

DEVELOPMENT OF AROMATHERAPY CANDLES WITH PANDAN LEAF EXTRACT AS A NATURAL RELAXATION REMEDY

Widi Agustina^{1*}, Mediana Ika Syafirina H², Ulfah Setia Iswara³

^{1,2}Indonesian College of Economics (STIESIA) Surabaya

³ Indonesian Lecturer of Economics (STIESIA) Surabaya

*Corresponding Author: widiagustina457@gmail.com

Abstract: Environmental issues are important topics that deserve attention, including household waste problems such as used cooking oil. Used cooking oil that is disposed of carelessly has the potential to pollute the environment and cause negative impacts in the future. Utilizing used cooking oil waste can be an alternative way to reduce ongoing environmental pollution. One product with development potential is aromatherapy candles. Aromatherapy candles can be used as a medium for relaxation with natural aromas. However, most aromatherapy candles on the market still use artificial fragrances that are not entirely safe for health. The purpose of this study was to develop aromatherapy candles made from used cooking oil with the addition of pandan leaf extract as a natural fragrance. The research method used was descriptive qualitative, with data collection through 4 stages, namely Input, Process, Output, and Evaluation. The results of the analysis showed that aromatherapy candles with pandan leaf extract produced a soft aroma and provided a natural relaxing effect. This innovation not only utilizes waste productively, but also provides multiple benefits for health, the environment, and the economy.

Keywords: aromatherapy candles, cooking oil, pandan leaves

1. Introduction

The environment in general refers to physical conditions that include natural resources such as land, water, solar energy, minerals, as well as flora and fauna that grow on land and in the ocean. According to Otto Soemarwoto (1994), the environment is space and all conditions within it (objects, forces, circumstances, living things, and behavior) that affect life. Environmental problems include habitat loss, pollution (soil, water, air), climate change, and declining biodiversity, caused mainly by unsustainable human activities. Environmental issues are important issues that continue to receive attention, including household waste problems such as used cooking oil. Used cooking oil is produced from the repeated use of cooking oil, which has the potential to negatively impact its users, both physically and environmentally. Environmental pollution caused by the indiscriminate disposal of used cooking oil triggers ecosystem disruption in the environment, as used cooking oil contains contaminants. The community can utilize used cooking oil waste as an alternative way to reduce ongoing environmental pollution. One product that can be developed is aromatherapy candles.

Candles are commonly used as a source of light during power outages. However, as time goes by, candles are no longer used solely as a source of light but can be developed into a product with added value, one of which is aromatherapy candles. Aromatherapy candles are candles that have been modified from existing candles by utilizing readily available and easily obtainable materials, such as used cooking oil as the main ingredient and additional aromatherapy oils that aim to provide a relaxing or calming aroma (Wardani, et al. 2021). The materials and process for making aromatherapy candles are very simple and easy to obtain and practice by anyone. The main raw materials for making aromatherapy candles are paraffin, stearin, or beeswax. Paraffin and stearin can be obtained at chemical stores at low prices and

have good burning quality, while beeswax is more expensive than paraffin and stearin. Other materials needed are essential oils.

Many aromatherapy candle manufacturers on the market still use artificial fragrances that are not entirely safe for health. Therefore, aromatherapy candles can be enriched with natural extracts, such as pandan leaves (*Pandanus Amaryllifolius*). Pandan leaves are known as a spice plant that gives off a distinctive sweet aroma derived from its essential oil content. In addition, pandan leaves have long been used in traditional medicine, for example to lower blood pressure, reduce anxiety, and provide a calming effect.

This study aims to develop aromatherapy candles made from used cooking oil with the addition of pandan leaf extract as a natural fragrance. Thus, the development of aromatherapy candles made from waste oil and pandan leaf extract not only focuses on reducing environmental waste, but also creates innovative products that have health benefits and economic opportunities. This shows great potential to be developed as an environmentally friendly, healthy, and competitive entrepreneurial product in the market.

