



# Natural Coloring Process Tie-Dye Tritik Combination Smock Technique In Children's Clothing Making

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**Abstract.** Coloring is a technique of transferring color on a medium, either fabric, paper, as well as other objects that can absorb color. The coloring of the Japanese smock technique and the tie-dye technique, if they are combined in a fabric coloring process will produce new technology in the field of textiles that produce new pattern designs that are creative and innovative. The purpose of this study is: To find out the natural coloring process of the tie-dye tritik combination smock technique in the children's clothing making. The methods used in this coloring process are: 1) Research and Development Method; 2) Data Analysis. The process of making this natural coloring requires 4 trials using 2 types of natural colors with the help of a Validator as an assessor of the results of smock technique. The type of smock used is a Japanese smock pattern and the color chosen in this process is a material that is easy to get and is widely found around the author's environment. After determining the pattern and color used, continued by preparing tools and materials, selecting color materials, making color, making children's clothing. The conclusion that can be taken in the dyeing technique of this smock technique uses a good color locking material, one of which is alum, which has the property of binding color to the fabric.

**Keywords:** Coloring, Smock, Tie-dye, Textile

## 1. INTRODUCTION

Along with the development of science and technology (*IPTEK*), it has a direct impact on various aspects of people's lives, one of which is the development in the fashion world, especially in fashion mode. Fashion is a basic need of every human being, not only functions as a protective device for the human body, but also functions to beautify the appearance of the wearer. The development of fashion today, everyone is trying to follow these fashion trends. Starting from adults to children. Children are still very sensitive to health, therefore children need safe and comfortable clothes to maintain their health.

Children's clothing cannot be separated from parental supervision so that safe, comfortable clothes are needed and do not interfere children's development. Things that must be considered when choosing children's clothing include materials that do not irritate children's skin. The process of making children's clothing using the smock coloring technique is fairly new and rarely found on the market, and the materials used are safe for children. Human creativity is growing over time. Based on its development, humans are able to make a creation by utilizing a piece of cloth can be used as a creativity that has a high selling value. The form of this activity is to explore the coloring technique of smock combined with tie-dye technique.

The coloring of the Japanese smock technique and the tie-dye technique, if it is combined in a fabric coloring process will produce new technology in the field of handicraft textiles, which produces new pattern designs that are creative and innovative. The resulting patterns include geometric patterns and non-geometric patterns that form a certain pattern flow. The color used in the coloring of this smock technique is a natural coloring that is very suitable for making children's clothing and does not cause irritation to children's skin. The use of natural colors is one of the alternatives in protecting the environment, besides that natural colors are easy to get in the surrounding environment. Textile materials that use natural dyes have a high selling value because they are safe and environmentally friendly.

Textile coloring can be done with several techniques, one of which is by dyeing. This natural coloring is carried out by the plant extraction process for the extraction of colors both hot and cold depending on the type of material used. Plants are one of the natural resources that have the potential to be used as textile color in Indonesia, especially in the development of products with naturalist nuances and can be raw materials for the textile industry that have high economic value. So that the selection and utilization of this color can be applied to the manufacture of *batik*, shibori, tie-dye and various other fabric crafts.

The reason why the author took the title of smock technique coloring is because it will produce new patterns and safe for children since the color used is a natural color. The author choses " Natural Coloring Process Tie-dye Tritik Combination Smock Technique in Children's Clothing Making ".

## **2. LITERATURE REVIEW**

Smock is a technique in sewing skills that transforms a fabric material into the form of an emerging pattern (Loekito, et al. 2004: 3) There are four types of smocks, namely English smocking, Direct smocking, Italian smocking, and Nort American smocking. Meanwhile, according to Haswadi, (2010) Smock is one of the techniques of sewing and hand embroidery, namely the sewing puncture technique to create wrinkles that produce interesting patterns, according to certain design.

According to Ninik Kholifah in the research "The Difference in Smock Pattern Size to the Result of Flower Smocking Variations in Children's Clothing". The results of the research conducted to find out the difference in the results of flower smocking variations in children's clothing can be concluded that the best result between the size of the flower smocking variation pattern of ½ cm, 1 cm, 1 ½ cm applied to children's party clothes is a

smock size of 1 cm because this size is proportional to children's clothing and the smock forms a neat emerging pattern.

