

Entrepreneurship Education through Training in Making Aromatherapy Candles and Natural Soap Made from Eucalyptus Oil (*Melaleuca Leucadendron*) at Wonoharjo Village, Boyolali Regency

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Abstract

Wonoharjo Village has the potential to support the village government to develop economic activities. The village has the potential for local eucalyptus oil, which is used as one of the villagers' economic resources. However, no product innovation has been developed so that the selling power of the community is still low. Students of KKN Research Group 19, Sebelas Maret University Surakarta in 2024, initiated entrepreneurship education through training in making aromatherapy candles and natural soap with essential oil additives in the form of eucalyptus oil in Wonoharjo Village, Kemusu, Boyolali, Central Java. The women participating in the PKK Wonoharjo Village participated enthusiastically in the training on the utilization of eucalyptus oil into high-value products such as aromatherapy candles and natural soap. Aromatherapy candles and natural soaps are natural products used for health purposes and protection of the body so that it is expected to be able to increase the selling power of the community through existing competencies.

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1. INTRODUCTION

Many efforts have been made to empower villages through various programs, one of which is community service which is monitored by the university. Wonoharjo Village is one of the target villages in this community social program. The location of this village is in Kemusu District, Boyolali Regency, Central Java. The majority of the people of Wonoharjo Village earn their livelihood in agriculture. The village's leading commodity is eucalyptus oil. In Wonoharjo Village, the land available for eucalyptus plants is more than 130 ha. With this area of land, the Forest Farmers Group (KTH) in the village can produce more than 30 kg of eucalyptus oil every dry season. Meanwhile, during the rainy season, the farming carried out by residents is not focused on eucalyptus oil, but on other planting materials such as corn, chilies, sesame, etc.

Eucalyptus oil is a type of essential oil that is widely used for domestic needs[1] LewerissaThe basic characteristics of essential oils are their ease of evaporation, distinctive aroma, and solubility in organic solvents[2]Eucalyptus oil has the benefit of improving blood circulation by widening the pores of the skin so that the body becomes warmer and does not interfere with the skin's breathing.[3]

Central Java Province is one of the producers of eucalyptus oil on the island of Java with a land area of 2,819 ha according to Perhutani data. Wonoharjo Village, located in Boyolali Regency in Central Java Province, has a large contribution to the cultivation of eucalyptus. The harvest results in the form of eucalyptus leaves are processed into eucalyptus oil using a distillation process.

Although there are three different distillation methods, the distillation method used by KTH in Wonoharjo Village is distillation of boiled water with eucalyptus leaves.[4] However, the processing of eucalyptus oil only extends to distillation. In fact, distilled eucalyptus oil can be reprocessed into various products that are useful for everyday life[5]

One product that can be made from eucalyptus oil is soap. Soap is made from the chemical reaction of saponification which is carried out by mixing vegetable or animal fatty acids and sodium or potassium base. Soap can be used as a cleaning agent (Delsy and Diastuti, 2019). The cleaning properties of ordinary soap are combined with ingredients that can care for the skin and make the soap smell good. The addition of eucalyptus oil to soap can also replace levels of sodium lauryl sulphate (SLS), a compound commonly found in regular soap, which has negative effects on humans and can cause environmental pollution.[6] Apart from soap, other products that can be made from eucalyptus oil are aromatherapy candles. The addition of eucalyptus oil to burning candles will add an aroma that can improve physical and mental conditions so that the function of the candle is not only to provide light.[7]

Therefore, the aim of conducting this research is to find out what products can be obtained from processing eucalyptus oil and how these processed products are different from processed products that are usually on the market. Apart from that, the outreach carried out among Wonoharjo Village residents aims to improve the community's skills and understanding in processing and selling soap and candle products made from eucalyptus oil. It is hoped that this will be able to provide a boost to the selling power of community products so as to improve the community's economy.

2. RESEARCH METHOD

The research method used was descriptive qualitative using interview techniques with village leaders. Researchers also conducted field surveys to obtain a mapping of existing problems so that researchers were able to formulate solutions to problems. The next step involves an in-depth analysis of the problems expressed by the partner, then continues with designing appropriate solutions to resolve each identified problem. The practical method was chosen as an alternative for providing training to the community. The training process through practice is carried out through several stages, namely observation/preparation, implementation and evaluation. Finally, a thorough evaluation of the implementation of activities is carried out to ensure that the solutions implemented have a positive impact and meet community needs.

3. RESEARCH RESULTS AND DISCUSSION

Entrepreneurship education is an alternative solution chosen by researchers because it has a holistic nature so it is felt to be effective in dealing with various problems found in the observation process. This method allows people to develop existing potential into new products that have quite prospective business and economic potential. Apart from that, through entrepreneurship education the community can also learn and understand the next process of the production process, namely marketing so that the community has a good strategy so that their products are able to compete in the market and are able to increase the selling value of the product.

The first activity was socialization and training on making natural soap. THE KKN TEAM provides outreach regarding the definition of natural soap, the benefits of natural soap, and the differences between natural soap and soap that contains added chemicals. Soap consists of two types, namely bar soap and liquid soap. In this activity, the KKN TEAM conducted training in making bar soap. The main ingredient in making this soap is sodium hydroxide (NaOH). The formulation for making natural soap in this training activity is coconut oil, olive oil and additional eucalyptus essential oil. Coconut oil and olive oil contain vitamin E and are easily absorbed by the skin so they can maintain healthy skin[8] Olive oil contains oleic acid which functions to moisturize the skin. Soap can be distributed if the quality of the soap meets Indonesian National Standards (SNI) with SNI

number 06-3532-1994[9] Meanwhile, eucalyptus oil has good benefits for the skin, such as preventing bacterial, viral and fungal infections and can soften and smooth the skin.[10] By using essential oils from natural ingredients, it is hoped that this product is safe for use by all groups. Soap making can use cold process and hot process methods, in this activity the cold process method is used. This method can protect the coconut oil, olive oil and eucalyptus oil content from damage due to excessive heating or oxidation due to heat so that the quality of the soap products made is maintained.[11]