2. Literature Review

Pandan Leaf Extract Aromatherapy Candle

Aromatherapy candles are another manifestation of candles after undergoing modifications in the manufacturing process from waste materials. In the manufacture of aromatherapy candles, several ingredients are used, one of which is aromatic oil that has an aromatherapy scent. Aromatherapy itself has calming properties and a refreshing aroma (Prabandi and Febriyanti, 2017). Aromatherapy is a form of alternative medicine that uses volatile plant materials, namely plants that release volatile chemical compounds into the air, commonly known as essential oils. According to Muhabirin (2012), aromatherapy candles can be used as room decorations and fresheners, as well as wedding souvenirs that have aesthetic value and can be made from environmentally friendly materials. Aromatherapy candles provide a therapeutic effect when burned. The benefits of aromatherapy candles come from the aromatherapy content in the candles, which evaporates when burned. The vapor then fills the air in the surrounding area, and ultimately the air filled with the candle vapor will produce a distinctive scent that can induce a feeling of calm. They can even be considered capable of relieving and eliminating stress, allergies, and infections, especially essential oils extracted from plants such as lemongrass, pandan leaves, kecombrang, cloves, orange peel, lavender, cinnamon, chamomile, peppermint, patchouli, and ylang-ylang flowers.

Pandan is a type of monocotyledonous plant from the Pandanaceae family. In Indonesia, pandan leaves are mostly used as food flavoring, food coloring, room fresheners, medicines, and also as raw materials for handicrafts. This tropical plant is not only known for its distinctive aroma in culinary applications, but also for its properties that support its use in aromatherapy products. Modern scientific studies have begun to explore the aromatherapeutic properties of pandan. Research shows that inhaling certain aromas can trigger physiological responses such as a decrease in heart rate and blood pressure (Rosida and Puspitasari, 2021).

The usable part of pandan leaves is their essential oil, which is a compound or substance that has volatile properties and a pleasant aroma. The essential oil of pandan leaves contains linalool, which has sedative properties, thereby increasing relaxation and reducing aggression and anxiety (Mafitri and Parmadi, 2018). One of the most common methods is the extraction of essential oil or the preparation of an infusion (oil infusion) from pandan leaves. This method can be done in various ways, such as steam distillation or maceration (soaking) of pandan

leaves in carrier oil, such as coconut oil or soybean oil, which is then mixed into wax (Wibowo et al., 2019).

From a product innovation perspective, the use of pandan leaf extract in the manufacture of aromatherapy candles provides differentiation compared to aromatherapy candles made from synthetic fragrances. This product not only offers a soft natural fragrance, but also safer and more sustainable health benefits. Additionally, the combination of using waste oil as a base for candles with pandan extract provides a dual solution: reducing environmental pollution while producing a high-value economic product.

A. Development of Economically Valuable Products and Marketing Strategies (Marketing Mix Concept)

The development of aromatherapy candles made from used cooking oil with pandan leaf extract is not only oriented towards waste utilization, but also has high economic value. This product can be categorized as a form of eco-innovation that combines environmental aspects with green entrepreneurship opportunities. The economic added value arises because the main raw material, used cooking oil, is easily obtained at low cost, thereby reducing production costs. Meanwhile, the use of pandan leaf extract provides distinctive characteristics and differentiation value that enhance the product's marketability. With these characteristics, pandan aromatherapy candles have the potential to be marketed as eco-friendly lifestyle products to household consumers, aromatherapy enthusiasts, and even the souvenir and gift markets.

From a sustainable entrepreneurship perspective, this product reflects new business opportunities in the creative economy sector. Pandan aromatherapy candles have the potential to become an alternative for small and medium enterprises (SMEs) with affordable capital and a wide market, while also supporting the principles of sustainable entrepreneurship. In addition, the existence of this product is in line with the Sustainable Development Goals (SDGs), particularly point 12 on Responsible Consumption and Production and point 3 on Good Health and Well-being.

