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Aromatherapy Candles as Double Protection: A Modern Solution to a Classic Problem

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Abstract
The problem of mosquito nuisance has long been a challenge for many communities throughout the world. Mosquito bites not only cause discomfort, but also play a role in spreading various dangerous diseases such as malaria, dengue, zika and chikungunya. The innovation of anti-mosquito candles offers an effective solution to overcome mosquito problems in society which often disturb comfort and health. This research examines the effectiveness of anti-mosquito candles that use natural ingredients in reducing mosquito populations and their impact on the environment and human health. The results of this research show that this candle has not only succeeded in reducing the number of mosquitoes significantly but is also safe to use, environmentally friendly, and easy to apply. It is hoped that this innovation can be a better alternative to conventional mosquito repellent methods, while improving people's quality of life by providing efficient and comfortable protection from the threat of mosquitoes. So the innovation of the anti-mosquito aromatherapy candle product not only offers a practical and effective solution, but can also contribute to efforts to protect the environment and public health.

Keywords: Aromatherapy Candles, Mosquitoes, Innovation, Society

INTRODUCTION

The use of anti-mosquito aroma therapy or mosquito repellent using the burning method which has been used to repel mosquitoes has long been used by the community to repel mosquitoes, but this cannot overcome the problems faced by the community. So, in its development there have been many innovations regarding methods of repelling mosquitoes, one of which is in the field of aromatherapy candles which have appeared and bring other benefits so that they are more popular with the public, apart from producing various aromas, one of which can also be used to protect against mosquito bites.

Mosquitoes are one of the most common pests found throughout the world, they not only disturb comfort but also have the potential to transmit various dangerous diseases. Therefore, the need for effective, safe and environmentally friendly solutions to ward off the presence of mosquitoes is becoming increasingly important today.

In recent years, other studies have shown the potential of using natural ingredients in making anti-mosquito aromatherapy candles as a promising alternative for repelling mosquitoes. Extracts and essential oils from various plants have been proven to have effective repellent and larvicidal properties in controlling mosquito populations.

One example is research conducted by Kamonpatana et al. (2020) who tested the effectiveness of ketone-based essential oil formulations against Aedes aegypti and Culex quinquefasciatus mosquitoes. The research results show that this formulation has significant anti-mosquito and larvicidal activity, and is environmentally friendly.

In addition, Pavela and Benelli (2016) in their review stated that essential oils have great potential as natural biopesticides that are effective and safe for the environment. They emphasized the importance of innovation in the development of essential oil formulations that can overcome obstacles such as volatility and stability to increase product effectiveness and durability.

Other research conducted by Amer and Mehlhorn (2006) also showed the strong larvicidal activity of several essential oils against Aedes, Anopheles, and Culex mosquito larvae. These results indicate the potential use of essential oils as active ingredients in anti-mosquito aromatherapy candles.

Furthermore, a review conducted by Regnault-Roger et al. (2012) emphasized that essential oils as natural biopesticides have a risk profile

low and can be a promising solution to overcome the challenges of using synthetic pesticides. They highlight the need for further research to optimize the formulation and application of essential oils in pest control.

Koul et al. (2008) in their review also highlighted the potential and constraints of using essential oils as natural pesticides. They emphasized the need for innovation in formulation and application methods to improve the stability, efficacy, and ease of use of essential oil-based products.

Developments in research and innovation in aromatherapy candles with the ability to repel mosquitoes are increasingly opening up new opportunities for the industry to develop products that not only offer a pleasant aromatherapy experience, but also provide effective protection for humans from mosquito bites. This is in line with consumer trends which increasingly prioritize products that are natural, environmentally friendly and have multiple benefits.

By utilizing the potential of natural ingredients such as essential oils, innovative anti-mosquito aromatherapy candles can be an effective, safe and sustainable solution to overcome mosquito problems. Recent research has provided a strong foundation for the development of innovative aromatherapy candle products that can meet consumer needs for health, comfort and environmental protection.

RESEARCH METHODS

Empathy: in this case discussing the purpose of empathy, in this case our group carried out observations in the community which were carried out to be able to understand the problems experienced by the community, so that after

Finding these problems will later enable researchers to create solutions that are relevant and can overcome problems that exist in society.

Define: After making observations and finding problems that occur in society. We determine the focus of research so that it can be focused on one problem so that we can produce a product that is useful for overcoming that problem.

Ideate: The goal of ideate is to ideate and create creative ideas and new solutions, allowing the team to create more innovative and potential solutions. In this case, researchers hold discussions to create new innovations from problems found in society. After holding discussions regarding choosing what problem to solve, our group decided to focus on one problem and made innovations to overcome that problem.

Innovation in Design Thinking aims to create products, services or experiences that are relevant, functional and competitive in the market so they can be bought and sold.

RESULT AND DISCUSSION

Based on the results of observations and more in-depth observations in the design thinking section, our group decided to create an innovative product in the form of aroma therapy candles, where these candles are made from natural ingredients so they are more environmentally friendly compared to other products. Apart from that, our products also have several variants, including lavender, vanilla, rose and jasmine. So apart from functioning to repel mosquitoes, we discovered that there is a new idea for this product, namely that it can be used as an air freshener that does not disturb the public, unlike other mosquito repellent products which have a strong aroma and irritate breathing, so with the launch of this innovative product we hope that the product will This can be accepted in society and can overcome problems that occur in society. Following are the steps in making aromatherapy candles that we will produce.

