



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

Hemlata A. Padole

Assi.Professor, Sevadal Mahila Mahavidyalaya, Nagpur

Email: hema.padole@gmail.com

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 Reactive dyed Orange and Pinkcoloured 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, Reactive 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. Reactive dyes for cellulosic materials were invented in 1954. Reactive dyes first appeared commercially in 1956, after their invention in 1954. 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 Reactive dyed Pink and Orange 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 Twelve hours. Three types of laundry detergents were selected i.e. Surf Excel(SE), 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. and Fig. 2. Illustrated information pertaining to the effect of different detergent on blood, curry, henna and Turmeric stain removal from cotton fabric coloured with reactive dye pink colour at different time duration. It was observed that for removal of blood stain detergents Nirma indicated rating of 4 at 0th hour and 5 at 12th hour, whereas Surf Excel and Tide detergents indicated rating of 5 at 0th and 12th hour.

Furthermore for removal of curry stains from reactive pink coloured cotton fabric detergents Nirma showed rating of 4 at 0th and 3 at 12th hour, detergent Surf Excel showed rating of 5 at 0th hour and 4 at 12th hour and Tide showed rating of 5 at 0th hour and 3 at 12th hour,

Moreover for removal of henna stains from pink coloured cotton fabric, detergent Nirma indicated rating of 3 at 0th and 12th hour, detergent Surf Excel showed rating 4 at 0th hour and 3 at 12th hour and Tide showed rating of 4 at 0th hour and 3 at 12th hour.

Furthermore for removal of Turmeric stains from reactive pink coloured cotton fabric detergents Nirma showed rating of 1 at 0th hour and 12th hour, detergent Surf Excel showed rating of 2 at 0th hour and 1 at 12th hour and Tide showed rating of 2 at 0th hour and 1 at 12th 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, SE, and Td were found to be most efficient detergents amongst the selected ones.

- For removal of curry stains detergent SE was found to be most effective detergent, whereas for removal of henna stains, and turmeric stains the most effective detergents are SE and Td.

- From the study results it was observed that blood, curry, henna and Turmeric stain removal ability of the different detergents varied considerably.

Fig 3 and Fig 4 shows information pertaining to the effect of different detergent on blood, curry, henna and turmeric stain removal from cotton fabric coloured with reactive dye orange colour at different time duration. It was observed that for removal of blood stain detergents Nr. indicated rating of 4 at 0th hour and 12th hour. Detergents SE and Td indicated rating of 5 at 0th and 12th hour,

Furthermore for removal of curry stains from reactive orange coloured cotton fabric Nr and SE detergents showed rating of 5 at 0th hour and 12th hour. detergent Td, showed rating of 5 at 0th hour and 4 at 12th hour.

Moreover for removal of henna stains from orange coloured cotton fabric, detergent Nr indicated rating of 2 at 0th hour and 12th hour. Detergent SE showed rating of 4 at 0th hour and 2 at 12th hour. Detergent Td indicated rating 4 at 0th hour and 2 at 12th hour.

Furthermore for removal of Turmeric stains from reactive orange coloured cotton fabric detergents Nirma showed rating of 4 at 0th hour and 3 at 12th hour, detergent Surf Excel showed rating of 4 at 0th hour and 3 at 12th hour and Tide showed rating of 4 at 0th hour and 3 at 12th 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 SE, and Td were found to be most efficient detergents amongst the selected ones.

- For removal of curry stains all detergent are found to be most effective detergent, whereas for removal of henna stains, the most effective

detergents are SE and Td. For removal of Turmeric stains all detergent are found to be most effective detergent.

- From the study results it was observed that blood, curry, henna and turmeric stain removal ability of the different detergents varied considerably.