Product marketing strategies can be analyzed through the **4P (Marketing Mix)** concept, namely:

1. **Product:** Pandan aromatherapy candles are an innovative product with relaxation benefits and environmental value.
2. **Price:** Competitive pricing is set by taking into account the low cost of raw materials, while still positioning the product as a premium product with health and aesthetic value.
3. **Place:** Distribution is carried out through direct sales (exhibitions, souvenir shops, MSME communities) and online through marketplaces and social media.
4. **Promotion:** Promotions focus on environmentally friendly products and healthy lifestyles through digital branding, community collaborations, and entrepreneurial events.

With the implementation of this strategy, pandan aromatherapy candles have promising commercial prospects, both in terms of product competitiveness, business sustainability, and their contribution to the creative economy.

3. Method

This study uses qualitative methods. According to Moleong (2005:4), a qualitative descriptive approach is a research approach in which the data collected consists of words and images rather than numbers. There are four stages in this activity, namely Input, Process, Output, and Evaluation.

Stage 1 (Input)

At this stage, conduct a market review to identify the target market and various similar products in order to set prices that are in line with the economic conditions of the community before starting production. This review is conducted to estimate the long-term prospects of this business.

Stage 2 (Proses)

The process stage involves how to make aromatherapy candles.

Stage 3 (Output)

The output of this activity is aromatherapy candles that have a calming effect and relieve headaches. In addition, aromatherapy candles can be used to relieve excessive stress and anxiety disorders.

Stage 4 (Evaluation)

At this stage, we will review any shortcomings that make customers uncomfortable when using aromatherapy candles.

4. Result and Discussion

This research was conducted through four main stages, namely input, process, output, and evaluation. In accordance with the methods obtained, it can be explained as follows:

Stage Input

The initial step in making aromatherapy candles is to conduct market research. At this stage, market research is conducted to identify the target market and various similar products in order to determine the price and quality of raw materials that are in line with the economic conditions of the community before starting production. This research is conducted to estimate the long-term prospects of this business.

Stage Proses

The steps taken in the production process of Pandan Extract Aromatherapy Candles are as follows:

- 1) First, heat the used cooking oil over medium heat.
- 2) Then add stearin to the oil in a 1:2 ratio and stir until dissolved.
- 3) Next, weigh out 20 grams of pandan leaf powder.
- 4) Prepare a pot of water, then place the container with the wax in the pot.
- 5) Melt the wax on the stove over medium heat.
- 6) While waiting for the wax to melt, attach the wick to the bottom of the jar/glass container using hot glue.
- 7) Press the wick firmly so that it sticks perfectly.
- 8) Once the wax has melted, remove it and let it cool until it reaches a temperature of approximately 85 degrees Celsius.
- 9) Once the wax has reached 85 degrees Celsius, pour in the aromatherapy oil and stir evenly.
- 10) Carefully and slowly pour the wax into the prepared container.
- 11) To stabilize the wick on the side, you can use a support such as an ice cream stick.
- 12) For the next container, melt the second candle, following the same steps as for the first candle.
- 13) Then pour the wax into the second container.
- 14) Wait until all the wax has completely hardened.
- 15) Once hardened, the candle is ready to be sold.

Stage Output (4P) Marketing Mix

The result of this activity is a refreshing aromatherapy candle product that has calming properties due to its pandan leaf extract content. In addition to its functional value as a relaxation medium, this product also has commercial potential that can be analyzed using the 4Ps of the Marketing Mix, namely:

1. Product

Pandan aromatherapy candles were developed as an environmentally friendly innovation using used cooking oil and pandan leaf extract. This product offers a soft, natural aroma, unlike most aromatherapy candles on the market, which still use synthetic fragrances. The product's advantages lie in its added value, including health benefits (relaxation, stress reduction, and calming effects), as well as its eco-friendly image. As part of this phase, the initial design of the pandan extract aromatherapy candle is shown in the image below :



Figure 1. Aromatherapy candles made from used cooking oil with pandan leaf extract as an environmentally friendly innovation.

