

**Empowerment of the Creative Economy of the Sasirangan Home Industry in
Sasirangan Village with the Technology Application of SALAM
(Sasirangan WarnA aLAM)**

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Article Info	Abstract
Article history: Received: November 14, 2025 Accepted: February 14, 2026 Published: March 4, 2026 Keywords: Marketing Production Sasirangan warna alam Technology This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License © 2026 Bubungan Tinggi: Jurnal Pengabdian Masyarakat	Craftsmen in Madara Sasirangan lack skills in producing and marketing natural Sasirangan products. To address this, training on natural color Sasirangan technology will be provided in Sasirangan Village, enhancing their production and marketing knowledge and skills. The method used is four stages, namely the 1) Socialization, 2) Training, 3) Monitoring and Evaluation, and 4) Program Continuation stages. Community service was attended by 15 participants/craftsmen for eight meetings from October to November 2025. Lectures and discussions on natural dye extraction techniques, Sasirangan production, and marketing media were held in three meetings. Demonstrations/practices of making natural color Sasirangan from plants were held in three meetings. Furthermore, monitoring and evaluation were held in two meetings. The evaluation results are that (1) There are various types of colors produced from natural dye sources. The suitability between pigment compounds and materials, extraction processes, mordanting, and dyeing can produce good coloring. (2) Participants have an understanding and skills in making Sasirangan natural dyes and marketing them of 80% (good category). Training enhances participants' empowerment in natural Sasirangan product production and marketing, with a focus on natural dye extraction, biomordants for durability, consumer education, and support for sustainable businesses.
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INTRODUCTION

Sasirangan is a traditional Banjar cloth with distinctive motifs and colors, a cultural symbol of South Kalimantan ([Ganie, 2014](#)). Currently, *Madara Sasirangan's* home industry partners, Sasirangan artisans, still use synthetic dyes. Their products are now used for clothing, bags, shoes, sandals, and accessories. The Center for the Promotion of Import (CPI) warns of the dangers of synthetic dyes, which contain azo groups and are suspected of causing skin cancer. Their residual use pollutes the environment. Alternative natural

dyes are environmentally friendly and enhance the artistic value of textiles. However, the production process remains impractical, necessitating the need for appropriate technology for natural dye extraction.

Several Sasirangan artisan groups have been formed to preserve the traditional batik of South Kalimantan. Among them is the *Madara Sasirangan* Group, chaired by Mrs. Ida Rahmi. The Madara Sasirangan Group is located on Jl. Seberang Masjid, RT 06. This is a home industry group with 15 artisan members. The obstacles facing *Madara Sasirangan's* partners in growing the Sasirangan industry are twofold: production and marketing. a) Production Aspects: Sasirangan production is largely small-scale and relies on manual labor, with a focus on the quality of raw materials and unique dyeing processes. b) Marketing Aspects: (1) Lack of a cohesive marketing strategy, and outside the local market. (2) Unfamiliarity with online/e-commerce sales, which hinders broader marketing. (3) Minimal variety of designs and motifs. (4) Limited product diversification necessitates the need to expand the product line to include dresses, shirts, bags, and accessories to attract new segments, particularly young people.

To date, partners still use synthetic dyes for dyeing Sasirangan fabric. Synthetic dyes produce bright colors but produce liquid waste containing various pollutants, such as phenols, synthetic organic compounds, and heavy metals ([Andriana, 2019](#); [Nintasari & Amaliyah, 2016](#)). Therefore, environmentally friendly natural dyes are needed. [Chafidz & Lestari \(2021\)](#), [Kwartiningsih et al., \(2013\)](#) & [Paryanto et al., \(2018\)](#) have successfully used them. An extractor-evaporator tool for extracting natural dyes for environmentally friendly batik/Sasirangan dyes.

Sasirangan holds significant cultural heritage, featuring unique motifs and local wisdom ([Permatasari et al., 2023](#)) alongside functional design. Questionnaire data indicate participants have a moderate understanding (60.00) of natural dye Sasirangan and poor skills (53.50) in dye extraction, production, and marketing. To enhance outreach, integrated digital marketing is essential ([Pradana & Fitriyanti, 2021](#); [Pratomo et al., 2019](#); [Setiawan et al., 2022](#)).

