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CONSUMER PERCEPTION OF TIE-DYE MADE FROM NATURAL AND SYNTHETIC FABRICS FOR WEALTH CREATION IN ILORIN METROPOLIS KWARA STATE NIGERIA

Adeshola Ajoke Babayeju*, Patience Aluyor, Christiana Teniola Gbadebo*, Mary Ifeoma Kayode* and Muritala Bolaji Kareem***

**Department of Home Economics and Food Science, Faculty of Agriculture, University of Ilorin, Nigeria*

*** Department of vocational and Technical Education, Faculty of Education Ambrose Alli University Ekpoma Edo State, Nigeria*

Abstract

This study evaluates consumer perception and acceptability of tie-dye produced from natural and synthetic fabrics for wealth creation in Ilorin metropolis Kwara State Nigeria. Four objectives and one hypothesis were developed and tested at 0.05 significant levels. The R and D design was adopted, and (40) participants were purposely selected for the study. Two instruments were used, a questionnaire-assessed participant perception using (4) point likert scales of strongly-agreed, agreed, disagreed, and strongly-disagreed with a decision point of 2.50, while the score card contained seven (7) point hedonic scale of like extremely, like moderately, like slightly, neither like nor dislike, Dislike slightly, Dislike moderately, Dislike extremely with a decision point of 4.00. The data collected were analyzed with mean, percentage, standard deviation and t-test. The participants evaluated sampled coded tie-dye fabrics for absorbency, color fastness, texture, colour sharpness, appearance, durability and overall acceptability. The findings revealed that the natural tie-dye fabric was the most acceptable with a mean score of 6.87 while the synthetic tie-dye had the lowest with a mean score of 5.22. The findings revealed that natural and synthetic fabrics can be dyed but with variation in colour, texture, and appearance. It was concluded that synthetic fabrics have the characteristics of absorbing dye if the production is properly done and could serve as a means of using cheaper fabrics for wealth creation. Further research should be conducted on other synthetic tie-dye fabrics and how it could be beneficial to consumers in Ilorin metropolis in Kwara State Nigeria.

Keywords: Consumer, Production, Tie-Dye, Natural, Synthetic, Fabrics, Wealth Creation

INTRODUCTION

Dyes are organic compounds soluble in water and oil, an unsaturated organic material that absorbs and gives an attractive colour to

visible parts of a fabric dyed (Said, Souad and Ahmed, 2020, Solomon and Abubakar (2015) and Alozie, 2017). Dyes are substances that are used in applying color to yarn or fabric. Dyes are natural, extracted from some plants and animals until the advent of synthetic dyes in the middle of the 19th century (Shristi, 2016). Ekeh and Okoronkwo, (2016), described dye as a coloured chemical substance that has an affinity for the substrate to which it is being applied. Anyakoha (2015) stated that dyes has soluble color substances extracted from some plants and animals generally applied to an aqueous solution and require a mordant to improve the fastness of the dye on the fabrics.

Tie and dyeing is the process of creating patterns on clothes or fabrics (Pricks, 2018). It is a resists dyeing techniques Kabir (2019) very popular in the fashion world. The print stands out most vividly among the trend prints, which include strip, floral, and animal patterns. The process of tie-dye consists of folding, twisting, pleating, or crumpling fabric or a garment ("Textile Terms". 2022). Yusuf and Andrew (2015) described tie-dye as a process of binding and dyeing fabric to produce a pattern through counteraction, while Adiji (2017) stated that the idea of dyeing fabric came about accidentally through resist process which is an historical heritage of Nigerian pattern and design with many prints and motifs mostly found in south western Nigeria.

Fabric, according to Anyakoha (2015), is a flat sheet of clothes made from either natural or artificial fibres. Igbo (2013), described fabric as fibers formed by weaving, knotting, or other fabrication methods which could be natural or synthetic. Natural fabrics, according to Furstenberg, (2021) include cotton, linen, wool and silk while synthetic fabrics include polyester, nylon, and acrylic. Additionally, different fabrics have different characteristics; there is the need to choose wisely considering the cost and care of the fabric for producing tie-dye.

Cotton may be widely used in tie-dye production because of its light and breathable texture and could absorb moisture easily with comfort ability (William, 2017). Wool fibers are obtained from certain woolly animals such as sheep which include cashmere, angora, mohair and qiviut. Wool is one of the most preferred types of fabric in cold areas because of its ability to trap heat and keep its wearers warm. Wool is another fabric used for constructing garments and other purposes in the homes and industries.

