The Effect of Olive Oil Composition on The Staining Quality of Klowong Batik Wax

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Abstract. Batik is visual art that integral to the cultural identity as well as illustrates the life values upon which the life of the community is laid. It uses a technique of wax-resist dyeing applied to whole cloth. This research aims to know the composition of olive oil that required on batik Klowong and to know its effect on the results. The research used both qualitative and quantitative methods such as ingredients measurement technique, questionnaire distribution and voter calculation. The wax for batik Klowong consists of olive oil, resin, and white paraffin. The beeswax is an independent variable that is varied in the composition for five different samples (10 grams, 20 grams, 30 grams, 40 grams, 50 grams). The sharpness of the motifs is visually analysed by six respondents. The results showed that sample D and E have better quality than the other samples. While sample A has the highest level of motifs sharpness.

1. Introduction
Batik is a cultural heritage of Indonesia is undoubtedly authenticity, as evidenced by the award of batik as one of the world cultural heritage produced by the Indonesian nation by UNESCO on September 28, 2009 [1]. The term Batik comes from the Javanese vocabulary that is Amba and Titik. Amba means cloth and point is a way of giving motifs on fabric by using liquid wax by means in dots [2]. Batik work is basically cover the surface of the cloth with liquid (wax) so that when the cloth is dyed into the dye liquid, the cloth closed the wax does not come into contact with the color [3]. If the process of making batik motif is done by "written" by using a tool called canti ng, then batik is called batik [5].

The batik wax is a material used to cover the surface of the fabric according to the image of Batik Motif so that the closed surface has the properties of resist or reject the color given on the fabric. Initially, the material used to cover the cloth is a slurry of glutinous rice, and the fabric is made of this called Simbut cloth [6]. After the discovery of batik candles, glutinous rice is not used anymore. The key ingredients of wax are Gondorukem, cat's resin, paraffin (white and yellow), Micro wax, animal fat, coconut oil, candle (evening) wasp, and candle lancing. The number of basic materials used and comparison are various, in their experience. So the batik candle is already a combination of waxes. In the beginning batik candles made only from wasp wax only (people call it Javanese batik wax or wasp wax), then because of increased experience then mixed with Gondorukem and resin cat eyes [7]. Then to relax or lower the melting point then mixed with animal fat or coconut oil [4].

So far, people only know the process of batik and batik candles alone without knowing the influence of the composition of batik wax itself to the results of batik. For that, this research is done so that people know more about the influence of batik wax composition and more focused on the influence of the wasp wax which is one of the batik waxes [7], [8]. The purpose of this research is to know the composition of the wax needed on batik Klowong and what influence the composition of wax on the quality of batik result [9], [10].

2. Method
2.1 Tools
The tools used for the experiment are:

Making batik patterns consisting of pencil, Mori cloth commonly used for batik. Then, making a sample wax experiment consisting of the wok (to heat the wax), stove, mixer, place/mold to accommodate wax samples. After that, making batik with tools Canting Klowong, Pan, Stove. And then, make batik coloring with dye Basin (bucket) for the dye container, Large frying pan, Glass beaker.

2.2. Materials

Materials used for this experiment are:

Sample recipe:

Sample A :
- 20 gr cat’s eye resin.   - 40 gr Gondorukem.
- 10 gr white paraffine. - 30 gr wasp wax.

Sample B :
- 20 gr cat’s eye resin.   - 40 gr Gondorukem.
- 10 gr white paraffine. - 10 gr wasp wax.

Sample C :
- 20 gr cat’s eye resin.   - 40 gr Gondorukem.
- 10 gr white paraffine. - 20 gr wasp wax.

Sample D :
- 20 gr cat’s eye resin.   - 40 gr Gondorukem.
- 10 gr white paraffine. - 40 gr wasp wax.

Sample E :
- 20 grams of cat’s eye resin. - 40 gr Gondorukem.
- 10 gr of white paraffin. - 50 gr wasp wax.

To create 5 (five) prescription samples wax is then required materials as much as:
- 100 g of cat’s eye resin (@sample = 20 gr).
- 200 g Gondorukem (@samples = 40 grams).
- 50 gr of white paraffine (@sample = 10 gr).
- 150 gr wasps wax (different each sample). Naphtol AS. OL and Scarlet Salt GG for coloring
- Coldwater

2.3. Experiment Steps

The step of the experiment is the steps taken from the preparation of raw materials to be something that can be observed in accordance with the desired results. In each process, there are individual stages. For more details about the experimental steps of this study can be seen in Figure 1 below.