The second activity is socialization and training in making natural soap. In this socialization, the KKN TEAM explained the definition of aromatherapy candles, the benefits of aromatherapy candles, and the different types of candles used in making aromatherapy candles. In this activity, soy wax is used as the main ingredient for making aromatherapy candles. Soy wax is a natural wax that produces small amounts of pollutants. Additionally, soy wax burns more slowly and doesn't require as much air[12]. After the training on making natural soap and aromatherapy candles was completed, it was followed by a discussion session. During the discussion, the participants in the demonstration asked many questions related to the use of these products in everyday life.

One of the programs derived from entrepreneurship education is product manufacturing training. This training involves certain community groups so that three stages are required for its implementation, namely the preparation, implementation and evaluation stages[13] In the preparation stage, the UNS KKN Team must make observations first so that training activities can be carried out at the right opportunity. This observation was carried out by recording routine activities in the Wonoharjo Village community and the dates when these activities would be carried out again. The target activity for implementing training activities was the Anjangsana activity carried out by Posyandu cadres in Wonoharjo Village every month. This activity will be held on Tuesday, February 27 2024.

At the implementation stage, the educational methods applied were interactive lectures, discussions and demonstrations. Lectures and discussions were carried out simultaneously while demonstrating the making of aromatherapy soap and candles to the Anjangsana activity participants. By combining these three methods, participants can continue to feel their involvement in the demonstration carried out by the UNS KKN team. Meanwhile, the evaluation stage is carried out at the end of the activity and during the activity. During the activity, residents' reactions and responses, both positive and negative, determine whether the education provided to residents is accepted. The evaluation carried out when the event was finished was measured by the enthusiasm of the Anjangsana participants in using the processed products that had been made during the demonstration.

The stage of making natural soap begins with making an alkaline solution which is done by slowly dissolving NaOH in distilled water. NaOH dissolves easily in water, but an exothermic reaction occurs which gives an increase in temperature. While waiting for the alkaline solution to reach room temperature, the weighed coconut oil and olive oil are mixed. When it is at room temperature, the alkaline solution is added to the mixture of coconut oil and olive oil and then mixed with the help of a hand blender. Mixing is done gradually until the soap solution changes structure to become thick and whitish in color. Then the eucalyptus essential oil is added accompanied by stirring with a spatula, then the water stage is carried out in the form of pouring the soap solution into the mold. The soap solution is then left to harden for 3-4 days. The hardened soap is then removed from the mold and cut and then packaged in wrapping paper and given a sticker. The detailed process formulation consists of NaOH 63 g, distilled water 113 g, coconut oil 205 g, olive oil 220 g.

The next process is making aromatherapy liquid using soybeans as the main ingredient. After that, Eucalyptus oil is used as an additive to essential oils, as well as candle wicks. The tools used are a water bath, melting pitcher, stove, candle glass, wick holder, measuring cup, spatula, and thermometer. In detail, the aromatherapy candle formulation consists of 120 g soy wax and 6 ml eucalyptus essential oil. The process of making aromatherapy candles begins by melting 120 grams

of soy wax for a dose of 2 glasses of wax. Melting the wax is carried out using a double boiler technique to avoid incomplete melting. After it is completely melted, 6 mL of eucalyptus essential oil is added to the wax solution at a temperature of around 60-65°C and stirred until evenly mixed, then left for a moment until the temperature is around 55-60°C. Next, the candle mold container can be prepared first. The candle wick is positioned straight in the middle and is provided with a candle wick support so that the candle wick stands upright. The previously mixed ingredients can be slowly poured into the candle mold. Leave the wax mold to harden for approximately 2 hours, for more complete hardening, around 4-5 hours. Once hardened, the candle wick can be cut to suit the size of the candle mold on the glass. The aromatherapy candle is ready to be used and a sticker is attached around the candle glass.

Eucalyptus through the distillation process will produce oil known as eucalyptus oil. This oil can be used as an essential oil. Eucalyptus oil as an essential oil can be used as an additional ingredient in making natural soap and aromatherapy candles. The socialization activity was held at one of the residents' houses which was attended by PKK members and the Wonoharjo Village community.

4. CONCLUSION

The eucalyptus commodity available in Wonoharjo village is abundant. KTH Wonoharjo Village actively produces eucalyptus oil during the dry season because it is considered to have good quality and yield. Eucalyptus oil production is carried out every day with 3x distillation in each kettle. In just one production kettle, KTH Wonoharjo is able to produce up to 9 kg of eucalyptus oil. However, sales of eucalyptus oil which tend to fluctuate often hamper production. The people of Wonoharjo Village still sell eucalyptus oil as pure oil. The lack of innovation in eucalyptus oil processing could be one of the causes of declining sales. Various processed products have been successfully developed by various parties, with certain modifications it is hoped that sales of eucalyptus oil as a derivative product by KTH Wonoharjo can increase. UNS KKN group 19 carries the theme of optimizing the potential of eucalyptus oil with the hope that sales of eucalyptus oil will not collapse even though it is not in the production period. One example is that eucalyptus oil can be used as an additional ingredient as an essential oil in the process of making natural soap and aromatherapy candles. These two products can become one of the MSME products as a promising business opportunity for the local community. It is hoped that the training activity in making natural soap and aromatherapy candles can increase the community's understanding and skills in utilizing the potential of the eucalyptus plant which is often found in Wonoharjo Village. Apart from that, through this activity it is hoped that the economy of Wonoharjo Village can develop further.

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