Synthetic fabrics are artificial mostly prepared from raw materials (petroleum) called petrochemicals. Text Styles (2017) described synthetic fabrics to consist of small units or polymers made from many repeating units known as monomers, such as acetate, nylon, and polyester according to Furstenberg, (2021). Kabir (2019), also differentiate types of synthetic fabrics made from the cellulose, the fabric is soft, silky and drapes well but may not readily absorb moisture according to Furstenberg, (2021). The

author further stated that Nylon is a polyamide made from petroleum is durable and lightweight; quick to dry and cleans easily because dirt does not cling. It can be static and does not absorb moisture. Anyakoha (2015) described Polyester to be soft and strong, resistant to shrinkage, does not stretch and can blend with natural fibers like cotton and wool, making the fabric more durable and easier to wash. It could be used in clothing, and insulation may be when dyed for profit purposes.

Wealth creation is the process of investing in different asset classes where the investments will help fulfill key needs. These tie-dye investments should also be self-contained and generate a stable source of income, and help to fulfill aspirations. The wealth creation process always starts with setting financial goals to meet one's livelihood needs. Therefore, wealth creation, as an investment strategy which plays a significant role especially in tie-dye making (Ponaka, 2020).

A consumer engage in evaluating, acquiring and using goods and services to satisfy his or her needs or desire, makes purchases and disposes of the product during the three stages of the consumption process (pre purchase, purchase and post purchase) generated within the economy. (Yambi, (2018), described a consumer as an individual who tries to satisfy his or her personal needs and wants by purchasing or satisfies the needs of others by buying for them. In other words, is an individual who buys products or services for personal use and not for manufacturing or resale, someone who decides on whether or not to purchase an item and someone who can be influenced by marketing and advertisement state Individual consumers can come from different backgrounds, age, and lifestyles.

In this study, consumers are used as participants for assessing a related series of measures used to determine a complex attribute of products of an individual. This involves gathering and interpreting information about tie-dye made from cotton, wool, nylon and polyester. Participants are used for evaluating and determining the value of the items or products made from natural and synthetic fabrics using tie-dye method.

Statement of the Problem

It was observed that major fabric used for dyeing is cotton. Cotton has been used based on the absorbency and ability to show the colour of the actual dye used without considering how expensive pure cotton could be. Consumers may believe that cotton is the only material that could be used for making tie-dye not knowing that other fabrics such as linen, polyester, and acrylic among others are equally available and may cost less for producing tie-dye. Olajide et al. (2015) stated that despite other factors, the patronage of tie dye products has received global acceptance on a daily basis from the pre-colonial periods to date. Tie-dye (Adire) is the most decorative product while the designs in tie-dye (Adire) are as a communicative symbol of Nigerian culture within and outside the nation (Amubode et al. 2015; Kalule

&Areo, 2013). Previous studies did not focus on consumers' acceptability of tie-dye made from natural and synthetic fabrics and none of the study was carried out in Ilorin metropolis of Kwara State.

It is imperative through this background that the researcher produced tie dye from natural and synthetic fabrics, and participant perceptions were used to determine the level of acceptability among consumers in Ilorin metropolis, Kwara State, Nigeria.

OBJECTIVES OF THE STUDY

This study evaluated consumers' acceptability of tie-dye made from natural and synthetic fabrics for wealth creation in Ilorin metropolis.

Specifically the study:

1. Assessed participant perceptions on the Produced tie-dye made with natural fabrics among consumers for wealth creation in the Ilorin metropolis in Kwara State.
2. Assessed participant perceptions on the Produced tie-dye made with synthetic fabrics among consumers for wealth creation in the Ilorin metropolis in Kwara State.
3. Determined participant perceptions of the acceptability of tie dyes made from natural and synthetic fabrics among consumers for wealth creation in the Ilorin metropolis in Kwara State.
4. Determined participant perceptions of the differences between natural and synthetic tie dye fabrics among consumers among consumers for wealth creation in the Ilorin Metropolis in Kwara State.

Hypothesis

The hypothesis was developed at 0.05 significant levels

1. There is no significant difference between natural and synthetic tie-dye fabrics among consumers in the Ilorin metropolis in Kwara State.

