

Demand Factors of Natural dyes of SMEs/ OTOP and Start-Up Entrepreneurs for Textile Product Development

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Abstract

This qualitative research aimed to study demand factors of using natural dyes for SMEs/OTOP and Start-Up entrepreneurs. The data were collected from survey, i.e. demand, development guidelines and problems of using natural dyes including problems from natural dye material sourcing. The subjects of this research were SMEs/OTOP and Start-Up entrepreneurs that used natural dyes. The research tool was an interview. The interview data were analyzed by using program in order to obtain the important topic for development and improvement of natural dye properties to reach user's requirements. Moreover, the feature benefits of natural dye applications were concerned. The interview results indicated that the demands factors, i.e. limited factors of natural dye using, required properties of natural dyes and also development guidelines of dyes for entrepreneurs maximum benefits.

Keywords: SMEs, OTOP, Start-Up, Entrepreneur, Natural dye

INTRODUCTION

Dyes are an important factor which attracts consumers' interests to purchase products. At present, there have been an increasing number of dyes, both synthetic and natural dyes, used in goods production. In general, synthetic dyes are popularly used because of their easy availability in ready-to-apply form, simple application process, consistency of shades, and better fastness properties. However, Current Green and environmental awareness have again revived such interests in natural dyes causing a high demand. A number of entrepreneurs are looking for an opportunity to develop natural dyes for both national and international competitions. [1]

The word 'natural dye' covers all the dyes derived from the natural sources like plants, animal and minerals. [2] Most natural dyes or raw material were found easily from by One Tumbon One Product: (OTOP) or SMEs because they are locally available. [3] However, using natural dyes to make products is not easy for a start-up entrepreneur. Besides, finding the source of local raw material is rather tough to access. It is difficult to apply natural dyes, and there are not many Start-Up entrepreneurs using them. Moreover, Traditional textile production techniques are complicated and slow, and the current environment, both physical and operational, is changing rapidly. There are several challenges and limitations associated with the use of natural dyes. [3] Thus, this research aimed to study the factors of demands in using

natural dyes for SMEs/OTOP and Start-Up entrepreneurs as guidance for the development of natural dyes used in textile dyeing.

MATERIALS AND METHODS

This qualitative research using the data from review of the related literature and interview was divided into 3 steps.

Step 1: Literature review

The research articles related to natural dyes were studied so as to find out the problems, demand, and research development. The obtained details were used as guidance for the interview questions that were checked by the experts to improve the language accuracy and content accuracy. The corrected interview questions were then administered by the researchers.

Step 2: Data collection

The data were collected on demand, development guidelines and problems of using natural dyes including problems from natural dye material sourcing.

Primary data: The data were collected by entrepreneurs for the scope of the content. The researcher interviewed the entrepreneurs by discussing ideas and opinions on the solutions to the problems and the development of natural dyes. In the interview, the researcher used semi structured interview guide. The questions were open-ended for the entrepreneur to freely give comment.

The sample used in the study

The samples obtained by purposive sampling method were divided into 2 groups.

- 1.1 Ten groups of OTOP/SMEs entrepreneurs using natural dyes or synthetic dyes
- 1.2 Ten groups of Start-Up are entrepreneurs who were interested in natural dyes

Step 3: Analysis Data

1. The data collected from the interviews were recorded and carefully transcribed
2. The data from the transcription were categorized for the requirements of the guidelines and the problems of using natural dye using program.
3. All of the above data were analyzed according to the purpose of relationship analysis using descriptive analysis.

RESULT AND DISCUSSION

The OTOP/SMEs and Start-Up entrepreneurs were interviewed about natural dyes, and the interview data were analyzed by using program.

1. Problems in using natural dyes

The analysis of the interviews regarding the problems of using natural dyes was divided into 4 aspects as follows:

1.1 Problems of production and using natural dyes

The analyzed data from the interviews on the problems of production and using natural dyes of entrepreneurs indicated problems of complex production, i.e. time consuming, many steps and difficulties and retention of dyes as shown in Table 1.

Table 1. Problems of production and using natural dyes.