Based on the description above, natural-dyed Sasirangan offers a creative and entrepreneurial opportunity for craftsmen, leveraging local environmental resources for dyeing. The production of ecoprint Sasirangan requires adequate skills to create marketable products, such as fabrics, tote bags, clothes, mugs, hats, and bags. Proficiency in Sasirangan ecoprint techniques is crucial to produce optimal results. Thus, training to enhance knowledge and skills in this area is vital for craftsmen in Banjarmasin City. The BIMA Community Service Team seeks to empower local Sasirangan artisans through natural dye workshops, fostering economic and conservation initiatives.

METHODS

There are four stages in the creative economic empowerment of the Sasirangan home industry in Sasirangan Village, Banjarmasin City, using natural dye Sasirangan technology: 1) Socialization, 2) Training, 3) Monitoring and Evaluation, and 4) Program Continuation ([Akil et al., 2025](#); [Prasetyo et al., 2023](#); [Subroto et al., 2024](#)). The training was conducted in eight sessions from October 1, 2025, to November 10, 2025. The details are outlined in Figure 1. The effectiveness of the program is reviewed from two aspects, namely: (1) 60% of training participants, and (2) an increase in knowledge and skills in applying natural color. Sasirangan technology is categorized as at least good.

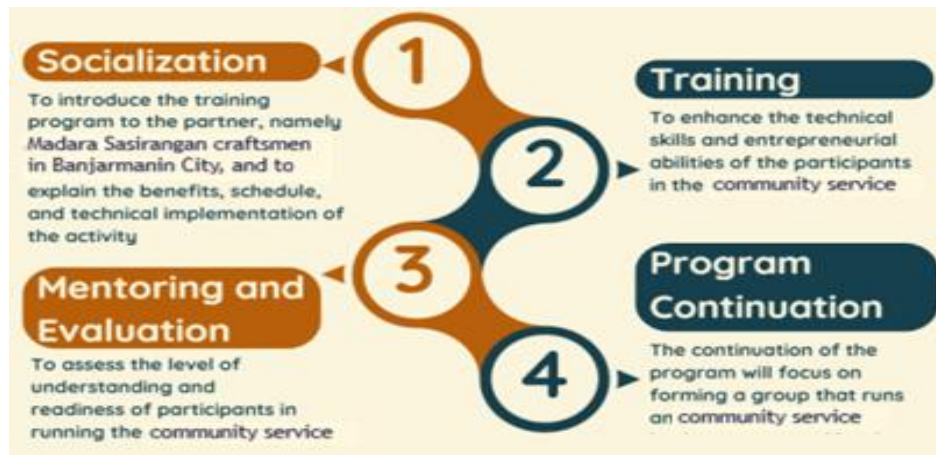


Figure 1 Stages of the implementation of community service (PkM)

Socialization begins by introducing the training program to partners, specifically the Madara Sasirangan craftsmen in Seberang Masjid Village, while explaining the benefits and schedules. Steps include meetings with Madara Sasirangan mitra and village officials to communicate program objectives, designing training SALAM technology, disseminating information via social media, flyers, and direct contact, pre-test assessing participants' understanding of natural dyes, marketing Sasirangan methods, and gathering preliminary data on their socio-economic conditions.

The training stage comprised eight sessions, including lectures, demonstrations, and hands-on practice with natural-dyed Sasirangan. The training enhances technical and entrepreneurial skills in natural dyes for Sasirangan, covering extraction, coloring, mordanting, and finishing. Participants engage in hands-on activities and learn business management, marketing strategies, and financial record-keeping, supported by training modules and video tutorials for independent learning.

In the monitoring and evaluation stage, the BIMA community service team observed the participants' products and provided feedback. They also administered questionnaires to determine their level of understanding of the training materials and evaluated the implementation of the training activities.

The program's sustainability focuses on forming natural-dye Sasirangan business groups managed by participants. Key steps include creating business groups, developing simple business plans, providing ongoing technical and business support, and collaborating with village governments for further development, including tool assistance and capital programs to ensure long-term business success.

RESULTS AND DISCUSSION

The first activity in the analysis phase involved coordination with the relevant partner, the head of *Madara Sasirangan*. This led to a lack of knowledge and skills in natural Sasirangan dyes. The next activity was the training phase, with eight meetings held at *Madara Sasirangan* and the PMIPA Laboratory, FKIP ULM Banjarmasin. The first meeting took place on October 1, 2025, at *Madara Sasirangan* Banjarmasin. The first session focused on consolidation and preparation for the training with the partner. This session discussed the event rundown and timeline for the community service implementation.