Figure 1. Lavender Variant Anti-Mosquito Aromatherapy Candle

Making lavender anti-mosquito aromatherapy candles at home is easy and fun. Here is the manufacturing process: To make anti-mosquito aromatherapy candles with the lavender variant, first you need to prepare the following ingredients: 500 grams of soy wax, 30 drops of lavender essential oil, 30 drops of citronella essential oil, 15 cm long wax marrow, container wax, and candle dye if desired. The manufacturing process begins by melting the soy wax in a pan using the weighing method until it reaches a temperature of 70-80 degrees Celsius. After that, add lavender and citronella essential oils to the melted wax and stir until smooth. If you want to add color to the wax, add wax coloring at this stage and stir well. Next, place the wax

marrow in the center of the candle holder with the help of glue. Pour the melted wax into the candle holder, making sure the wax marrow remains in the center. Let the wax harden for 24 hours before finishing cut off the excess wax marrow. Your lavender variant of the anti-mosquito aromatherapy candle is now ready to be used.

Figure 2. Vanilla Anti-Mosquito Aroma Therapy Candle

To make Anti-Mosquito Aroma Therapy Candles with vanilla aroma, several ingredients are needed, namely basic wax (soy wax or paraffin wax), vanilla essential oil, dye (optional), candle wick, and candle container (such as glass, tin, or special mold). First, melt the base wax on the stove or water bath over low heat until completely melted. Next, add vanilla essential oil to taste (usually 10-20 drops per 100 grams of wax). If you want to add color, add dye little by little until you reach the desired color. Then, prepare the candle wick in the center of the container, make sure the wick is perpendicular, then pour the liquid wax into the container and leave it to harden. To get an even surface, use a spoon or other tool to spread it out when the wax is semi-solid. Once the wax is completely solid and cool, the vanilla scented Anti-Mosquito Aroma Therapy Candle is ready to be used. For best results, use good quality vanilla essential oil, choose the right size container or mold, and store the wax in a cool place out of direct sunlight.

Figure 3. Rose Anti-Mosquito Aromatherapy Candle

The rose variant of the anti-mosquito aromatherapy candle is a natural way to repel mosquitoes while providing a calming aroma. Here is the manufacturing process: Prepare all materials and tools. Cut the candle wick into pieces according to the height of the candle mold. Melt beeswax/soy wax in a heat-resistant container by heating it over hot water (double boiler). Stir occasionally until the wax is completely melted. Remove the wax from the heat and let it cool until the temperature reaches around 60°C. Add rose essential oil, coconut oil, lemongrass oil, lavender oil, and geranium oil to the liquid wax. Stir well. Jingin add candle coloring, add a few drops of pink coloring and stir until mixed well. Pour the liquid wax into a candle mold that has been fitted with a wick. Make sure the wax fills all parts of the mold. Let the wax cool

and solidify for several hours or overnight. Carefully remove the wax from the mold. The rose variant of the anti-mosquito aromatherapy candle is ready to be used. This rose variant of the anti-mosquito aromatherapy candle not only provides a beautiful and calming aroma, but also helps repel mosquitoes. Lavender, jasmine, vanilla essential oils have natural anti-mosquito properties. The calming aroma of rose can also help you sleep better.

Figure 4. Jasmine Anti-Mosquito Aroma Therapy Candle

To make a jasmine-scented Anti-Mosquito Aromatherapy Candle, you need several ingredients, namely basic wax (soy wax or paraffin wax), jasmine essential oil, green or white dye (optional), candle wick, and candle container (such as glass, tin, or special mold). First, melt the base wax on the stove or in a water bath over low heat until it is completely melted. Next, add jasmine essential oil to taste (usually 10-20 drops per 100 grams of wax). Add dye little by little until you reach the desired color. Then, place the candle wick in the center of the container, making sure the wick is standing upright, and pour the melted wax into the container, then let it harden and solidify. To get an even surface, use a spoon or other tool to spread it out when the wax is semi-solid. Once the wax is completely solid and cool, the jasmine-scented Anti-Mosquito Aroma Therapy Candle is ready to be used. For best results, use high-quality jasmine essential oil, choose the right size container or mold, and store the candle in a cool place out of direct sunlight.

CONCLUSIONS

Making anti-mosquito aromatherapy candles with rose, vanilla, jasmin and lavender aroma variants is not only effective in repelling mosquitoes, but can also improve the quality of the user experience through a variety of aromas that are calming and pleasant and do not bother users with strong aromas. Each aroma variant has its own uniqueness, which not only functions as a mosquito repellent but also provides additional benefits such as relaxation and improving mood.

The rose variant gives the impression of an elegant and calming aroma, suitable for creating a romantic and comfortable atmosphere in the room. Vanilla is characterized by having a sweet and calming aroma and providing a relaxing effect that helps reduce stress. Jasmin, which has a soft floral aroma, is also known to improve mood and provide a refreshing effect. Meanwhile, lavender can help create an environment that is conducive to sleep and relaxation so that it can create an atmosphere that seems comfortable for the user.

Overall, anti-mosquito aromatherapy candles with rose, vanilla, jasmin and lavender variants provide a multifunctional solution that combines the effectiveness of a mosquito repellent with the benefits of aromatherapy. Apart from providing protection against mosquito bites, it also provides a new experience for users through the various aromas we have which are calming and refreshing. Thus, it is hoped that this terapu aroma candle can

be the right choice to protect the family from mosquitoes and create a pleasant and calming atmosphere at home.

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