Problems of production and using natural dyes	Number of references	Interview examples
time consuming	22	<i>"It takes a lot of time for extract, filter, and dyeing process."</i>
many steps and difficulties	13	<i>"The process of natural dyeing is complicated and needs skills and experiences."</i>
retention of dyes	4	<i>"The dyes cannot be extracted because they can be moldy."</i>

1.2 Problems of properties of natural dyes

The analyzed data from the interviews on problems of properties of natural dyes of entrepreneurs indicated problems with basic properties, i.e. uncontrollable shades, low washing fastness, irreproducibility and light colors as shown in Table 2.

Table 2. Problems with properties of natural dyes.

Problems with properties of natural dyes	Number of references	Interview examples
uncontrollable shades	23	<i>"Dyeing with primary colors is difficult because of the source of raw materials from different sources resulting in the undesired colors."</i>
low washing fastness	16	<i>"Natural dyes were faded away easily and turned pale after washed many times."</i>
irreproducibility	15	<i>"It is difficult to reproduce shades by using natural dyes."</i>
light colors	4	<i>"The colors of dyeing are light, and the depth of colors is difficult to make."</i>

1.3 Problems with package of natural dyes powder

The analyzed data from the interviews on problems with package of natural dyes powder of entrepreneurs indicated the problem with lack of standard for natural dyes powder as shown in Table 3.

Table 3. Problems with the package of natural dyes powder.

Problems with the package of natural dyes powder	Number of references	Interview examples
lack of standard	2	<i>“The natural dyeing does not reach its standard in terms of durability, so it cannot be exported to another country.”</i>

1.4 Problems of services

The analyzed data from the interviews on problems of services indicated problems of rare materials, high costs, and difficulty of shipment as shown in Table 4.

Table 4. Problems of services.

Problems of services	Number of references	Interview examples
rare materials	29	<i>“The material from plants is rare.”</i>
high costs	8	<i>“It is expensive. If we buy little material, we can produce few products.”</i>
difficulty of shipment	4	<i>“Sources of material are too far and too difficult to drive to buy.”</i>

2. Demands using natural dyes of entrepreneurs

The analysis from the interviews regarding the demands using natural dyes was divided into 5 aspects as follows:

2.1 Demands of production and using natural dyes

The analyzed data from the interviews on demands of production and using natural dyes of entrepreneurs indicated demands of easy production, i.e. easy use, time reduction process and temperature reduction as shown in Table 5.

Table 5. Demands of production and using natural dyes.

Demands of production and using natural dyes	Number of references	Interview examples
easy to use	15	<i>“It should be immediate for us to use without an extraction process.”</i>
time reduction process	15	<i>“The process periods should be reduced and prompt to be used.”</i>
temperature reduction	5	<i>“The most of dyeing process is in high temperature. I want natural dyes which should be dried in low temperature for saving cost.”</i>

2.2 Demands properties of natural dyes

The analyzed data from the interviews on demands properties of natural dyes of entrepreneurs indicated demands basic properties, i.e. color fastness to washing, color control, color fastness to light and reproducibility as well as demands additional properties, i.e. pastel color, variety of colors, UV protection and fluorescent as shown in Table 6.

Table 6. Demands properties of natural dyes.

Demands properties of natural dyes	Number of references	Interview examples
demands basic properties		
color fastness to washing	38	<i>"The color fastness to wash should be improved."</i>
color control	16	<i>"We should maintain the shade of dyeing depending on customer demands."</i>
color fastness to light	14	<i>"The light is not pale."</i>
reproducible	9	<i>"The color is repeatable."</i>
demands additional properties		
pastel colors	8	<i>"Pastel color shade should be the specification."</i>
variety of colors	7	<i>"A variety of colors is needed."</i>
UV protection	5	<i>"The main thing is UV because people are very concerned with the sun."</i>
glowing properties	2	<i>"If there are special properties that glow, it will be very exciting."</i>

2.3 Demands package of natural dyes powder

The analyzed data from the interviews on demands package of natural dyes powder of entrepreneurs indicated demands package of natural dyes powder, i.e. test results that confirm the performance and easy-to-use guide as shown in Table 7.

Table 7. Demands package of natural dyes powder.

Demands package of natural dyes powder	Number of references	Interview examples
test results that confirmed the performance	15	<i>"There must be an experimental evidence that confirms the standard of color fastness to washing and the durability of colors."</i>
easy-to-use guide	4	<i>"There should be a package that tells you how to make it easy to use."</i>

2.4 Demands of services

The analyzed data from the interviews on demands of services indicated demands low prices, easy to find and a trial as shown in Table 8.

