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USING NATURAL HARAD POWDER INK FOR SCREEN PRINTING ON PAPER

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ABSTRACT

Harad Powder is used basically for textile dyeing by soaking the fabric in harad powder water and then block printing with rust water. During this whole process, strong bond is formed on fabric between tannic acid present in hard powder and rust to form ferric tannate which gives black colour on fabric. This whole process is for textile dyeing but this can also be used for making ink for screen printing on paper to reduce carbon footprint as no carbon contents are used for making this ink. This can also be used as an alternate to black inks.

KEYWORDS: Natural Ink, Harad powder, Screen Printing, Paper.

INTRODUCTION

The art of textile dyeing from natural resources is very old and still used in various parts of India. Dyeing from harad powder is one such example of natural dyeing for producing black colour on fabric. During this process of dyeing bond on a fabric of ferric tannate is formed which gives permanent black colour on fabric. Taking an idea from this, black ink can also be produced for printing on paper. All natural ingredients are used for ink preparation from harad powder ink. Water is used as a solvent, natural kiker gum is used as resin, formed ferric tannate gives black colour used as a pigment, salt is used as an additive for colour fastness and preservative properties, arrow root powder is also added to achieve good consistency of ink. Prepared ink has good colour fastness properties, stability, easy to prepare and easy to decompose.

RESEARCH OBJECTIVES

The objective of this research was to check the feasibility of harad powder ink for printing on paper using screen printing. The print was evaluated in terms of UV exposure, peel-off, rub resistance and sunlight exposure. The main objective of this research was to reduce the carbon footprint in black synthetic inks by giving an alternate of natural harad powder ink.

STEPS FOLLOWED FOR NATURAL HARAD POWDER INK PREPARATION

1. Soaking 2 tbsp of harad powder in 600ml of water in rusted iron bowl for 48 hours made tannic acid present in harad powder to react with rust to form ferric tannate which changed the colour of water to black.
2. Now the obtained sap was boiled for 45 minutes at 70°C to inactivate enzymes and bacteria present in the sap. Now the sap was filtered using a muslin cloth.
3. Sap was boiled again to bring the final concentration to 200ml.
4. Now 1 ½ tbsp of salt, 3 tbsp of arrow root powder, 1 tbsp of kiker gum were added in the sap and sap was boiled to change the consistency of ink.
5. Now the prepared ink was used to print on paper using the screen. Print obtained is shown in figure 1.

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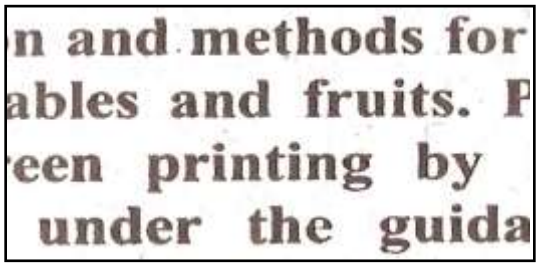

Figure 1

DATA ANALYSIS

The print was evaluated on various parameters which are shown in table 1.

Sr. No.	Parameters	Harad Powder Ink
1.	Sunlight exposure for 7 days	Stable
2.	Rub resistance test	Stable (up to 1000 rounds)
3.	Peel-off test	Stable
4.	UV exposure for 6 hours	Stable
5.	Stability at low temperature	Stable
6.	Permanency of colour in normal day-light conditions	Stable
7.	Drying time	3-5 sec.
8.	Colour of printed ink	Black

RESULT AND DISCUSSION

Prepared Natural Harad Powder Ink gave good black colour print on paper as good as other synthetic inks. Print evaluation of ink showed good rub resistance, peel-off, stability in sunlight and UV exposure, less drying time.

CONCLUSION

Following were the conclusion from this research work:

- Harad Powder Ink is feasible for paper printing.
- Prepared ink helps in carbon footprint reduction as prepared black ink have no carbon contents as raw material.
- Simple manufacturing process.
- Prepared ink is eco-friendly and easy to decompose.

From this research work, this can be concluded that prepared Natural Harad Powder Ink can be a good alternate to synthetic black inks. More research needs to be done in this field to standardize the method for natural ink preparation from Harad Powder Ink.

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