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Comparison of Cotton Fabric Dyeing Intensity with Rice Field Clay (*Liek*) and Land Cliff (*Liek*)

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ABSTRACT
The use of natural clay materials as textile coloring as an effort to restore the use of environmentally friendly natural dyes and abandon the use of synthetic dyes that are dangerous because they can pollute the environment and have an impact on humans in textile coloring. This study aims to describe the coloring results of natural coloring, namely rice field liek soil and cliff liek soil, as well as the color intensity/dark light color produced using tunjung mordant on the results of cotton fabric coloring with different soaking times. The approach used is an experiment with a data collection technique using a questionnaire from 15 panelists, for the results of color intensity/dark light color (Value), the resulting color is not significant at a significance level of 0.439> 0.05. This means that there is no significant difference due to the type of clay used in soaking cotton materials with rice field liek soil and cliff liek soil.

KEYWORDS

Comparison, Color Intensit,
Cotton fabric, Rice field liek (clay),Land liek Cliff.

INTRODUCTION

Currently, there are still many batik and textile craftsmen who use artificial dyes or synthetic dyes as coloring. This is because synthetic dyes have several advantages such as easy or practical use. Synthetic dyes have a diverse collection of colors, affordable prices, are also easy to obtain, are resistant to environmental conditions and are fade resistant. On the other hand, synthetic dyes have a negative or bad side for soil, water and the environment.

Textile dyes are all colored substances that have the ability to absorbed by textiles. According to Sunarto (2008:155), "Dyes are all colored substances that have the ability to be dipped into textile fibers and have color fastness properties. Based on their sources, textile dyes can generally be divided into two, namely natural dyes and synthetic dyes. The use of natural dyes will anticipate environmental pollution and minimize environmental pollution that will occur.

Clay has benefits to be used as a natural dye, usually natural dyes use textile materials that also come from natural fibers and have quite high absorption, such as wool, cotton or cotton and mori. Dyeing that has good quality usually uses mordant as a color enhancer. The mordant used by researchers is tunjung mordant. The mordanting process functions to produce color intensity and can increase the absorption of materials to dyes.

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Batik coloring with soil, especially West Sumatran liek soil, is an icon of West Sumatran batik art. Many people do not know which clay is suitable for use as a coloring material and what the contents are in the clay. Generally, in the past, the clay that was often used in West Sumatra was rice field liek soil and cliff liek soil and the colors produced were different. Because it is difficult to get clay as a natural dye, many craftsmen use clay from rice field liek soil and cliff liek soil. In addition, although clay has become an icon of batik dye in West Sumatra, there are still many who have not used clay as a fabric coloring in the batik industry in West Sumatra and still use synthetic colors as batik coloring, this is partly because they do not understand the natural coloring process with rice field clay or cliff clay, and how dark and light (value) / color intensity produced by coloring from rice field clay or cliff clay. Therefore, researchers want to see the clay coloring process and see the difference in the coloring results of rice field liek soil and cliff liek soil. Based on this background, the researcher has conducted a study entitled "Comparison of Cotton Fabric Dyeing Intensity with Rice field Clay (*Liek*) and Land Cliff Clay(*Liek*).

METHOD

This type of research is experimental research. The data collection technique used is a questionnaire from 15 panelists. The object of this study is the result of a comparison of the intensity of dyeing cotton fabric with rice field soil and cliff soil. The data analysis technique is processed using the *Friedman K-related sample test*.

RESULT AND DISCUSSION

Description of the Results of Cotton Fabric Dyeing with Natural Dye from Rice field *Liek* (Clay) and Land *Liek*(Clay) Cliff. Based on an interview with the owner of Putiandam batik, it was stated that "The process of dyeing cotton cloth with liek soil, starts from the cotton cloth that is soaked first with TRO for 10-15 minutes so that the fabric fibers are not stiff, then the liek soil is cleaned from roots, stems or leaves, and given water with a ratio of 2: 1 clay, then the cloth is put into the tunjung mordan and soaked for 1 night. After the cloth is soaked for 1 night with the mordan, the cloth is lifted and dried in the sun until dry, after drying, the cloth is soaked with clay with a predetermined soaking time, then the soaked cloth is lifted and dried, after drying the cloth is put into the tunjung fixation". For the size of the cotton cloth in this study using a size of 25 x 25 cm, a total of 8 pieces of cloth, of which 4 cloths are for coloring with rice field *liek* soil and 4 more cloths for coloring with cliff *liek* soil.