MATERIALS AND METHODS

Research Design

The study adopted an R&D design. The production of tie-dye on natural and synthetic fabrics was conducted from 28th January to February 12th 2022 in Ilorin Metropolis in Kwara State. The population comprised 105,052 consumers and Forty (40) panelists were purposely selected from the Ilorin metropolis to participate in the evaluation.

Materials

Four (4) samples of tie-dye made from two (2) natural and two (2) synthetic fabrics that include Cotton, wool, polyester, and nylon. Hand

glove, caustic soda, sodium Hydrosulfide, dyes and tube rubber were procured from Oja Oba Market Ilorin Kwara State, Nigeria. The production of the tie-dye was done in the clothing and textiles laboratory at .Home Economics and Food Science, University of Ilorin, Nigeria. The procedures for the production of tie-dyed articles are illustrated thus:

Table 1: Details of quantities of fabrics (natural and synthetic) and reducing agents

S.No.	Items	Reducing Agents			
	Fabrics (1yard)	Dyes stuff (tsp)	Caustic soda (tsp)	Sodium Hydrosulfide (tsp)	Salt (tsp)
1	Cotton (N)	1	1	2.5	1.5
2	Wool (N)	1	1	2.5	1.5
3	Polyester (S)	1	1	2.5	1.5
4	Nylon (S)	1	1	2.5	1.5
Key: Table spoon (tsp)					

Procedures for producing of natural and synthetic tie-dye Fabrics

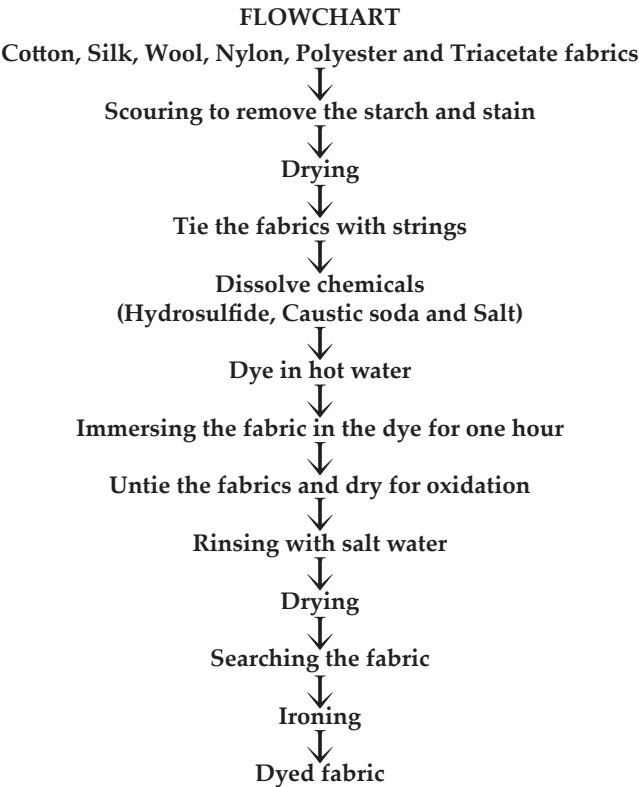


Figure 1: Procedure Dyeing tie-dye fabrics (natural and synthetic fabrics)

Instrumentation

The instruments used to seek information from the participants were questionnaires and score cards. The questionnaire was divided into two sections. Section A: seeks information on the demographic characteristics of the participants. Section B contained information based from the objectives and assessed with 4 point likert scale of strongly agreed (4), agreed (3), disagreed (2), and strongly disagreed (1) with a decision point of 2.50. The score card contained coded sampled based on Absorbency, colour fastness, texture, color sharpness, appearance, durability and overall acceptability. The scorecard of seven (7) point hedonic scale of like extremely (7) like moderately (6), like slightly (5), neither like nor was dislike (4), Dislike slightly (3), Dislike moderately (2), and Dislike extremely (1) used to the obtained participants opinions on self-made coded samples with a decision rule of 4.00.

Method of Data Analysis

The data collected were statistically analyzed with descriptive and influential statistics, which include mean, standard deviation, percentage and ANOVA and the hypothesis was tested at 0.05 significant levels.

