

Natural Coloring Innovation: Analysis of Ecoprint Process on Leather at NURB Leather Gallery Malang

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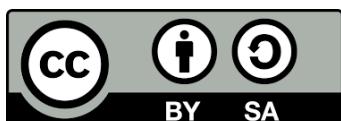
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Abstract

NURB leather gallery is located at Jl Danau Belayan V block C 4D No 1 Malang. Producing ecoprints with leather media whose results are applied in products of various designs of women's bags, wallets, and accessories. This place has never done research about it. This research will focus on: 1) to describe the process of preparing leather media for ecoprint. 2) To describe the process of ecoprinting on leather media. 3) to describe the result of ecoprint on leather media. This research uses a qualitative approach that is described descriptively. Data collection methods in this research are using interviews, participatory observation and documentation. Checking the validity of the data in this study is using the triangulation method. NURB Leather Gallery was established by Nurbeti in 2014. This gallery uses several types of leather, mainly using sheepskin as the main material because it is easy to process in making ecoprints. The leather ecoprint process in this gallery includes six steps. The prints of teak leaves, green castor, cosmos, ulung blood, AMP flowers, cosmos flowers, and red frangipani flowers are clearly visible with sharp leaf veins. Meanwhile, the lanang, vitex, jarak kepyar, red panama, and teak leaves are quite clear, while the curry leaves look faint. Overall, however, the varied combination of print treads makes ecoprinting with leather media unique.

Keywords: Sheepskin, Tread Print, NURB Leather



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INTRODUCTION

Ecoprint is a natural dyeing technique popular in the textile and craft industry, using leaves and bark to create motifs and colors. According to Faridatun (2022), Eco means environmentally friendly while print means printing. So Ecoprint can be interpreted as a printing technique on fabric using natural dyes and creating motifs from leaves manually, namely by taping until the motif appears on the fabric. Ecoprint technique coloring uses natural elements without synthetic materials or chemicals, the basic dyes of ecoprint fabrics are made from the decoction of leaves, bark and logs. That is why this technique is very environmentally friendly and does not cause water, soil or air pollution (Desra Imelda, 2020).

The ecoprint technique is not only limited to fabrics, but can also be applied to various other types of media, such as paper, leather, and ceramics (Nurliana et al., 2021). There are types of fabrics used to make ecoprints including cotton, silk, rayon, and calico (Wahyuni & Mutmainah, 2020). Ecoprint products on fabrics include clothes, mukena, totebags, and so on. For leather, ecoprint is applied to sheepskin and goatskin, which are then processed into various products such as shoes, bags, wallets, and others (Desra Imelda, 2020).

Leather is known as an exclusive material, both in terms of price and characteristics, so it requires special expertise in the design and manufacturing process of its products to maintain the value and quality of the material (Lestari, Susanto, Barriah, et al., 2022). The leather used is animal skin that has undergone a tanning process, which is chemical processing by boiling it using a mixture of materials such as alum, chrome, fat, and coloring agents. Tanned leather that has not gone through the finishing stage has good absorption of tannin color, making it suitable as a medium for ecoprint (Eskak, 2022).

Nurbeti is a batik maker and pioneer as well as an ecoprint developer on Jl Danau Belayan V block C 4D No 1 Malang. She is the owner of NURB Leather Gallery industrial house located at Jl Danau Belayan V block C 4D No 1 Malang. Nurbeti develops the manufacture of textile crafts with ecoprint techniques using fabric and leather media that are diversified into textile products. The designs produced from the ecoprint technique at NURB Leather Gallery are very beautiful, making it very suitable for fashion and other textile products. Not only that, NURB Leather Gallery also applies ecoprint techniques in various media such as fabric and leather. The products produced include a variety of handmade handicraft items derived from fabric, rattan and leather (scarves, bags, key chains, clothes, wallets and accessories).

NURB Leather Gallery Industrial House applies the ecoprint technique using a steaming system with the media used in the form of a steaming device. Steaming is steaming cloth or leather in a pot (Wahyuningtyas, D. T., Sulistyowati, P., & Ain, 2024). Besides being a place for the production of textile crafts with ecoprint techniques, NURB Leather Gallery is also used for training for the surrounding community, starting from mothers, teenagers, and children starting from the age of 7 years.