The product in Figure 1 shows the results of developing aromatherapy candles that use used cooking oil as the main ingredient and pandan leaf extract as a natural fragrance. The candles are designed to be attractive with a simple yet aesthetic shape so that they not only function as air fresheners but also as decorative elements. The use of environmentally friendly materials reinforces the product's identity as a sustainable innovation that combines health, beauty, and environmental awareness. The visualization of this product also strengthens its selling points by presenting a natural, modern look that is ready to be marketed to consumers.

2. Price

Pricing takes into account people's purchasing power, production costs, and the prices of similar products on the market. With relatively inexpensive raw materials (used cooking oil, stearin, and pandan leaves), these candles can be sold at an affordable price of Rp15,000 per unit. This price is quite competitive compared to similar products with synthetic fragrances.

3. Place

Product marketing is conducted both offline and online. Offline, pandan aromatherapy candles are marketed at campus bazaars and local MSME exhibitions. Meanwhile, online, aromatherapy candles are marketed through e-commerce (Shopee and TikTok) and social media (Instagram and WhatsApp) so that the products can attract consumers. Online marketing provides ease of access to the sales process and a wider consumer reach.

4. Promotion

The promotional strategy is carried out by utilizing social media, particularly Instagram, TikTok, and WhatsApp. Promotional content is focused on:

- Highlight the uniqueness of the product with the tagline “Natural Pandan Aroma, Healthy Relaxation, and Environmentally Friendly.”
- Aesthetic photos and videos of the product with lighting that accentuates the color of the candle, the shape of the packaging, and the elegant impression.
- Testimonials from consumers who feel more relaxed after using pandan candles.
- Brief educational content about the health benefits of pandan and the advantages of environmentally friendly products.

In addition, offline promotion was also carried out using simple brochures at MSME exhibitions and offering bundling packages for event souvenirs.

Stage Evaluation

An evaluation was conducted to assess the effectiveness of the pandan aromatherapy candle marketing strategy after a sales trial. From a marketing perspective, there are several things that need to be considered:

1. Produk

Consumers responded positively to the soft and natural pandan scent. However, there were suggestions to increase product variety, for example by offering more varied candle shapes (small jars, travel sizes, or gift sets) in order to reach a wider market segment.

2. Price

The price of Rp15,000 per unit is considered appropriate for the quality of the product. However, some consumers suggest offering package deals (bundling) for bulk purchases, especially for wedding souvenirs or hampers.

3. Place

Online sales through marketplaces are more effective than offline sales because they reach a wider range of consumers. However, for offline marketing, consignment sales at souvenir shops or local MSME outlets still have limited reach. This shows the need to expand the distribution network, for example by partnering with cafes, bookstores, or gift shops as sales partners.

4. Promotion

Digital promotions through Instagram and TikTok have proven to attract the attention of young consumers. The content that receives the most interaction is aesthetic photos of products and consumer testimonials. However, educational content about the benefits of pandan is still not very appealing, so it needs to be packaged in a more concise and visual manner. For offline promotions, brochures are quite helpful at exhibitions, but their reach is still limited, so they need to be combined with digital media to be more effective.

Overall, the evaluation indicates that pandan aromatherapy candles have good market potential, with their main appeal lying in their natural scent and eco-friendly value. However, marketing strategies need to be adapted to consumer trends, particularly in expanding offline distribution and strengthening more creative and interactive digital promotional content.

5. Conclusions

The innovation of processing ordinary candles into aromatherapy candles provides a soft, soothing aroma that is beneficial for relieving stress and anxiety. The use of used cooking oil as the main ingredient not only adds value to household waste, but also supports efforts to reduce environmental pollution.

The development of this product demonstrates that waste can be processed into innovative products that are environmentally friendly, economically valuable, and have health benefits. Pandan leaf extract aromatherapy candles have the potential to be further developed as a sustainable entrepreneurial product that is competitive in the market.

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