According to Firqi Rohmatillah and Drs. Ec. Mein Kharnois, M. SM Fashion Education, Faculty of Engineering, State University of Surabaya." Kindergarten Parents' Interest in Children's Party Clothes Made of Jacquard". Floral patterns are more in demand with a review of the pattern aspect, materials with floral patterns are patterns that are safe to use. From the design, it does not need to add excessive accessories that can interfere children's activities, because floral patterns already have full patterns. Floral patterns have a firm pattern, and a pattern that is not influenced by the times.

According to Suryawati Ristian, Irianti Nugraha. 2014. Craft and batik center, this activity is a combination of two existing techniques, namely the Japanese smock technique and the tie-dye Tritik technique from Java which produces a new technique, namely the ringkel technique. The patterns produced from this activity are 23 ringkel pattern designs and prototypes of medium material products. The dye used in the exploration of the tie-dye combination smock technique is the synthetic dye indigosol. Among the several types of materials that were tested, the most optimal produced different patterns. In general, the fabric resulting from the tie-dye tritik combination smock dyeing technique has good color fading resistance to washing, sweat, and light with a test value of 4-5.

Children's clothing can be classified by age, including: Toddler clothing aged 1 -3 years. Clothing for preschool children aged 3 -5 years (toddlers). School children's clothing for 6-12 years old (Hasanah, 2011: 23). Children's clothing requirements are basically talking about the quality of children's clothing itself.

Natural dyes are an alternative to dyes that are non-toxic, renewable, easily degradable and environmentally friendly (Yernisa, et al., 2013). Textile dyeing can be done with several techniques, one of which is by dyeing. This natural coloring is carried out by the plant extraction process for the extraction of dyes both hot and cold depending on the type of material used. Plants are one of the natural resources that have the potential to be used as textile dyes in Indonesia, especially in the development of products with naturalist nuances and can be raw materials for the textile industry that have high economic value. So that the selection and utilization of this dye can be applied to the manufacture of batik, sibori, tie-dye and various other fabric crafts.

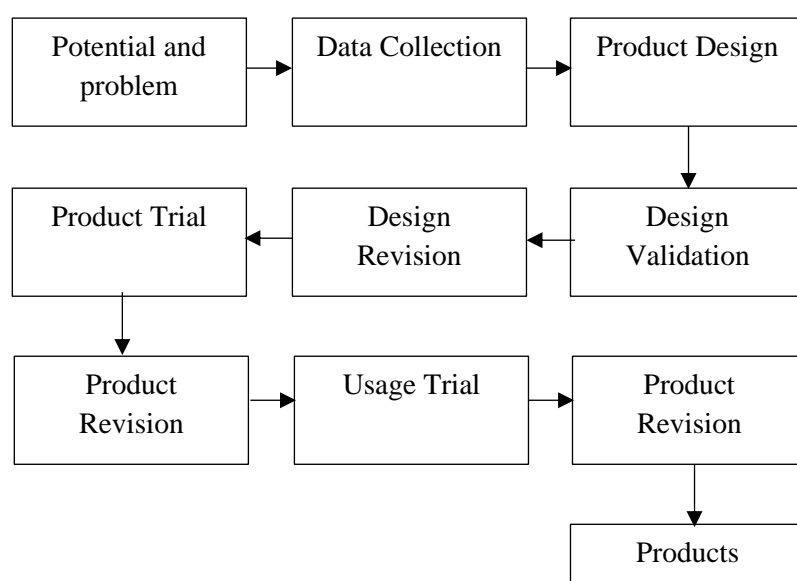
Research conducted by Okoli (2023) says that In some cases, various fabric decoration methods can be combined on certain fabrics to create multiple and complex designs. More

often, the tie-dye decoration method is possible used as the background (basis) for design because of its simple application.