RESULTS AND FINDINGS

Table 2 shows that most participants earn between ₦15, 000 - ₦30, 000, and above. This implies that most respondents are familiar with different tie-dye fabrics but the cost may have influence on the consumers

Table 2: Distribution of demographic data of Participants

Variables	Frequency	Percentages (%)
Income level		
Less than ₦10.000	5	12.5
₦11.000 - ₦15000	12	30.0
₦10000 - ₦15000	8	20.0
₦15000 - ₦30000 and above	15	37.5
Total	40	100

Perception of participants’ opinion on the production of tie-dye made with natural fabrics in Ilorin Metropolis Kwara State.

Table 3 presents the mean score, standard deviation and remarks on the participants’ perception on the production of tie dye made from natural fabrics. The table indicated that all the nine (9) items agreed on Tie-dye made with natural fabrics. Item 2, which stated that natural fabric can easily be identified through appearance and feeling have the highest mean score of 3.63, which indicates that the production of tie dye made from natural fabrics has characteristics that are more appealing to the participant.

Table 3: Perceptions of participants on Tie-dye made with natural fabrics

Item No.	Statements	Mean	Standard Deviation
1.	Natural fabrics are durable (i.e. it last longer)	3.90	0.30
2.	Natural fabric can easily be identified through appearance and feeling	3.63	0.54
3.	Dyed natural fabrics do not easily fade because they readily absorb dye	3.60	0.50
4.	Natural fabrics can be dyed with synthetic dye	3.58	0.64
5.	Natural fabrics like cotton need several ironing before wearing because it does rumple and shrinks after wash	3.58	0.64
6.	Natural fabrics especially cotton is comfortable to wear during hot weather because they have the ability to absorb moisture	3.53	0.55
7.	Natural fabrics can be used for various purposes aside dress making	3.50	0.51
8.	Natural fabrics are readily available	3.40	0.71
9.	Natural fabrics are expensive	3.28	0.45

Perceptions of participants in the production of tie-dye made with synthetic fabrics in Ilorin Metropolis Kwara State

Table 4 presents the mean score, standard deviation and remarks on the participant perception of the production of tie dye made from natural fabrics. The table indicated that all the items nine (9) items agreed on. Items 1, 2, and 3 have the highest mean score of 3.63, which indicates that the production of tie dye made from natural fabrics has characteristics that are more appealing to the participant.

Table 4: Perceptions of participants on the production of Tie-dye made with Synthetic Fabrics

Item No.	Statements	Mean	Standard Deviation	Remark
1.	Tie dyeing cannot be easily done on Synthetic fabrics	3.55	0.60	Agreed
2.	Dyed synthetic fabrics fade easily because they have low absorbency so dry quickly and do not absorb dye	3.55	0.60	Agreed
3.	Synthetic fabrics does not need much ironing before wearing because it neither rumple nor shrink after wash	3.55	0.60	Agreed

Contd...

Item No.	Statements	Mean	Standard Deviation	Remark
4.	Synthetic fabrics are cheap	3.53	0.55	Agreed
5.	Synthetic fabrics can easily be identified through appearance and feeling	3.53	0.60	Agreed
6.	Synthetic fabrics are uncomfortable to wear during hot weather because they do not absorb moisture	3.47	0.55	Agreed
7.	Synthetic fabrics can be used for various purposes aside dress making	3.43	0.50	Agreed
8.	Synthetic fabrics are readily available	3.35	0.48	Agreed
9.	Synthetic fabrics are durable (i.e. it last longer)	3.30	1.11	Agreed
Sources: Field Survey, 2021				

Perception of Participants in Coded Sampled for Natural Fabrics

The table 5.1 indicates the perception of participants on sampled for cotton fabrics coded CTD. The absorbency has a mean score of 6.85, colour fastness 6.67, texture 6.72, colour sharpness 6.88, appearance 6.85, durability 6.65 and overall acceptability 6.87. The result shows that all mean scores are greater than 4.00. This implies that colour sharpness was extremely liked by the participant. This implies that cotton fabrics have good properties for dyeing.

