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Study on Awareness of Consumers about Dye Related Problems

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A B S T R A C T

Colour is the main attraction of any fabric but it becomes a big environmental hazard. Using of synthetic dyes has an adverse effect on human health and environment. It also affects the quality of drinking water and aquatic life. Due to toxic nature and adverse effect of synthetic dyes on environment the move to natural dyes started worldwide. Use of natural dye in textile industry was closed in 1856. Now again using natural dyes in textile for their biodegradable, non-toxic and harmless to the environment and human health. They do not cause any health hazards and hence they can be used easily. Thus the present study has been tried to know about the consumer's awareness regarding natural and synthetic dyes related issues of human health and environment.

Introduction

The textile industry is one of the important industries of India and the second largest employment generating sector after agriculture. The textile industry is accountable for producing 1.3 million tons of dyes and pigments, most of which are made synthetically. During nineteenth century all the dyes used for textile products were procured naturally, until the invention of synthetic dyes in 1856 by Perkin (www.intechopen.com). Textile industrial used more than 10,000 different dyes and pigment with a worldwide production of more than 7 x 10^5 metric tons of synthetic dyes per year (Al-Ghouti *et al.,* 2003). Application of synthetic dyes, generated effluents which pollute the environment as it contains a load of chemicals; approximately 10 to 15% of the dye is lost to waste during the dyeing process (Iqbal and Ashiq, 2007).

Textile effluent waste water is considered as the most recent environmental pollution all over the world (Mohamed *et al.,* 2017). The study conducted by Robinson *et al.,* (2001) revealed that textile effluents containing indigo dye and other dye types make water toxic and unfit for human and animal

consumption and cause imbalance within different aquatic ecosystem food chains. Adeel *et al.,* (2009) commercially used synthetic dyes impact strong colour but cause carcinogenic and inhibitions of photosynthesis. Some dyes can cause severe damage to internal organs of humans' such as dysfunction of the liver, brain, kidney etc. (Kardievelu *et al.,* 2003)

Natural dyes are recovering their importance, due to non-allergic, non-toxic, non-polluting nature in addition to automatically better biodegradability and higher compatibility with the environment than synthetic dyes (Agrwal, 2009; Khan *et al.,* 2011 and Sentthil *et al.,* 2017). Natural dyes are providing a reasonable solution to reduce these problems (Arora *et al.,* 2017).

Nowadays, demand for natural dyes has been growing rapidly due to increasing awareness among people towards natural dyes (Singh *et al.,* 2015). The used of natural dyes on textiles has been one of the consequences of increased environmental awareness worldwide and it also help in maintain the ecological balance (Mukharjee *et al.,* 2005).

Considering the importance and demand for natural dyes in textile products and increasing awareness among people towards environmental issues, the study is planned with the following objective: To know the consumer awareness regarding health and environmental impact of dyes.

Survey method

The study was conducted in the Assam Agriculture University campus, Jorhat to know consumers' awareness regarding health and environmental impacts of dyes. The samples selected for data collection were teaching and non- teaching staff and post graduate students. A total of 30 samples were randomly selected. An interview schedule was prepared to collect information for the study.

Results and Discussion

The table 1 shows that majority (40%) of the respondents belong to the age group of 25 to 30 years, 27 % of the respondents belong to below 25 years, 20 % of the respondents belong to above 35 years age group and 13 % belongs to 30 to 35 years age group.

Table 3 shows that all the respondents i.e. 100 % were known about both the natural and synthetic dye.

Table 4 shows that 86.67% of the respondents have heard about the azo dyes and its problem related to health and environment followed by 13.33 % were never heard about the azo dyes and its problem.

From table 5, it was found that 66.66% of the respondents were never heard about that any left-over of dye on clothes may cause carcinogenic effect on human health and environment and 33.33% were very well known about the carcinogenic effect on human health and environment

Analysis on awareness level of the respondent revealed (Table 6) that half of the respondents (i.e. 50%) were aware about the problem on human health followed by medium level of awareness (43.33%) and very few i.e. 6.7% of respondents were aware about the synthetic dye related problem.