### 3. METHODS

According to Sugiyono (2018: 311) Research and Development (R&D) is a research method used to produce a specific product, and test the effectiveness of that product. Based on the above understanding, it can be concluded that research and development is a method to produce new products or improve existing products, as well as test the effectiveness of these products.

The Following are the steps of R and D Method:



**Figure 1.** Steps of R&D Methodology

Source: Sugiyono. 2016. *Research methodology Quantitative, qualitative and R&D approaches*.

*Alfabeta: Bandung*

- a. The potential and problem in this study is how to use the right coloring technique in making colors in children's clothing. Proper coloring techniques will produce nice and beautiful colors.
- b. In collecting data in this scientific work, the author collects various data about this research from various existing sources. The following are the data collection techniques used:
  - 1) Literature Method, the author collects data and information about the use of natural colors from various existing sources, can be sourced from books, articles, library materials and the internet;


- 2) Observation Method, The author in this observation method has made direct observations at *batik* production houses using natural colors and there are colors that will be used by the author to make the smock coloring technique;
  - 3) The Documentation Method, the documentation method carried out by the author, is taking pictures of various activities carried out in the process of making the process of coloring the smock technique on children's clothing.
- c. Product Design. The design that is made by the author is a children's dress in the shape of an A line, using a collapsed collar.
  - d. Design Validation. The author validated the design with the Fashion Design Lecturer by submitting 3 children's fashion designs. After validating the design, the author gets some input to improve the design so that it will match the product to be made.
  - e. Design Revision. The author made improvements to the children's fashion design that was even simpler by adding details of the collapsed collar and the shape of the A-line skirt.
  - f. Product Trial, Product trial was carried out 4 times. Experiment with the coloring technique using natural colors to get better results.
  - g. Product Revision Trials carried out by the author several times and must revise the product. The tests carried out must pay attention to the composition of materials and coloring techniques in order to produce colors and smock patterns that are in accordance with the desired and the results are good.
  - h. Usage Trials, tests in research under real conditions. When shortcomings or obstacles arise to make further improvements and continuously.
  - i. This Product Revision is carried out if in real conditions of use there are shortcomings and weaknesses in the usage test, it is better to make the product always evaluated how the product performs. The manufacture of this product is carried out if the product that has been tested is declared suitable for production, the product can also be mass-produced.


Data Analysis, Analysis in this final project is the process of making dyeing using natural materials in the environment around the author, this coloring process requires several dyeing times to get the desired color.

#### 4. RESULTS


The author chose 2 dye materials and the author conducted 4 tests on the color, this aims to get maximum results.

**Table 1.** The First Trial of Indigo and *Tarum*

No	Material	Composition	Steps	Result
1.	Indigo / <i>Tarum</i>	1:1:100gr Alum	<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare the indigo solution</li> <li>• Dip the smock cloth in indigo solution</li> <li>• Do some dyeing until you get the color you want</li> <li>• Dry the colored fabric</li> <li>• Do 4 dyeing until you get the desired color</li> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the colored fabric</li> <li>• Dry the cloth that has been dipped in alum</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of indigo coloring with a ratio of 1:1:100 gr produces a blue color.</li> <li>• Indigo extract absorbs well on fabrics, but it takes a long time to get the desired color.</li> <li>• The resulting color is not yet in accordance with the author's wishes, because the desired smock pattern is not visible / does not appear.</li> <li>• The color produced after locking using alum does not fade.</li> </ul> 
2	<i>Secang</i>		<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare the <i>secang</i> solution</li> <li>• Dip a smock cloth in the <i>secang</i> solution</li> <li>• Do some dyeing until you get the color you want</li> <li>• Dry the colored fabric</li> <li>• Do 4 dyeing until you get the desired color</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of <i>secang</i> coloring with a ratio of 1:1:100gr produces a red color.</li> <li>• <i>Secang</i> extract absorbs well on fabrics, but it takes a long time to get the desired color.</li> <li>• The resulting color is not yet in accordance with the author's wishes, because the desired smock pattern is not visible / does not appear.</li> <li>• The color produced after locking using alum does not fade.</li> </ul>