Based on the description above, researchers are interested in conducting research at the NURB Leather Gallery Industrial House further related to the process of making ecoprint with leather media that has been successfully developed. In this research, the author refers to several relevant previous research results, including research conducted by Tyas Sri Wahyuni and Siti Mutmainah (2020) with the title "Characteristics of Natural Dye Ecoprint Works on Leather at Rumah Batik Hardini Papar-Kediri". The results of this study are motifs that are created to resemble the shape of real leaves and flowers, as well as natural and soft natural colors. In addition, there is research by Atika Maharani (2018) with the title "Motifs and Textile Coloring at Kaine Art Fabric Ecoprint Natural Dye Home Industry". The results of this study show that the motifs produced through the ecoprint technique are influenced by the content of the treatment material and the fixation material used. Another research that contributes to the development of ecoprint techniques is research conducted by Bella Salsabila and Mochammad

Sigit Ramadhan (2018) with the title "Exploration of Eco Print Techniques Using Linen Fabric for Fashion Products" which explores the optimization of eco print techniques on linen fabrics and their application in making fashion products.

Some of the above studies have similarities or links with this research, especially in its discussion of ecoprint technique as a natural coloring method that utilizes natural elements, such as leaves and flowers to create distinctive motifs. The difference lies in the focus of this research, which is the use of sheepskin as the main media in the Industrial House of NURB Leather Gallery Malang City, with a broader scope that includes the preparation of materials, the ecoprint process, to the analysis of the results of ecoprint prints on leather media. This approach not only contributes theoretically, but also provides practical solutions for the development of the leather-based ecoprint industry.

Based on the description above, the researcher is interested in conducting further research at NURB Leather Gallery with the title "Natural Coloring Innovation: Analysis of Ecoprint Process on Leather at NURB Leather Gallery Malang". With this research, it is hoped that it can contribute to the development of textile crafts with ecoprint techniques. The objectives of this research are; 1) To find out how the process of preparing leather media for ecoprint. 2) To find out how the ecoprint process on leather media. 3) To find out how the results of ecoprinting on leather media.

RESEARCH METHODS

The research approach used is qualitative with descriptive explanations. Qualitative research aims to deeply understand the phenomena experienced by research subjects, including behavior, perceptions, motivations, and actions (Sidiq et al., 2019). This research was conducted at the NURB Leather Gallery Industrial House owned by Nurbeti, whose full address is on Jl Danau Belayan V block C 4D No. 1 Malang.

Data source refers to the party or subject where information is obtained (Toenlione, 2021). Researchers use interviews as a data collection method, data sources are called respondents, namely individuals who provide answers to questions from researchers (Sidiq, Choiri, and Mujahidin 2019). Researchers also used observation techniques. According to Sidiq, Choiri, and Mujahidin (2019) Observation involves the act of seeing, observing, and observing behavior in a structured manner, and recording it for predetermined purposes. Researchers conducted participatory observations to gain in-depth insight into the experiences and perspectives of the observed objects. Participatory observation is effective for understanding social interactions and group dynamics (Pratiwi et al. 2024). Researchers used documentation. According to (Sidiq, Choiri, and Mujahidin 2019) Documentation is the process of collecting and analyzing relevant data to strengthen trust and prove an event.

This research uses the theory of Sandu Siyoto dan M. Ali Sodik (2015) written in his book using 3 steps of data analysis as in the chart below.

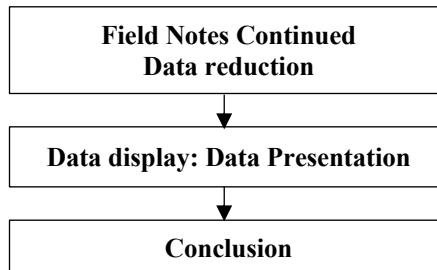


Fig. 1 Three-step chart of qualitative research data analysis

The first stage regarding the application of the 3 steps of data analysis above is the Data Reduction Stage, which is the stage of summarizing information, selecting important points,

focusing on essential things, identifying themes and patterns, and getting rid of irrelevant data (Sodik 2015). Data Display Stage Data is presented using various visual methods, such as brief descriptions, diagrams, flowcharts, and representations of relationships between categories (Abdussamad 2022). Conclusion Drawing Stage, this stage is the answer to the problem formulation. This research consists of 3 problem formulations, so the conclusions are related to the 3 formulations of the masa-lah. At this stage, researchers draw conclusions from every symptom found during the data collection process in the field.