Above Table 7 shows that 100 % of the respondents never feel uncomfortable due to synthetic dyed textile products followed by 93.33 % were never have skin irritation and 83.33% respondents never have itching problem due to textile products. A very few respondents (6.67%) were facing sometimes

skin irritation due to wearing of textile products.

Table 8 shows that majority (100%) of the respondents were known about the plant sources of natural dye followed by 90 % were known about animal source and 50 % were know about the mineral sources as natural dye. Table also shows that 10% of respondents were not known about animal dye as a source of natural dye and 50 % of the respondents were not known about mineral source of natural dye.

Table 9 shows that all the respondents (100%) were degree about the natural dye are a solution to minimize the hazard from human health and environment.

Table 10 shows that 100 % of the respondents got information from television and newspaper/ magazine. It was found that 86.67 % got information from social media and friends/ relative and it was observed that 66.67 % respondents were got the information from exhibitions.

Table.1 Distribution of respondents based on age

N=30

Age of the respondent	% of the respondent
Below 25	27
25-30	40
30-35	13
35<	20

Table.2 Distribution of respondents based on marital status

N=30

Marital Status	% of the respondent
Married	40
Unmarried	60

Table.3 Distribution of respondents based on their known about Naturaldye and synthetic dye

N=30

Facts	Respondents (%)
Yes	100
No	100

Table.4 Distribution of respondents based on their knowledge regarding azo dyes and its problem related to health and environment

N=30

Facts	Respondents
Heard	86.67
Never heard	13.33

Table.5 Distribution of respondents according to knowledge regarding left-over of synthetic dyed clothes can cause carcinogenic effect on human health and environment

N=30

Facts	Respondents (%)
Yes	33.33%
No	66.66%

Table.6 Distribution of respondents according to their level of awareness on synthetic dye related problems

N=30

Sl. No.	Level of awareness	Percentage (%)
1.	High awareness (>29.3)	50.00
2.	Medium awareness (24.1-28.7)	43.33
3.	Low awareness (23.9)	6.70

Table.7 Distribution of respondents based on their health problems caused due to synthetic dyed textile products

N=30

Facts	Respondents (%)		
	Always	Sometime	Never
Itching	-	**16.67**	**83.33**
Skin irritation	-	**6.67**	**93.33**
Uncomfortable	-	-	**100**

Table.8 Distribution of respondents based on their knowledge regarding source of natural dyes

N=30

Source	Known	Not Known
Plant source	100	-
Animal source	90	10
Mineral Source	50	50

Table.9 Distribution of respondents based on their thinking that natural dye is a solution to reduce the hazard from human health and environment

N=30

Facts	Respondents
Agree	100
Partially agree	-
Disagree	-

Table.10 Distribution of respondents based on sources from where they get information about the naturally dye textile product

N=30

Sources	Yes	No
Television	100	-
Newspaper/ Magazine	100	-
Social media	86.67	13.33
Exhibition	66.67	33.33
Friends /relative	86.67	13.33

From the survey data it was concluded that majority 40% of respondents belong to the age group of 25 to 30 years. 60% respondents were unmarried (Table 2). From the facts it was found that all the respondents were known about the natural dye and synthetic dye.50% of the respondents were know about the used of synthetic dyes in textile industry and 50% were not know. Majority of respondents (86.67%) were known about the azo dyes and its harmful effect on health and environment. Most of the respondents (66.66%) were not aware about the any left-over dye on clothes may cause carcinogenic effect on human health. Analysis shows that 50% of respondents were aware about the synthetic dye related problem followed by 43.33% and very few 6.7 % were not aware about the synthetic dye related problem. Very few 6.67% respondents have found skin irritation problem when they wear textile product immediately after buying. Finding shows that majority of the respondents were very well known about the plant, animal and mineral source as a natural dye. From this study it was seen that most of the respondents were thought that natural dye will be the very good source to minimize the health and environment problem. This survey also concluded that the respondents were interested to buy natural dyed product but due to cost they hesitate to buy. From the about survey, it was also found that respondents were aware of problem causes due to synthetic dye wastes. So we should try to use natural dye in a textile product to reduce some amount of harmful effects on environment and human health**.**

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