![Figure 1. Flow Diagram of the Research Process](image-url)
3. Results and Discussion

3.1. Test of Candle Samples

This study aims to obtain a sample with the right composition for the type of batik klowong with the pattern of lines and dots. The parameter used in this research is the composition of wasp night. To obtain the objective it must create several sample compositions with different wasp tonnes - each sample. The samples made in this research are 5 (five) samples. The materials used to make an evening consist of cat's resin, gondorukem, white parade and wasp night. Each material has its own characteristics and functions. Resin of a cat's eye when viewed from its shape like a slightly brownish and textured glass is a bit hard as a rock sugar. If heated, the cat's resin will quickly melt and form a thick brownish liquid texture.

![Figure 2](image.png)

**Figure 2.** Special Treatment of Candle Samples.

While Gondorukem when viewed from its shape like clear glass yellow and very hard textured like glass. If heated gondorukem same as cat’s eyes resin that will form a slightly thick yellow liquid. Furthermore, white paraffine which, when viewed from its shape like a normal wax white and slightly textured soft. If heated it will be a little liquid and clear like oil. The latter is a wasp wax which, when viewed from its shape like a textured tree sap, is very soft and sticky brown almost to the yellow. If heated the evening wasps will form a slightly thick liquid brown. The wasp's night is a bit hard to melt because of its soft, sticky texture.

Each wax sample has special treatment during batik process so that the result is as expected. Based on the observation, special treatment to be done on the wax sample can be seen in Figure 2 above. The treatment on each sample should be adjusted to the properties of each material. To obtain a good batik result, special treatment should be done so that the quality of candle samples remain good and not easily damaged. If the wax samples are treated incorrectly, the wax sample may not be good anymore, so it will affect the result of the batik.

One characteristic of a waxy sample that is not good can be seen from the color that is different from the first usage is blackish brown. Wax samples are continuously heated using a large fire can cause the
color change. Wax samples that are not good anymore can still be used but will look the difference in the process of batik. From the wax sample test it can be concluded that the wax sample E is the best wax sample among the others. This is because the wax sample has a composition.

| Table 1. Non-microwax Color Differences Test Result ( %) |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| No. | Sample code | Test Value | Color Difference | |
|     | Non Microwax | L* | a* | b* | dE*ab |
| 1   | 100,23       | 0,11 | 0,05 | 0,00 |
| 2   | A            | 82,25 | 4,09 | 9,99 | 13,12 |
| 3   | B            | 98,59 | 1,02 | 6,41 | 7,03 |
| 4   | C            | 89,83 | 7,52 | 10,53 | 14,29 |
| 5   | D            | 98,51 | 4,20 | 6,51 | 9,34 |

Test the color difference with the composition without using Microwax (non microwax) can be seen in Table 1. In L* of the A-D sample has a temporary increase in a* of the A-D sample the test results are up and down. While the b* of the A-D sample also experienced the same thing that is the result up and down and for dE* ab from the A-D sample of color difference test results have increased. Therefore, batik wax is considered as the main material to make batik, especially for handmade batik in which the pattern and carve applied directly by the artisans. Thus the results showed that non microwax can be used to substitute the function of beeswax with appropriate composition. The generally test value color difference result relative minim but have been excellent because full dynamics and fluctuating.

Relation between Candles using Olive Oil with Color Differences Test Result

Figure 3 above shows the results of testing different colors by using micro wax. From the graph shows the value of different color test decreased, the decline in the numbers here show the color tested darker as the decline in test numbers. Testing the color difference there is a scale that is from the scale of 0-100, the number approaching the number 100 means brighter so vice versa close to the number 0 means the dark. This shows the more micro wax used by the different color values are getting lower/darker.
4. Conclusion

From research and study done then it can be concluded that:

1. The more the olive oil composition is used, minimizing the temperature of the melting point during the process of melting the raw materials into the wax.
2. The more olive oil composition used in the sample the clearer and softer the evening results when viewed visually.
3. From the test results, the more the composition of olive oil does not make the better the quality of the wax. The best wax quality is obtained on samples with the least amount of olive oil.
4. The composition of olive oil should be balanced with other ingredients in order to produce the best quality

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