This study checked the validity of the data using the triangulation method. The triangulation methods used include; 1) triangulation of techniques/methods. According to Alfansyur A. (2020) Triangulation technique is the use of various data collection methods from the same source. 2) Time triangulation is checking data by researchers in different time span (Nurfajriani 2024). 3) 3) Source triangulation compares data from one collection technique with various sources to ensure credibility (Susanto and Jailani 2023).

RESULT AND DISCUSSION

This stage describes the process of making ecoprints on leather, from pre-production to post-production, at the NURB Leather Gallery Industrial House on January 17-28, 2025.

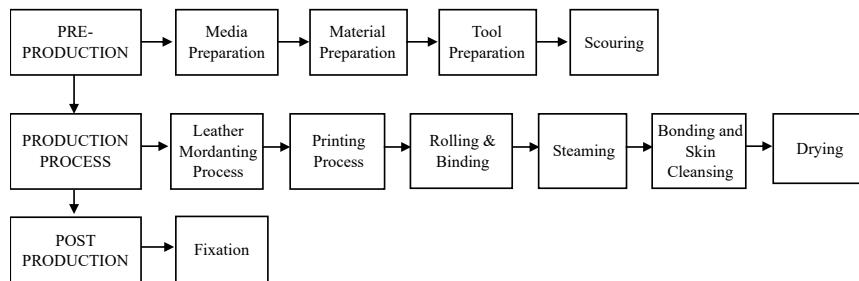


Fig. 2 Ecoprint Production Process Chart
(Source: Personal Document)

1. The process of preparing leather media for ecoprinting at NURB Leather Gallery Industry House Malang City

The following describes the pre-production stages of the ecoprint preparation process with leather media at the NURB Leather Gallery Industry House.

a. Media Preparation

The media used in making ecoprints at the NURB Leather Gallery Industrial House is sheepskin. The type of leather used for ecoprint is semi-finished leather or crust which is obtained from factories located in Sidoarjo, Pandaan, and Bandung. Crust leather has a grayish white base color. This color makes crust leather ideal for dyeing with ecoprint technique, because it easily absorbs the natural color of the dye material.

Table 1. Leather Used for Ecoprint

Figure



Textured Sheepskin

(Source: Personal Documentation)



Smooth Sheepskin

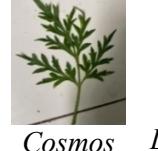
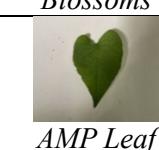
(Source: Personal Documentation)

b. Material Preparation

To decorate fabrics with ecoprint techniques, special treatment and the use of certain materials are required so that the results obtained are optimal (Sumarwahyudi et al. 2023). The

ecoprint materials on leather at NURB Leather Gallery include scouring, mordant, blangket fabric treatment (KB), printing, and fixation.

Table 2. Materials for Ecoprint

No.	Materials	Figure
1.	Scouring Material	 <i>TRO</i>
2.	Mordant Materials	 <i>Tawas</i>  <i>Sodium Acetat</i>  <i>Soda Ash</i>  <i>Cuka Makan</i>  <i>Tunjung</i>
3.	Teratment Materials Blangket fabric	 <i>Manjakani Powder</i>  <i>Manjakani Solution</i>
4.	Print Materials	 <i>Lanang Leaf</i>  <i>Teak Blossoms</i>  <i>Flowers Cosmos</i>  <i>Cosmos Leaf</i>  <i>Darah Ulung Leaf</i>
		 <i>AMP Flowers</i>  <i>AMP Leaf</i>  <i>Vitex Leaf</i>
5.	Fixation Materials	 <i>Coating</i>

c. Tool Preparation

The selection and use of appropriate tools and materials are important for optimal results (Wahidah, Alfionita N., Agustina, Arisa P. et al. 2024). The ecoprint process at NURB Leather Gallery uses simple materials and tools.