Figure 1. Results of Soaking Cotton Cloth in Clay

From the results of the study, the general analysis variables are variable X is the dyeing of cotton materials using dyes from rice field and cliff soil extracts with tunjung mordant. While the variable Y of the research results is the dyeing result in the form of color intensity, color name (hue). The data obtained are the answers to the questionnaires that have been distributed to the panelists. The addition process is carried out by giving a score to each indicator for each variable and filled in by the panelists. Here's how to see the dyeing results and color names along with the RGB color

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codes produced using the Colorblind Assistand computer application. Here are the color results and color names using the *Colorblind Assistand* application:

During 1 day of soaking, 4 panelists stated the color was Light Brown with the code (R216, G188, B140) with a frequency of 26.66%, as many as 9 panelists stated the color was Light Brown with code (R224, G189, B120) frequency 60%, and 2 panelists stated the color of Wheat Light Brown with code (R243, G213, B159) frequency 13.33%. From the assessment above, it can be concluded that coloring of rice field liek soil for 1 day produces Light Brown color with code (R224, G189, 8120) frequency 60%.

Soaking cotton cloth with rice field soil for 3 days 12 panelists stated the color Light Brown and with color code (R223, G188, B122) frequency 80%, as many as 3 panelists stated the color Light Brown with color code (R234, G207, B154) frequency 20%. From the panelists' assessment above, it can be concluded that coloring rice field soil for 3 days produces Light Brown color with color code (R223, G188, B122) frequency 80%.

Soaking cotton cloth for 5 days, 4 panelists stated the color Light Brown with color code (R 227, G204, B150) frequency 26.66%, while 11 panelists stated the color Light Brown with color code (R223, G188, B122) frequency 73.33%. From the panelists' assessment above, it can be concluded that coloring the rice field liek soil for 5 days produces Light Brown color with color code (R223, G188, B122) frequency 73.33%.

Meanwhile, soaking cotton cloth with rice field soil for 10 days, 5 panelists stated the color Light Brown with color code (R218, G183, 8117) frequency 33.33%, 9 panelists stated the color Golden Sundane with color code (R194, G162, B103) frequency 60%, while 1 panelist stated the color Dark Salmon Pink with color code (R205, G174, B119) frequency 6.66%. From the panelists' assessment above, it can be concluded that the results of dyeing cotton cloth with rice field soil for 10 days produced the color Golden Sundane with color code (R194, G162, B103) frequency 60%.

From the research results it can be explained that soaking cotton material using liek cliff soil using tunjung mordant states the color name (hue) on soaking for 1 day 8 panelists stated the color Light Brown with code (R220, G194, B133) frequency 53.33%, as many as 2 panelists stated the color Light Brown with code (R220, G195, 8138) frequency 13.33%, and 5 panelists stated the color Light Brown with code (R232, G207, B150) frequency 33.33%. From the assessment above it can be concluded that the color produced by liek cliff soil for 1 day is Light Brown with color code (R220, G194, B133) frequency 53.33%.

Soaking cotton cloth with cliff liek soil for 3 days 1 panelist stated the color Light Brown with color code (R214, G194, B135) frequency 6.66%, as many as 10 panelists stated the color Light Brown with color code (R232, G207, B150) frequency 66.66%, as many as 4 panelists stated the color Light Brown (R218, G119, 8146) frequency 26.66%. From the panelist assessment above, it can be concluded that the color produced by cliff liek soil for 3 days is Light Brown with color code (R232, G207, B150) frequency 66.66%.

