



EFFECT OF DIFFERENT LAUNDRY DETERGENTS ON STAIN REMOVAL FROM VAT DYED COTTON FABRIC

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ABSTRACT:

Cleanliness is an important factor in human health and comfort; many people stain their clothes and don't know the best way to take the stain out. The main purpose of this study was to test and observe three different laundry detergents and how they affected stains. The methodology adopted for the study was to use Vat dyed Navy Blue and Green coloured cotton fabric and three commercial laundry detergents and four biological stains were selected. The purpose of the experiment was to determine which laundry detergent would best remove different types of stains by measuring the amount of stain removed. This study helps the consumer to understand which laundry detergent worked best.

Key words: Cotton fabric, Detergents, Biological Stains, Vat dye

INTRODUCTION:

Cotton is the world's most used fiber. Every part of the cotton plant is useful. The fiber is the most important part of the plant because it is used in the making of cotton cloth. Vat dye is water insoluble group. Vat dye is one of the important dyes for coloration of cotton, when high fastness properties are required. But, vat dye has the problem of insolubility in water .Hence, the process of vatting is needed to reduce and solubilize the dye in water. Clothes become soiled as they are worn or used and hence require cleaning to maintain their appearance. A stain is dirty or discoloured area on clothes. In our daily life in spite of due care sometimes clothes are stained and they look unattractive. Stains are a spot or mark of discoloration, which is left on fabrics by the contact and absorption of some foreign substances. Ordinary methods or





reagents easily remove some stains. But their quite a few, which need special treatment. This entirely depends on the nature of the stain. Stain removal is a skill which calls for long experience and demands special attention. The two essential factors to be considered in stain removal are the composition, colour of the fabric and the nature and age of stain.

The home laundry process is required to provide multitude of benefits. Most important is cleaning. We also want our clothes to be whiter than white and our coloured thing to be brighter than bright.

Many stains may be removed from clothing and household furnishings, increasingly their quality and prolonging their useful life. A Stain is a chemical reaction between the staining agent and the fibers and finishes of a fabric. There is no single product or method for removing all stains because chemical makeup of each stain and agent is unique. "Old" stains are more difficult to remove than "Fresh" ones.

MATERIAL AND METHOD:

100% pure Vat dyed Navy Blue and Green coloured cotton samples of size 10 cm. x 10 cm. were taken for the study. Each samples were spotted with four different biological stains such as Blood, Heena, Curry and Turmeric. A set of these spot stained samples were fresh and set for Twenty four hours. Three types of laundry detergents were selected i.e. Ariel Oxy Blue(Ar), Nirma(Nr) and Tide(Td).

Spotted sample were immersing with each detergent solution for 15 minutes. Amount of stain removal were noted down. Amount of stain removed was assessed by comparing the treated samples with control(stained) samples and denoted as rating **5** was denoted as stain undetectable similarly very slight staining was denoted as rating **4**, slight staining was denoted as rating **3**, moderate staining was denoted as rating **2** and heavy staining was denoted as rating **1**.





RESULT AND DISCUSSION:

Efficacy of detergents in removing stains on coloured cotton fabrics.

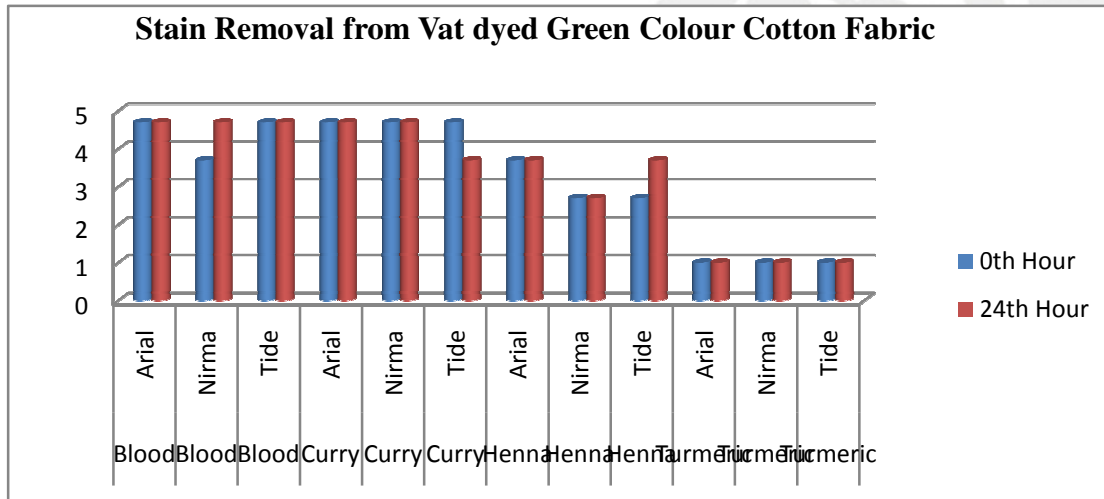


Fig. 1

Fig. 1 demonstrates information pertaining to the effect of different detergent on blood curry, henna and Turmeric stain removal from cotton fabric coloured with vat dye green colour at different time duration. It was observed that from removal of blood stain detergents Ar and Td indicated rating of 4.7 at 0th hour and 24th hour. Whereas detergent Nr. Indicated rating 3.7 at 0th hour and 4.7 rating at 24th hour.

Furthermore for removal of curry stains from vat green coloured cotton fabric detergents Ar, and Nr indicated rating of 4.7 at 0th hour and 24th hour. Whereas detergent Td. Indicated rating 4.7 at 0th hour and 3.7 rating at 24th hour.