CONCLUSION :

The study result showed that all three detergents work effectively on Blood, Curry, Heena and Turmeric stains, for 0th hour and set for 12th hour stains. Set stain took more time to be removed than fresh stains. But all three detergents did not work best on Heena and Turmeric stain for 0th and set for 12th 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:

Cameron B.A., Laundering in Cold Water:

Detergent Considerations for Consumers, Family and Consumer Sciences Research Journal, 2007; 36; 151

I.A.N.A.J.A.A. (2001). Comparative Study of Washing Fastness of Vat and Reactive

Dyed Fabric Samples. Journal of Applied Science, 3(1), 413–416.

<https://docsdrive.com/pdfs/ansinet/jas/2001/413-416.pdf>

Mazumder M. and Haque M.M.; Importance of fixing agent on the colour fastness of reactive dyestuff originated from various dye manufacturers, Pakistan Textile Journal, 2011; 60(4):44

Quick Guide To Different Types of Textile Fibres. (n.d.).

<https://www.commonobjective.co/Article/Quick-Guide-to-Different-Types-of-Textile-Fibres>. Retrieved July 5, 2021, from

<https://www.commonobjective.co/article/quick-guide-to-different-types-of-textile-fibres>

The Story of Cotton- The Importance of Cotton. (n.d.). www.cotton.org. Retrieved July 5, 2021, from

<https://www.cotton.org/pubs/cottoncounts/story/importance.cfm>

Van Cleave, J., 1993, Are Enzymes in Laundry Detergents Effective Stain Removers?, NY: John Wiley and Sons, 25–29