Soaking cotton cloth for 5 days, 13 panelists stated the color Light Brown with color code (R232, G207, B150) frequency 86.66%, as many as 1 panelist stated the color Light Brown with color code (R211, G193, B139) frequency 6.66%, while 1 panelist stated that the resulting color is Clamm Shell Pink with color code (R213, G196, B150) frequency 6.66%. From the panelist assessment above, it can be concluded that the results of dyeing cotton cloth with liek cliff soil for 5 days produced a Light Brown color with color code (R232, G207, B150) frequency 86.66%.

Meanwhile, soaking cotton cloth with cliff liek soil for 10 days, 1 panelist stated the color of Clamm Shell Pink with the color code (R209, G193,8149) frequency of 6.66%, as many as 14 panelists stated the color of Light Brown with the color code (R229, G207, B149) frequency of 93.33%. From the results of the panelist assessment above, it can be concluded that dyeing cotton cloth with cliff liek soil for 10 days produces a Light Brown color with the color code (R229, G207, B149) frequency of 93.33%.

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Table 1. Descriptive Statistics of the intensity of color/darkness/lightness of the color produced by rice field soil and cliff soil after 10 days of soaking.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Standardized Residual for sawah	15	.0000	1.00000	-2.15	.88
Standardized Residual for tebing	15	.0000	1.00000	-1.69	1.93

Based on the table above, it can be explained that from the research data on 15 panelists, the following mean values were obtained: soaking with rice field loam soil got an average of 0.0000, soaking with cliff loam soil got an average of 0.0000.

Table 2. Color intensity or light and dark color produced by rice field soil and cliff soil after 10 days of soaking.

Test Statistics[a]

N	15
Chi-Square	.600
df	1
Asymp. Sig.	.439

a. Friedman Test

The table explains that the Friedman K-Related Sample test of the dark color intensity produced by the rice field and cliff soil with a soaking period of 10 days obtained a significant value of 0.439, which is greater than the significance level of 0.05 or 0.439>0.05. This means that there is no significant difference due to the type of clay used in soaking cotton materials with rice field and cliff soil.

Cotton fabric dyeing with rice field liek soil after soaking for 1 day produces Light Brown color with color code (R224, G189, B120) frequency 60%, in cotton fabric dyeing with cliff liek soil produces Light Brown color name with color code (R220, G194, B133) frequency 53.33%. In 3 days soaking produces Light Brown color with color code (R223, G188, B122) frequency 80% for rice field liek soil dyeing, and produces Light Brown color.

With color code (R232, G207, B150) frequency 66.66%. In 5 days of immersion produced the color name Light Brown with color code (R223, G188, B122) frequency 73.33% for coloring liek paddy soil, and produced Light Brown color with. color code (R232, G207, B150) frequency 86.66% for liek cliff soil. In 10 days of immersion produced Golden Sundane color with color code (R194, G162, B103) frequency 60% for coloring liek paddy soil, and produced Light Brown color with color code (R229, G207, B149) frequency 93.33% for coloring liek cliff soil.

The dark and light colors with a soaking time of 1 day produce a color that is not dark enough with a frequency of 60% in dyeing cotton material with rice field liek soil, and in dyeing cotton material with cliff liek soil it produces a dark color with a frequency of 66.66%. For 3 days of soaking in dyeing cotton material with rice field liek soil it produces a fairly dark color with a frequency of 86.66%, and for dyeing cotton material with liek sungai soil produces dark color with a frequency of 53.33%. For 5 days of immersion in dyeing cotton material with liek sungai soil produces dark color with a frequency of 53.33%, and for dyeing cotton material with liek sungai soil produces quite dark color with a frequency of 53.33%. In 10 days of immersion produces very dark color with a frequency of 46.66% for dyeing cotton material with liek sungai soil in dyeing cotton material with liek sungai soil produces quite dark color with a frequency of 60%.

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CONCLUSIONS

Comparative analysis of the intensity of coloring of rice field and cliff soil. Based on the results of the analysis of the Friedman K-related sample test for the results of color intensity or dark and light colors (Value), the resulting color is not significant at a significance level of 0.439>0.05. This means that there is no significant difference due to the type of clay used in soaking cotton materials with rice field and cliff soil).

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