0000-0003-4833-2963, SCOPUS ID : 60000994900

Thathit Suprayogi, M.Si.
Lecturer in the Physics Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya. Email : thathit.suprayogi@mipa.upr.ac.id, Google Scholar ID : https://scholar.google.co.id/citations?user=KLNWcFAAAAAJ&hl=id, SINTA ID : 6843179, ORCHID ID : https://orcid.org/0000-0001-9133-7845, SCOPUS ID : 57202606423

Franz June Navirius, M.Farm.
Lecturer in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya. Email : franzjunenavirius@mipa.upr.ac.id, Google Scholar ID : https://scholar.google.com/citations?hl=en&user=-iJJqcAAAAAJ, SINTA ID : 6969398

Nathanael Neda Galeno
Student in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya.
Email : nathanaell1212@gmail.com

Jessica Alexandra Roselia
Student in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya.
Email : xjessicaalexandra23@gmail.com

Anggraeni Putri Esterlita
Student in the Pharmacy Study Program, Faculty of Mathematics and Natural Sciences, University of Palangka Raya.
Email : anggraenianggraeni16@gmail.com