Table 8. Demands of service.

Demands of services	Number of references	Interview examples
low prices	4	<i>"We want natural dyes with low prices."</i>
easy to find	2	<i>"It should be easy to find raw material in the market."</i>
a trial	2	<i>"There should be a dyeing trial before use."</i>

2.5 Demands form of ready-to-use natural dyes

The analyzed data from the interviews on demands form of ready-to-use natural dyes indicated demands form powder, pellet and gel packs as shown in Table 9.

Table 9. Demands form of ready-to-use natural dyes.

Demands form of ready-to-use natural dyes	Number of references	Interview examples
powder	15	<i>"Natural dye in powder form is interesting, because it is not easily seen in the market as people normally extract it by themselves."</i>
pellet	2	<i>"The pellet is better because we do not have to weigh it."</i>
gel packs	2	<i>"It's like Japanese detergent that throws it down. It's water-soluble and ready to use."</i>

The interview result implies that most of the problems of using natural dyes were 1) Problems of production and using natural dyes. Time consuming was referred (56.41%) more than production process and retention of dyes as shown in table 1. 2) Problems of properties of natural dyes. Uncontrolled shades were the most referred (39.65%). Its percentage of references is higher than the low washing fastness, irreproducibility, and light color as shown in table 2. Praphaisri Roopdee's and Wichain Voraputhaporn's research [4] also mentioned about uncontrolled shades. When material was dyed, extraction dyes were not satisfactory. In addition, Wichet Chankhonghom, Uthai Eksaphang, and Wut Wattanasin [5] said villagers who produce and use natural dyes have a dyeing problem. Each dye gives an unequal depth of shade. The different between natural dyes and synthetic dyes is the depth of shade. Synthetic dyes had an ability to control the depth of shade as same as the primary color. In terms of demands of using natural dyes, the aspects were 1) Demands of production and using natural dyes. The advantage is easy to use and reduce time in process were the most referred (42.85%) which were higher than temperature reduction as shown in table 5. 2) Demands of properties of natural

dyes as shown in table 6. It's obvious that demands of basic properties were color fastness to washing which were the most referred at 49.35%. Demands additional properties were pastel color which were the most referred at 36.36%. All the results regarding problems and demands of quality natural dyes were consistent to *Suree Phutrakul et al.* [6]. Her finding was conducted to gather information, problems, and demands from the manufacturers, which needed to be modified to promote natural dyeing. The problem is the product quality. Researchers need to find information for research and development of high quality natural dye products acceptable to consumers and advantage for entrepreneurs. The simple, convenient, and low cost process has a variety of shades and color fastness equivalent to synthetic dyes.

The problem and demands of using natural dyes lead to the development of natural dyes in ready-to-use. The results showed that the powder form was the most demanding. Therefore, many production and problems in regard to equipment costs were extremely high in investment with high cost of production. As a result, natural dye powder was expensive. The quality control was required by such entrepreneurs. According to the research report of Kamjorn Saecheong [7], dye powder from marigold petals and natural dye powders were also problematic in terms of sticking together solid and sticky when absorb the moist in the air.

CONCLUSIONS

Demands factors of using both OTOP/SMEs and Start-Up entrepreneurs consist of 5 factors:

1. Production and using natural dyes factors. The process is rather complex and includes many steps; raw materials to extraction, filtration and dyeing. Therefore, easy use and step reduction of production are needed.

2. Properties of natural dyes factors. Natural dyes are low washing fastness. It gets pale easily, which leads to poor quality of products. Therefore, the entrepreneurs' most requirement was color fastness to washing in order to increase the quality of the product. In addition, additional properties were pastel color that was difficult to control color. This color is so required because it helps make an easier process. Another pastel color is a basic color that can be used with many customers.

3. Service factors are low in prices with high profits.

4. Package factors that are the most required by entrepreneurs were confirmed test result of the performance of natural dyes in order to make the entrepreneurs believe and feel more confident.

5. Ready-to-use natural dyes that is the most required by entrepreneurs is powder form as it is convenient and easy to use.

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