Table 3. Tools Used in the Ecoprinting Process

Figure
 <i>Scissors</i>
 <i>Transparent Plastic</i>
 <i>Gloves</i>
 <i>Steaming Place</i>
 <i>Water Jug</i>
 <i>Duct Tape</i>
 <i>Stove</i>
 <i>Cardboard</i>
 <i>Bucket</i>

d. Scouring Process

The scouring process is a process at the pre-production stage that aims to remove components that can inhibit color absorption such as waxy substances, fats,

oils, study materials and other impurities that are usually still attached to the fabric when the fabric manufacturing process is carried out in the factory. The material used for scouring work at the NURB Leather gallery industry house is a TRO solution. The scouring process in the NURB Leather gallery industry house is as follows. Heat 2 liters of warm water, pour 2 liters of Hot Water into a plastic container / bucket. Add 1 tbsp TRO for 1x1 meter of blanket cloth and stir until evenly distributed. Soak the blanket cloth and sheepskin with separate buckets until the TRO solution for scouring cools down or at least 15 minutes or 1 hour, after that wash / rinse the cloth until it is completely clean and aerated. For sheepskin soak the skin overnight to remove fat, occasionally within a span of 1 hour the skin is cleaned of fat. After that, wash/rinse the leather until it is completely clean and aerated.

2. Ecoprint process on leather media at NURB Leather Gallery Industrial House

a. Leather Mordanting Process

According to Ahmad, A. F., & Hidayati (2018) there are three ways in the mordanting process, namely pre mordanting, meta mordanting and post mordanting. However, NURB Leather Gallery only uses one mordanting stage because in her experiments, according to Nurbeti (interview dated January 31, 2025) she found the fastest theory that is more effective, efficient and gets good results. The leather mordanting process starts with preparing a plastic bucket. Put in water from a source (non PDAM), 2½ tbsp alum, 2½ tbsp acetate, 2½ tbsp soda ash, 2½ tbsp table vinegar and 100 ml arbor solution and stir 30 turns in the same direction for even distribution. After stirring evenly, add the skin that has been scoured before. Then stir again so that the solution is absorbed in the leather and soak the leather for 1 hour. After that, the leather can be directly used for the ecoprint/leaf arrangement process.

b. Leaf Arrangement/Printing Process

1) Treatment on Blangket Fabric

Blangket fabric is a fabric specifically used for blangket, not mordant, only scouring. Here is the preparation process for 1x1m blangket fabric: Prepare a dye solution (zwa/tanin to soak the blangket cloth) consisting of 1 liter of source water (non PDAM) and 100 ml of manjakani solution, then stir evenly. Enter the fabric that has been made into a blangket that has gone through the previous scouring process, then soak for 1 hour. After the blangket cloth has finished soaking and the leaf arrangement has also been completed, squeeze the cloth soaked with zwa/dye and then title the cloth for the blangket. The position of the blangket cloth is above the skin that has been arranged with leaves.

2) Leaf Laying

The drained skin is then spread on transparent plastic that has been insulated at each end. The plastic base is used to keep the fabric clean and facilitate the arrangement (Zahro et al., 2023). Then the prepared leaves are attached to the skin that has been spread out. The arrangement of these leaves will produce motifs printed on the fabric, so creativity is needed in arranging the leaf pattern (Hiryanto, H., Santi, F. U., Tristanti, T., & Sujarwo, 2023). The technique of leaf patterning in NURB Leather Gallery is as follows:

- a. Separate each type of leaf to be used, separating the leaves to be used.
- b. Take one type of leaf first and count it, if the number is limited, divide it evenly on each side of the leather that will be ecoprinted.
- c. After 1 type of leaf has been arranged, repeat the above process for other types of leaves, one by one the types of leaves are arranged until finished.