Extraction of Natural Dyes from Plants

The second and third meetings, held on October 18-19, 2025, at the partner's location and FKIP ULM Banjarmasin, were attended by 15 participants. Meetings focused on technology for dye extraction and natural Sasirangan dye production from plant parts like leaves and fruit. These eco-friendly, non-toxic, biodegradable dyes exhibit properties such as color and light fastness ([Samanta et al., 2020](#); [Alegbe & Uthman, 2024](#)), as shown in Figure 2 and Table 1.



Figure 2 Documentation of the lecture (material delivery) from the speaker

Table 1 Examples of Plants and the Colors Produced

Origin	Plants	Scientific name	Colors
Wood	Ironwood	<i>Eusideroxylon zwageri</i>	Brown
	Tegeran wood	<i>Cudraina javanensis</i>	Yellow
Leaves	Guava	<i>Psidium guajava</i>	Green
	Indigo	<i>Indigofera sp</i>	Blue
	Teak	<i>Tectona grandis L</i>	Reddish brown
	Avocado	<i>Persea americana Mill</i>	Light Brown
	Papaya	<i>Carica papaya L</i>	Green
Stem Bark	Jackfruit	<i>Artocarpus heterophyllus Lamk</i>	Yellow
	Secang	<i>Caesalpinia sappan L.</i>	Red
	Soga tingi	<i>Ceriops candolleana arn</i>	Red
	Soga jambal	<i>Pelthophorum ferruginum</i>	Brown
Root Bark	Turmeric	<i>Curcuma sp</i>	Orange and Yellow
	Noni	<i>Morinda citrifolia</i>	Brownish red
Fruit	Areca Nut	<i>Areca catechu</i>	Brown
	Annatto tree	<i>Bixa orellana</i>	Red orange

The resource person demonstrated the extraction (boiling) technique and process, followed by practical exercises. Finely dried ironwood powder was wrapped in cloth and extracted with water using an evaporator extraction machine at a boiling water temperature of 100°C for 1.5 hours. In order to obtain a concentrated extract (high concentration) so that it gives a strong and good color to the fabric when dyed. The extraction practice is shown in Figure 3.



Figure3 Extraction practice

The result is a concentrated brown extract, which is then cooled (Figure 3). Indigo color is specifically obtained from soaking and fermentation. Various plants for textile dyes, including ironwood, turmeric, indigo leaves, noni roots, soja tingi bark, annatto tree, tegeran wood, soja jambal bark, and guava leaves ([Nintasari & Amaliyah, 2016](#); [Syahmani et al., 2023](#)). Natural dye plants contain organic compounds such as tannin, curcumin, indigo, moridin, bixin, brasilin, and flavonoids. Strong color substances could make fabric made with Sasirangan ecoprint motifs and patterns more durable, as well as have an attractive color. Among them are leaves of teak, papaya, and sweet potato, ketapang, binahong, and mangroves ([Muspiroh et al., 2022](#)).

Sasirangan Eco-printing Process

Making ecoprint Sasirangan combines the traditional basting technique of South Kalimantan with natural printing using leaves/flowers. The main processes include scouring, mordanting, making Sasirangan motifs, the dyeing process, leaf arrangement, steaming for 2 hours, fixation, and finishing.

Scouring. The fabric is washed with detergent to remove chemicals, then dried.

Mordanting and fabric coloring. The addition of environmentally friendly fixatives is necessary to produce bright, fade-resistant textile colors ([Kurniasari & Maharani, 2015](#)). Sasirangan ecoprint binders include alum ($\text{Al}_2(\text{SO}_4)_3 \cdot \text{K}_2\text{SO}_4 \cdot 24\text{H}_2\text{O}$), tunjung (FeSO_4), lime water ($\text{Ca}(\text{OH})_2$), citrus, vinegar, and others. The type of mordant influences the color, with restrictions on certain heavy metals for safety. This is to maintain environmental sustainability and the quality of textile products. Mordant application methods (see Figure 3)—consisting of pre-mordant, meta-mordant, and post-mordant—significantly affect the colorfastness properties ([Islam et al., 2025](#)). Pre-mordanting yields the best results through better mordant-fiber bonding. Conversely, meta-mordanting and post-mordanting, though convenient, may lead to uneven distribution and reduced fastness if done improperly. Selecting the appropriate method is essential for enhancing the color and quality of dyed fabrics against environmental exposure and laundering. A schematic diagram of the dyeing and mordanting procedure is shown in Figure 4.