			<ul style="list-style-type: none"> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the colored fabric</li> <li>• Dry the cloth that has been dipped in alum.</li> </ul>	
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**Table 2.** Second Trial of Indigo and *Secang*

No	Material	Composition	Steps	Result
1	<i>Tarum</i> and <i>secang</i>	1:1,5:100 gr alum	<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare the <i>secang</i> solution</li> <li>• Dip a smock cloth in the <i>secang</i> solution</li> <li>• Do some dyeing until you get the color you want</li> <li>• Dry the colored fabric</li> <li>• Do 5 dyeing until you get the desired color</li> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the colored fabric</li> <li>• Dry the cloth that has been dipped in alum</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of <i>secang</i> coloring and indigo with a ratio of 1:1,5:100gr produces a faded blue color.</li> <li>• <i>Secang</i> and indigo extracts absorb well on fabrics, but it takes a long time to get the desired color.</li> <li>• The colors produced are in accordance with the author's wishes, with patterns that have appeared.</li> <li>• The color produced after locking using alum fades slightly.</li> </ul> 


**Table 3.** Third Trial of Indigo and *Secang*

No	Material	Composition	Steps	Result
1	<i>Indigo</i> and <i>secang</i>	1:2:100gr alum	<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare a solution of <i>secang</i> and</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of <i>secang</i> and indigo coloring with a ratio of 1:2:100gr produces a dark blue color.</li> <li>• <i>Secang</i> and indigo extracts absorb well</li> </ul>

			<p>indigo according to the dosage</p> <ul style="list-style-type: none"> <li>• Dip the smock cloth in a solution of <i>secang</i> and indigo</li> <li>• Do some dyeing</li> <li>• Dry the colored fabric</li> <li>• Do 5 dyeing until you get the desired color</li> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the cloth in an alum solution</li> <li>• Dry colored fabrics</li> </ul>	<ul style="list-style-type: none"> <li>• The colors produced are in accordance with the author's wishes, with patterns that have appeared.</li> <li>• The color produced after the lock was carried out using faded alum and the color produced was not in accordance with the author's wishes.</li> </ul> 
2	<i>Secang</i>	1:1:100gr alum	<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare the solution of <i>secang</i> according to the dosage</li> <li>• Dip a smock cloth in a slab solution</li> <li>• Do some dyeing</li> <li>• Dry the colored fabric</li> <li>• Do 5 dyeing until you get the desired color</li> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the cloth in an alum solution</li> <li>• Dry colored fabrics</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of <i>secang</i> coloring with a ratio of 1:1:100gr produces a faded maroon color.</li> <li>• <i>Secang</i> extract absorbs well</li> <li>• The colors produced are in accordance with the author's wishes, with patterns that have appeared.</li> <li>• The color produced after locking is used to fade and the resulting color fades.</li> </ul> 



**Table 4.** *Secang* Fourth Trial

No	Material	Composition	Steps	Result
1	<i>Secang</i>	1:1:100gr alum	<ul style="list-style-type: none"> <li>• Prepare the mori cloth that has been smocked</li> <li>• Prepare the <i>secang</i> solution</li> <li>• Dip a smock cloth in a slab solution</li> <li>• Do some dyeing until you get the color you want</li> <li>• Dry the colored fabric</li> <li>• Do 6 dyeing until you get the desired color</li> <li>• After that, remove the thread on the smock cloth</li> <li>• Soak the colored fabric</li> <li>• Dry the cloth that has been dipped in alum</li> </ul>	<ul style="list-style-type: none"> <li>• Extract of <i>secang</i> coloring with a ratio of 1:1:100gr produces a maroon color.</li> <li>• <i>Secang</i> extract absorbs well on fabrics, by performing several dyeing</li> <li>• The colors produced are in accordance with the author's wishes, with patterns that have appeared.</li> <li>• The color produced after locking using alum does not fade.</li> </ul> 

Based on the results of trial 1, trial 2, 3 and trial 4, the author can conclude that the results of dyeing using natural dyes require several dyeing times and must pay attention to the technique, the amount of dye material and the fixation dose in order to get good color results. The result of 4 trials that have been made by the author is to use *Secang* coloring because the colors and patterns produced are more visible.