Table 5.1: Sampled coded in percentages for tie-dye natural fabric cotton (CTD) by the participants

Sample Coded	LE (7)%	LM (6)%	LS (5)%	DE (4)%	DM (3)%	D (2)%	UD (1)%	Mean
Absorbency	87.5	10.0	2.5					6.85
Colour Fastness	75	22.2				2.5		6.67
Texture	77.5	20.0					2.5	6.72
Colour sharpness	90.0	7.5	2.5					6.88
Appearance	85.0	15.0						6.85
Durability	72.5	20.0	7.5					6.65
Overall acceptability	87.5	12.5						6.87
Keys. Field survey (2021); LE(7)=Like Extremely, LM(6)=Like Moderately, LS(5)=Like Slightly, DE(4)=Dislike Extremely, DM(3)=Dislike Moderately, D(2)=Dislike, UD(1)=Undecided								

Perception of Participants in Coded Sampled for wool (WTD) fabrics

Table 5.2 indicates the perception of participants on sampled for wool fabrics coded (WTD). The absorbency shows that a mean score of 6.85,

colour fastness 6.35, texture 6.40, a colour sharpness 6.40, appearance 6.12, durability 6.30 and overall acceptability 6.85. The result shows that all mean scores are greater than 4.00. This implies that the participants extremely liked the absorption of tie-dye made with wool fabrics.

Table 5.2: Sampled coded in percentages for tie-dye made from wool Wool fabric (WTD) by the participant opinion

[illegible]

Perception of Participants in Coded Sampled for Nylon (NTD) Fabrics

Table 5.3 indicates the perception of participants on sampled for Nylon fabric coded (NTD). The absorbency of nylon shows a mean score of 4.83, colour fastness 4.90, texture 5.70 colour sharpness 4.95, appearance 5.13, durability 4.90, and overall acceptability with a mean score of 5.22. This implies that the participants mean score is above the decision point of 4.00. The texture of the nylon fabric tie-dye was extremely liked.

Table 5.3: Sampled coded in percentages for tie-dye natural fabrics Nylon (NTD) by the Participants opinion

[illegible]

Sampled Coded in Percentages for Tie-dye Natural Fabrics Polyester (NTD) by the Participant

Table 5.4 indicates the perception of participants on sampled polyester coded (PTD). The Polyester Tie Dye Fabric (PTD) showed a mean score of 6.03, colour fastness 5.78, Texture 6.13, colour sharpness 6.15, appearance 5.93, durability 5.85, and overall acceptability, 2.5% slightly dislike the overall acceptability 6.10. All the participants mean scores are greater than the decision on a point of 4.00. This shows that the texture is liked extremely which implies that polyester fabric can absorb dye and could be used for tie-dye.

Table 5.4: Sampled coded in percentages for tie-dye natural fabrics Polyester (NTD) by the participant

Sample Coded	LE (7)%	LM (6)%	LS (5)%	DE (4)%	DM (3)%	DE (2)%	UD (1)%	Mean
Absorbency	40.0	32.5	22.5	5.0				6.03
Colour Fastness	27.5	40.0	20.0		2.5		10.0	5.78
Texture	52.5	27.5	10.0		5.0	5.0	5.0	6.13
colour sharpness	27.5	40.0	20.0			2.5	10.0	6.15
Appearance	30.0	45.0	17.5			2.5	5.0	5.93
Durability	37.5	37.5	10.0		2.5	2.5	10.0	5.85
Overall acceptability	40.0	45.0	7.5	2.5		2.5	2.5	6.10
<i>Note: field survey (2021); LE(7)=Like Extremely, LM(6)=Like Moderately, LS(5)=Like Slightly, DE(4)=Dislike Extremely, DM(3)=Dislike Moderately, D/2=Dislike, UD/1=Undecided</i>								

Perception of Participants on the Overall Mean and Standard deviation of the Acceptability level of Tie-Dye on Natural and Synthetic fabrics

Table 6 shows the overall acceptability of natural and synthetic fabric samples by the participants for tie-dye production. The data reveal that the participants accepted the four (4) samples: CTD, WTD, NTD, and PTD. The Absorbency sample CTD is the most acceptable with the mean value of 6.85, while sample NTD is the least acceptable with a mean value of 4.83. For the Colour Fastness sample, CTD is the most acceptable with the mean value of 6.67, while sample NTD is the least acceptable with a mean value of 4.90. For the texture sample, CTD was the most acceptable with a mean value of 6.72, while sample NTD was the least acceptable with a mean value of 5.70. For the Colour Sharpness sample CTD is the most acceptable with the mean value of 6.88, while sample NTD is the least acceptable with a mean value of 4.95. For the appearance sample, CTD was the most acceptable with the mean value of 6.85, while sample NTD was the least acceptable with a mean value of 5.13. For the durability sample, CTD was the most

acceptable with a mean value of 6.65, while sample NTD was the least acceptable with a mean value of 4.90. Sample CTD is the most acceptable in terms of Overall Acceptability with the mean value of 6.87, while sample NTD is the least acceptable with a mean value of 5.22. See table below:

Table 6: Mean and Standard Deviation of the Acceptability Levels of the samples by the participants’

Sample	Absorbency	Colour Fastness	Texture	Colour Sharpness	Appearance	Durability	Overall Acceptability
CTD	6.85 ± 0.43	6.67±0.73	6.72±0.60	6.88± 0.40	6.85± 0.36	6.65± 0.62	6.87± 0.34
WTD	6.65 ± 0.62	6.35±0.89	6.40±0.84	6.40± 0.84	6.12± 1.04	6.30± 1.02	6.58± 0.75
NTD	4.83 ± 1.55	4.90±1.41	5.70±1.56	4.95± 0.57	5.13± 1.59	4.90± 1.71	5.22± 1.59
PTD	6.03 ± 1.05	5.78±1.21	6.13±1.29	6.15± 1.03	5.93± 1.05	5.85± 1.39	6.10± 1.11
Keys: CTD = Cotton Tie Dye Fabric, WTD = Wool Tie Dye Fabric, NTD = Nylon Tie Dye Fabric, PTD = Polyester Tie Dye Fabric.							

Hypothesis Testing

Table 7 shows calculate t-test P-value 0.566 is greater than the alpha level of significance of 0.05. The hypotheses that stated that, there is no significant difference between the acceptability of natural and synthetic tie-dye fabrics were accepted. Consequently, there is no significant difference between the natural and synthetic tie-dye fabric patterns in tie-dye. This implies that both natural and synthetic fabrics were accepted by the participant.

Table 7: Distribution of t-test statistics consumer perception on tie-dye made from Natural and Synthetic fabrics Tie-Dye for wealth creation

Variables	Paired Differences					t-Cal	df	P-value
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Differences				
				Lower	Upper			
Natural Fabrics Synthetic Fabrics	-.03286	.14303	.05406	-.16514	.09942	-.608	6	.566
α = 0.05								

DISCUSSION

The consumers’ perception of the four (4) produced samples of natural and synthetic tie-dye fabrics made from cotton, wool, nylon, and polyester were generally accepted based on absorbency, colour fastness, texture, colour sharpness, appearance, and durability. (2021). Table 2 revealed that all the participants’ accepted the production of tie dye made from natural fabrics. Adiji (2017) agreed that natural fabric absorbed better, brings out the colour as desired when dyed. Babayeju, Adebisi, Gbadebo, Kareem, &

Adeyemi (2019), perceived that there is improvement in the levelness and dye uptake on natural fabrics.

Alozie (2017), opined that tie-dye synthetic fabrics cost less and offered range of new colours and they imparted better properties to the materials. The participants attributed mean rating in determining the acceptability of tie-dye made from both natural and synthetic fabrics. Claritabussy, (2017), stated that greater acceptability of the synthetics tie-dye fabrics is trending and comes at a cheaper rate than the natural fabrics such as cotton. The author further stated that some synthetic fabrics such as rayon absorbed better when dyed. Yeasmin and Al-Mamun (2018) elaborated on the good potential of natural tie-dye fabrics as substitutes for synthetic fabrics in terms of dye fixation rate, colour fastness and properties. The use of natural fabrics for tie dye is on the high rate among the resist fabric dyers in Nigeria. The author further stated that, the quality of dye, caustic soda and sodium hydrosulphite determined the absorbency and durability of the produced fabrics. Isah and Ojo (2019) described tie-dye textile business as a viable one serving as the largest non-governmental employer of labour. The production of tie-dye with both natural and synthetic fabrics according to the findings shows that it is an opportunity to help in making profit and sustaining an individual venturing into it for wealth creation

CONCLUSION

Based on the findings of this study, it was concluded that both natural and synthetic and fabrics can be used for tie-dye. This study showed that synthetic fabrics have characteristics of absorbing dye if the production is properly conducted, but there was variations in colour, level of absorption, appearance and colour sharpness of both natural and the synthetic fabrics.

RECOMMENDATION

Based on the findings, it was recommended that further research should be conducted on the synthetic fabric methods of absorption of dyes to promote their usage among dyers and more awareness programs should be organized by Home Economists for entrepreneurs that are involved in the production and selling of tie- dye to use less expensive fabrics that could absorb dye to enable high patronage and usage of the products.

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