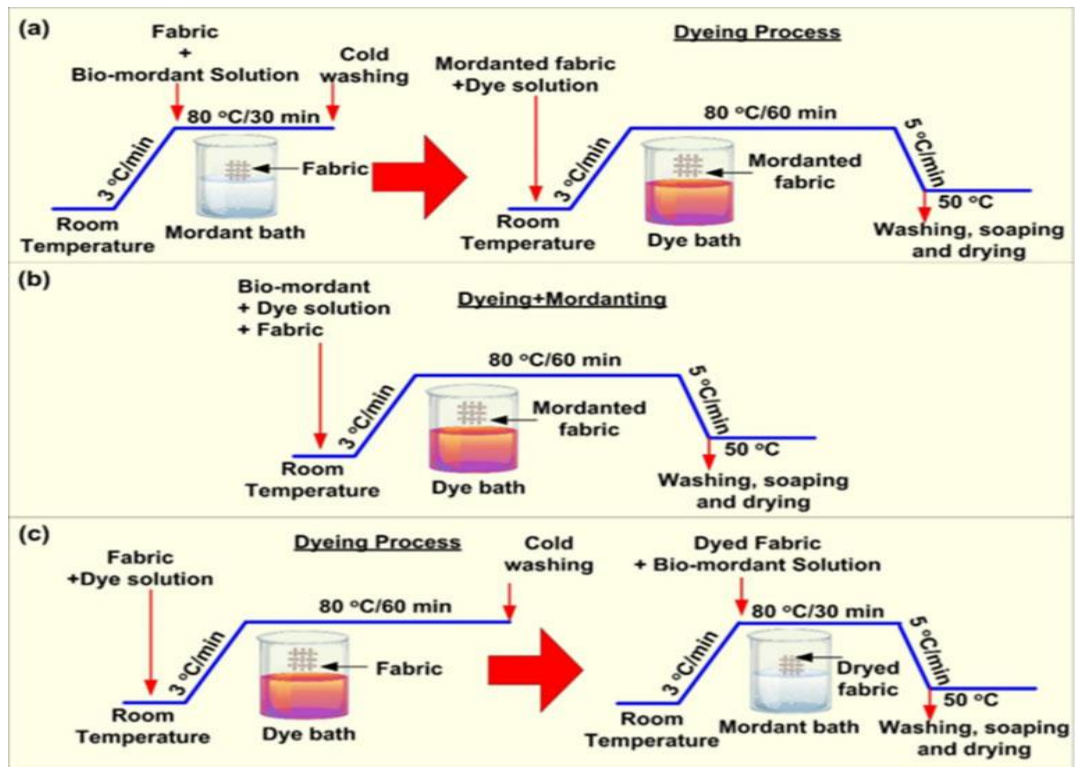


Figure 4 Schematic diagram of dyeing and mordanting procedure (a) premordanting, (b) meta-mordanting, and (c) postmordanting

Making Sasirangan motif. Baste the fabric with polyester thread according to the pattern; pull the thread tight to create a white/contrast effect. The process of making the sasirangan motif by applying and combing is shown in Figure 5.



Figure 5 Making sasirangan motifs by basting and combing

Dyeing process. This activity includes a practical session on dyeing pre-patterned fabric. An optional wrapping step uses rubber bands or plastic if multiple colors are desired. Dyeing with ironwood and soga wood powder produces black, brown, and chalk, reddish brown. Using indigo with tunjung produces dark blue, alum produces true blue, and chalk produces light blue. The binding agent opens the fabric fibers for better dye absorption, and the dye solution mixed with electrolytes such as salt or vinegar will accelerate color absorption during soaking. The dyeing process using natural dyes and removing stitches or ripping is shown in Figure 6.



Figure 6 Natural dyeing process and removing stitches or ripping

Dyeing is performed at room temperature (27-30°C) for 15-30 minutes; the fabric is dried in the sun and then immersed in the dye solution for consistent results. Once the dye is deemed adequate, the fabric is then dried in the sun/air. The treated fabric is then immersed in the dye solution. The materials commonly used are tunjung (FeSO_4), quicklime (CaO) or limewater ($\text{Ca}(\text{OH})_2$), and alum ($\text{Al}_2(\text{SO}_4)_3 \cdot \text{K}_2\text{SO}_4 \cdot 24\text{H}_2\text{O}$). These three types of dye generators have different color directions. In other words, different dye generators also produce different color directions. This final dyeing process is carried out at room temperature for 5-10 minutes. Once deemed adequate, the fabric is removed to be rearranged. Finally, the fabric is washed and dried. The dyeing process can be repeated several times, not just once. The more often it is repeated, the brighter the resulting color. Cotton fabrics dyed naturally with mangosteen rind extract (with or without lime, alum, or tunjung fixation), jackfruit bark extract (with tunjung fixation), safflower seed extract (with tunjung or alum fixation), and mango leaf extract (with alum fixation) can provide good colorfastness to Sasirangan fabric.