Figure -1

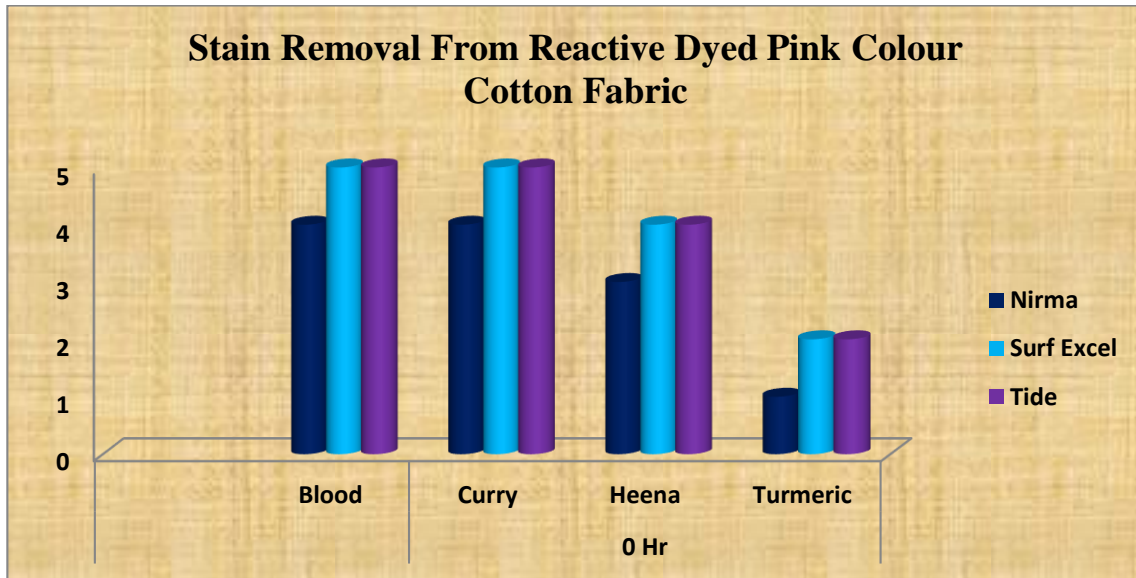


Figure - 2

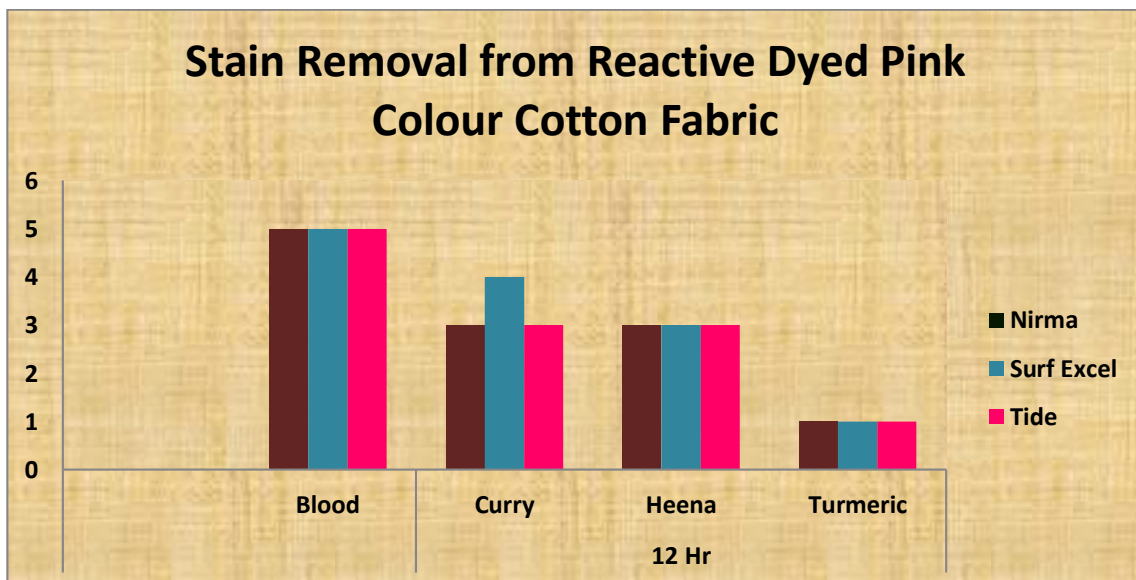


Figure-3

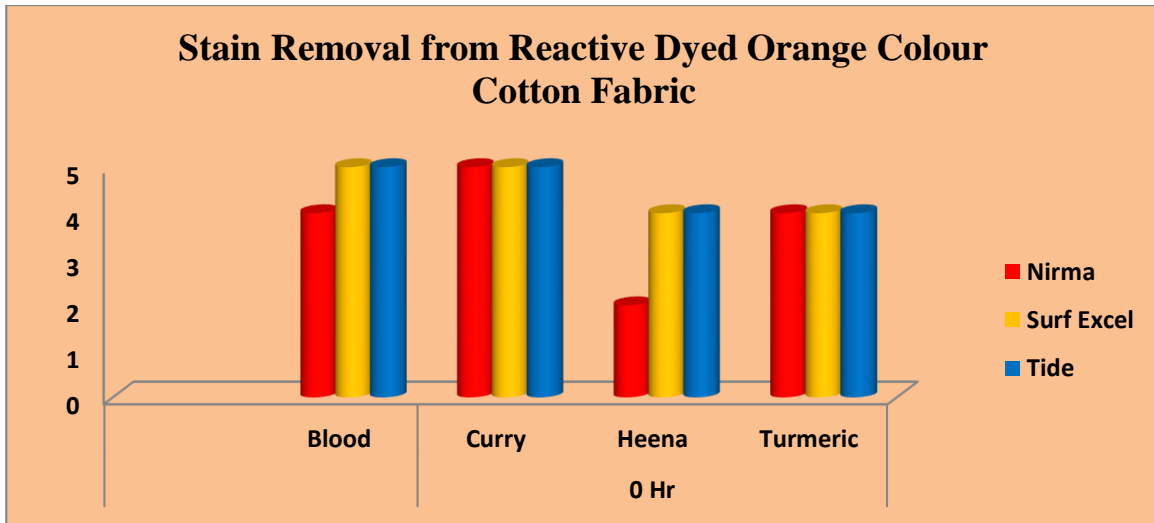


Figure - 4