c. Skin Rolling and Bonding

Once the leaf layout is complete, place the plastic over the blanks. The plastic covering the skin is used as a barrier, so that the leaves are printed only on the ink, not everywhere. Then flatten the leather that has been coated with blanks and plastic by hand to release the air trapped inside the leather. After that, trample the leather evenly over all parts of the leather, until the leather appears to change color evenly. After that, roll the skin lengthwise and roll it again in a circle and then tie it using insulation so that the rolls do not come off easily.

d. Steaming

Steaming of the skin is done for 1 hour. Make sure the steamer is on a low heat of 60° C. The steaming process is as follows. Pour water in the steamer and provide a wooden or cardboard base at the bottom so that the skin is not exposed to the bottom of the steamer. Turn on the stove with high heat for 10 minutes, then put on the skin and reduce the heat. Keep the temperature below 60° C and boil for 1 hour.

e. Bonding and Skin Cleansing

After steaming, the skin is left to stand until the heat drops a little and then it is immediately opened in a warm state. After being untied, the leather is then unrolled and spread out as a whole, and then the leaves attached to the leather are taken one by one. When finished, the skin is soaked in water while being cleaned. In line with the opinion of Lubis, Prayudi, and Hasibuan (2023) in order to maintain the color and pattern that has been printed, wash the leather gently using cold water without soap. This helps to remove any remaining natural materials that are not attached to the leather.

f. Drying

The drying process of the leather that has been printed at NURB Leather Gallery is done by aerating it in a place that is not exposed to direct sunlight. To get maximum results, drying is carried out for approximately 7 days by pulling the leather with a rope so that the texture of the leather is not wavy and remains good.

g. Fixation

According to Khasanah (2022) fixation is done to strengthen the color and lock the color that has been absorbed into the leather. The fixation process on ecoprint is the final stage of the production process at NURB Leather Gallery Industry. The fixation process is carried out using a coating material that is applied to the leather that has been ecoprinted and has dried. The function of applying the coating material in the fixation process on the ecoprinted leather is to make the leather shiny and mold-resistant.

3. Results of Ecoprint Print Treads on leather media at the NURB Leather Gallery Industry House Malang City

The result is the final achievement resulting from a process. In the ecoprint technique on leather media at the NURB Leather Gallery Industrial House in Malang City, the results of the print tread can be seen from the motifs and colors printed on the leather surface. The motifs created are strongly influenced by the tannin content of the print material, the scouring process and the mordant material used and the workmanship of each stage must be correct. Here are the results of ecoprinting on leather media at NURB Leather Gallery:

Table 4. Printed Tread Results

No.	Mordant Materials	Figure						
1.	Tawas, Sodium Acetat, soda ash, Cuka Makan, Tunjung	Lanang Leaf	Darah ulung Leaf	Vitex Leaf	Cosmos Leaf	AMP Flower	Cosmos Flower	Teak Blossoms
2.	Tawas, Sodium Acetat, soda ash, Cuka Makan, Tunjung, Garam Inggris	teak leaf	Lanang Leaf	Red Cambodia	Red Panama	Castor Kepyar	Physic Nut	

Table 5
Cases that show differences in the quality of ecoprint prints on leather media

Figure



CONCLUSIONS

The process of preparing leather media for ecoprinting at NURB Leather Gallery House in Malang City is carried out in a structured manner. The leather used is semi-finished or crust leather that has good color absorption. Before the ecoprinting process, the leather must go through a scouring stage using a TRO solution to remove fat and deposits.

The ecoprint process on leather at NURB Leather Gallery Industrial House is carried out through several stages, namely mordanting, leaf arrangement (printing), rolling and binding, steaming, cleaning and drying, and fixation.

The results of ecoprint treads on leather media at the NURB Leather Gallery Industrial House in Malang City are strongly influenced by the factors of print material, mordant, and accuracy in each stage of the process. The success of ecoprint is marked by clear prints, sharp leaf vein details, and colors that penetrate well. Conversely, failure can occur due to errors in the process, such as improper steaming or incomplete scouring, which causes the print to be less clear, broken, or the color to be uneven.

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