An exploration of various mordants, detailing their sources, properties, and applications to improve colorfastness and functional qualities in textiles. An evaluation of the environmental impacts of metal and bio-mordants and the challenges in adopting bio-mordants in industry, including availability and cost. Biomordants enable sustainable textile dyeing, replacing harmful metal mordants. Biomordants from plant sources, such as tannins and flavonoids, are sustainable mordanting agents. They interact with fibers and dyes via hydrogen bonds and covalent linkages, thereby enhancing dye uptake and color stability while minimizing environmental impact. The benefits of using bio-mordants can support environmentally friendly practices and the effectiveness of natural dyes in the textile industry.

Ecoprinting process. The eco-print process involves placing colorful plant parts on natural fiber fabric and boiling them to transfer colors and shapes. It includes three core activities: mordanting (pre), fabric coloring, and fixation (post). Chemical concepts such as molecular interactions and coordination bonds are explored during mordanting, where natural dyes bind to fabric fibers. The fourth to sixth meetings occurred on October 25, 27, and 29, 2025, with 15 participants. The sessions featured leaf arrangement and demonstrations on creating natural-dyed ecoprint Sasirangan using pounding and steaming techniques (Figure 6). Artisans learned ecoprinting technology applicable to Sasirangan. The pounding method entails striking leaves to release sap for patterns, followed by a day of fixing. The steaming method involves arranging leaves on treated fabric, rolling it with PVC/wood and plastic, tying it, and steaming to extract color from the sap, concluding with a day of fixing. Eco-print Sasirangan is applied by pounding and steaming as shown in Figure 7.



Figure 7 Eco-print Sasirangan applied via pounding and steaming

The eco-printing process employs natural materials and techniques to produce items like Sasirangan ecoprint, enhancing creativity and economic potential within communities. This method, which uses natural dyes, is environmentally friendly, minimizing ecosystem disturbance and chemical usage. Materials such as leaves and flowers are used, and the process involves scouring, mordanting, printing, and natural dye extraction to ensure quality and sustainability. Techniques include steaming, pounding, and boiling. The Madara Sasirangan community favors steaming for its speed and capacity for larger outputs, effectively transferring the tannin content from leaves to fabric through pressure, thereby creating a unique eco-friendly product. The steaming method in eco-printing is cost-effective, easy, and effective on various materials, ensuring high color resistance. The eco-printing process involves fabric scouring and mordanting for optimal dye absorption, using substances like soda ash, alum, and vinegar for maintenance and quality enhancement.

Fixation and finishing. The fixation process ensures color durability through polymerization, while chromatographic principles apply during dyeing. These methods integrate chemistry with textile art. During fabric dyeing in eco-printing, metal ions' redox properties influence dye extraction. Tannins, flavonoids, anthocyanins, and chlorophyll are key compounds that determine color and fiber affinity. The dye transfer utilizes chromatographic principles as compounds migrate differently. The fixation process allows polymerization, enhancing the bond between dye and fabric upon heat or chemical exposure. These sequential activities are crucial for optimal eco-print products, culminating in the drying process.

Next, each group presented its products. Each group was represented by a participant who presented their product and received feedback from the other participants and the Community Service team. Participants gained new experience in making Sasirangan with natural dyes. Documentation of the activity is presented in Figure 8.



Figure 8 Documentation at the fifth and sixth meetings

In addition, training participants were also given lectures and practical sessions on creating application accounts and online marketing of Sasirangan for the promotion and sale of Natural Color Sasirangan and Ecoprint Sasirangan cloth (Figure 9).



Figure 9 Lecture and practical session on creating a marketing application account

Natural-dyed Sasirangan products include fabrics, clothing, bags, wallets, and more. In addition to their modern designs, naturally dyed products are also popular for their environmental friendliness. These Sasirangan products promote a green economy in Banjarmasin City ([Alhally & Athiya, 2024](#); [Rahmatullah, 2021](#)).

The seventh meeting was held on November 8 and 10, 2025, to monitor implementation and evaluate activity achievements (Figure 10). The various advantages and disadvantages of the eco-printing technique are presented in Table 2.