Moreover for removal of henna stains from green coloured cotton fabric, detergents Ar, indicated rating of 4.7 at 0th hour and 24th hour. detergent Nr. Indicated rating 2.7 at 0th hour and 24th hour. Whereas Td. Detergent indicated rating 2.7 at 0th hour and 3.7 at 24th hour.

Demonstrates information pertaining to the effect of different detergent on Turmeric stain removal from cotton fabric coloured with vat dyes





green colour at different time duration. It was observed that from removal of Turmeric stain all detergents Ar, Nr and Td indicated rating of 1.0 at 0th hour and 24th hour.

- From the study results it was observed that stain removal ability of the different detergents from the coloured cotton fabrics varied considerably, specifically, for the blood stains, Ar, and Td and are found to be most efficient detergents amongst the selected ones.
- For removal of curry stains detergent Ar and Nr is found to be least effective detergent, whereas for removal of henna stains, the most effective detergents is Ar.
- From the study results it was observed that blood, curry, henna and turmeric stain removal ability of the different detergents varied considerably at different time intervals.

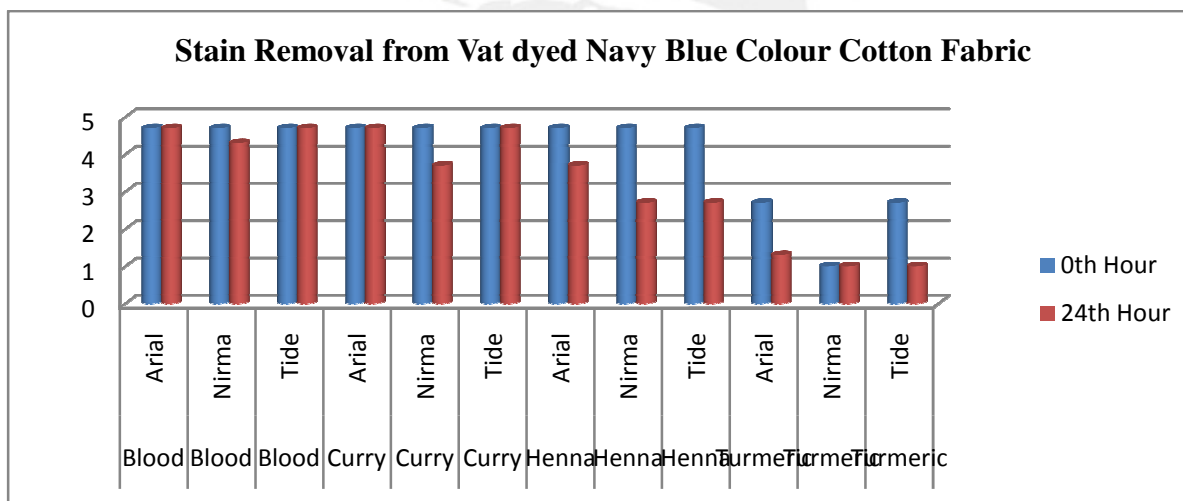


Fig.2

Fig.2 demonstrates information pertaining to the effect of different detergent on blood curry and henna stain removal from cotton fabric coloured with vat dye navy blue colour at different time duration. It was





observed that for removal of blood stains detergents Ar, and Td indicated rating of 4.7 at 0th hour and 24th hour. Where as detergent Nr. Indicated rating 4.7 at 0th hour and 4.3 rating at 24th hour.

Furthermore for removal of curry stains from vat navy blue coloured cotton fabric detergents Ar, and Td indicated rating of 4.7 at 0th hour and 24th hour. Where as detergent Nr. Indicated rating 4.7 at 0th hour and 3.7 rating at 24th hour.

Moreover for removal of henna stains from navy blue coloured cotton fabric, detergents Ar, Nr and Td indicated rating of 4.7 at 0th hour. Where as detergent Ar Indicated rating 3.7 at 24th hour and detergent Nr and Td indicated rating 2.7 at 24th hour.

Shows information pertaining to the effect of different detergent on Turmeric stain removal from cotton fabric coloured with vat dyes Navy Blue colour at different time duration. It was observed that from removal of Turmeric stain detergents Ar, and Td indicated rating of 2.7 at 0th hour, detergent Nr Indicated rating 1.0 at 0th and 24th hour. Where as detergent Ar and Td indicated rating 1.3 and 1.0 at 24th hour.

- From the study results it was observed that stain removal ability of the different detergents from the coloured cotton fabrics varied considerably.
- For removal of blood, curry and henna stains all the selected detergent are found equally effective at 0th hours, whereas there is considerable variation in blood, curry and henna stain removal effectiveness of selected detergents at 24th hour interval.

CONCLUSION :

The study result showed that all three detergents work effectively on Blood, Curry and Heena stains, for 0th hour and set for 24th hour stains. Set stain took more time to be removed than fresh stains. But all three





detergents did not work best on Turmeric stain for 0th and set for 24th hour set stains. Each stain and detergent has its own performance profile. Remove stains while they are fresh. Time delay enhances the fixation of stain with fabric.

REFERENCES:

1. The story of cotton-Importance of cotton.
2. Which Laundry Detergent Is Best At Removing Stains From Clothes -Ben Monroe (2013)
3. Fiber Facts- Information fo different types of textile fibers
4. The effect of different detergents on the removal of stains – Carrie N. (2002-03).
5. Comparative study of washing fastness of vat and reactive dyed fabric samples – (Iftikhar Ahmad, 2001)
6. Cotton History- Ruchi global Limited