According to Gloria Panji, in trial 1 and trial 3, coloring using indigo paste and *secang* produced good colors, but the pattern did not appear. Trial 2 and trial 4 of the desired smock pattern are already visible, it's just that in trial 2 the color is too faded. Coloring trials with the smock technique require a gradual process, therefore when doing the coloring process, you must pay attention to good coloring techniques in order to get better results.

Lina Martina argues that if the use of alum and lime is too much, it will affect the color results, *secang* and indigo used as natural coloring materials must be stored in a cool place. The results of indigo coloring after drying, the resulting smock pattern is not so

visible, therefore we must pay attention to the coloring process, while the coloring using the smock pattern is clearly visible.

Yuli Indras Tuti as a Shibori craftsman argues that in the dyeing process, the smock technique with natural dyeing materials requires several dyeing times to get a good color, so it requires precision and patience in the dyeing process with natural dyes. The results of the trials that have been made using slab produce better colors and more visible smock patterns.

## **5. DISCUSSION**

Indonesia is a country with diverse cultures and crafts, many crafts in Indonesia, one of which is batik. Based on its development, humans are able to make a creation by utilizing a piece of cloth can be used as a creativity that has a high selling value. For example, ribbon embroidery, batik, tie-dye, yarn fixtures, smocks and so on. The form of this activity is to explore the coloring technique of smock combined with tie-dye technique. The process that must be passed in this research is the first to determine the smock motive. The author in this study chose a Japanese smock as a research material because of the Japanese smock pattern. In addition, the Japanese smock pattern can be used as children's clothing that is suitable for marketing in the community.

The color that will be used comes from the sappang wood plant (*secang*). This is done because of the many secang plants around the writer's residence. The production cost is low, the color result can be adjusted and the process is relatively easy. The process of making natural dyeing requires a mordanting process on the fabric so that the color extract can be absorbed optimally. The mordanting process is the initial process of making dyes to increase the absorption of dyes to textile materials and is useful for producing good color flatness and sharpness in the dyeing process.

The second step is the coloring of the material that will be used as a color for the smock technique, namely: sappang wood and indigo or tarum. Colors can be applied to fabrics by extracting natural materials. The process of extracting colors aims to obtain the essence contained in plants and dyeing materials. After the coloring process is complete, the next step is fixation on the alum solution, which is the process of dyeing the fabric that has been dyed in the alum solution. The result of 4 trials that have been made by the author is to use sappang dye because the colors and patterns produced are more visible.

## 6. CONCLUSION

The conclusion that the author got based on this study is: The processing of natural colors as colors for smock techniques is carried out starting from the fabric mordanting process to the smock dyeing process. The results of natural coloring as a natural coloring material with alum as a fixation material with 4 trials. After conducting a trial with maximum results, namely maroon with the desired smock pattern, then the trial was applied to a piece of cloth and used as a children's fashion product.

Based on the results of the research that has been carried out, there are several suggestions that can be given for follow-up in the form of:

- a. The author hopes that the smock pattern in this study can be developed again by readers in order to get a new pattern.
- b. The coloring process must pay attention to the ratio of natural colors and fixation materials in this dyeing process in order to get good results.
- c. The process of making a smock should use jeans thread so that the pattern to be produced is more visible.

## LIMITATION

The research that has been carried out by researchers certainly has limitations. These limitations are in the form of several things, namely:

1. The time required tends to be short so the trials carried out are very limited.
2. The use of the main material of textiles, here the researcher only uses one type of textile material, namely *mori primisima*. It would be nice if there were researchers who would raise this theme to be able to experiment with various other textile materials.
3. The use of materials for colors. The author only uses two materials, namely *secang* wood and indigo or *tarum*. To produce other colors, it would be good if later in further research can experiment with other natural ingredients.
4. The smock technique used is limited, namely only Japanese smock patterns from many existing smok patterns.

Some of the author's limitations do not change from the objectives and problems that exist in this study. This is only a correction so that later it will help further researchers who will raise the theme of this research more easily continue and develop according to the desired level.

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