Figure 10 Monitoring and evaluation activities at the seventh and eighth meetings

Table 2 Advantages and disadvantages of the eco-printing technique

Technique	Advantage	Disadvantage
Pounding	Easy and without special tools, it creates a distinctive and attractive texture on fabric.	Results vary depending on the strength of the blow; only suitable for flowers and thin leaves.
Steaming	Textiles are produced with more vivid colors, utilizing a variety of plants and locking in pigments for colorfastness.	Additional time and resources are required for varying steaming results. Color effects vary depending on the blow technique.

The community service evaluation used initial and final questionnaires. The evaluation results showed that the participants' n-gain in understanding natural dyes and skills in making natural dye Sasirangan was in the moderate category (see Table 3).

Table 3 N-Gain results from participants' evaluation of the application of natural color Sasirangan technology

Assessment Aspect	Evaluation Average Initial		Evaluation Average Final		<g>	N-gain Category
	N1	K1	N2	K2		
Understanding of natural dyes and skills in making natural dye Sasirangan/ecoprint Sasirangan	60.00	L	81.00	G	0.53	Moderate
Understanding of Sasirangan marketing methods and online (digital) promotion/marketing skills	53.00	L	79.00	G	0.55	Moderate

Description: N1 and N2 = Initial and final scores; K1, K2 = Achievement categories; 85.00-100.00 = very good (VG), 70.00-84.99 = good (G), 55.00-69.99 = sufficient (S), <55.00 = less (L); <g> = N-gain coefficient

Sasirangan ecoprint utilizes natural materials to create unique patterns on originally plain fabric, transforming it into Sasirangan-patterned cloth. Each Sasirangan ecoprint pattern is distinct, enhancing the fabric's marketability. Attractive patterns, especially on hijabs and tote bags, draw interest. The use of natural ingredients makes ecoprint an environmentally friendly product, utilizing plant life ([Khilmiyah & Surwanti, 2021](#); [Widyaningsih et al., 2020](#)). Colors derived from young teak leaves are more vibrant, and fabrics with higher fiber content yield better results. The choice of leaves and fabric is crucial for successful eco-printing.

The success of the training activity was influenced by the motivation and enthusiasm of the participants, as well as the appropriate timing of the implementation. Participants rated the community service team, materials, and facilities as good. Understanding was evaluated before and after the training using a questionnaire. The evaluation results (Table 4) showed that 80% of the partner participants were able to understand and master the skills of making natural dyes of Sasirangan and marketing them. Participants learned to create eco-friendly Sasirangan prints from local plants, enhancing their skills and knowledge while empowering Sasirangan Madara to produce and market natural dye products.

Innovation in Sasirangan ecoprint product design allows designers to create unique and distinctive textiles, clothing, and home decor. The use of leaves-and flower-based Sasirangan ecoprint products not only creates aesthetically pleasing products but also contributes to environmental conservation and local community empowerment. Through this approach, we can create products that are not only beautiful but also socially and environmentally responsible. Further services will be provided to improve natural dye extraction to obtain practical and high-quality natural dye powders, as well as the application of biomordants to ensure stable, fade-resistant, and long-lasting colors. Sustainable consumer education about Sasirangan fabrics made with natural dyes will increase demand. This program focuses on establishing Sasirangan businesses using natural dyes, providing support, and collaborating for their development and success.

CONCLUSION

Based on the experiments and evaluation of activities, it can be concluded that: (1) The types of colors from natural dye sources are diverse. The suitability between pigment compounds and materials, extraction processes, mordanting, and dyeing can produce good

coloring. (2) Partner participants have the understanding and skills to make natural dye Sasirangan, and its marketing is 80%, including the good category. This training can increase the knowledge and skills of partner participants and empower Sasirangan Madara in the production and marketing of natural dyes for Sasirangan.

The community service project will focus on advancing natural dye extraction for high-quality dye powders by integrating Sasirangan ecoprint with chemistry education. It uses natural dyes such as Ulin wood and Indigofera, linking local knowledge to scientific principles. Future efforts will support Sasirangan businesses in natural dye production and development.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest in either carrying out the empowerment program or writing this article.

AUTHOR CONTRIBUTIONS STATEMENT

In this statement, we declare that each author contributed fully to both implementing community empowerment activities and compiling this article.

AI DISCLOSURE STATEMENT

The author used ChatGPT to improve the manuscript's language and organization. After using the tool, the author carefully evaluated its content and made any necessary edits. The authors declare that, other than ChatGPT's language assistance, artificial intelligence (AI) techniques weren't employed in the preparation, research, writing, or editing of this study.

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