EFFECT OF DIFFERENT COMMERCIAL BRANDS OF SOAPS AND DETERGENTS ON THE WASH FASTNESS PROPERTIES OF DIFFERENT COMMERCIAL BRANDS OF FABRICS (WRAPPERS/AFRICA PRINT)

A. O. Oforghor

Department of Home Science and Management
Faculty of Agriculture, Shabu-Lafia Campus,
Nasarawa State University, Keffi.
Author's e-mail: frankiefresh72@yahoo.com

ABSTRACT

Sequel to the problems associated with fabrics (wrappers) –colour fastness to washing and the continued need to seek out the best ways of minimizing them, the effect of different commercial brands of soaps and detergents on quality performance of six (6) selected fabrics (wrappers) to laundry were investigated. In the analysis two treatments were employed i.e. ISO_3 and ISO_4. The results showed that the samples exhibited better wash fastness properties towards the soaps for ISO3 treatments than for ISO4 treatments. The order of performance of the soaps for ISO3 treatments is S5> S6>S8>S4>S3> S2 while for ISO4 treatments the order of performance of the soaps is S3>S2>S5>S10 respectively. Samples W6,W1, W3,W5 shows excellent wash fastness properties for ISO3 treatments while S2,S10,S3 and S5 soaps gave the highest wash fastness for samples W1,W2,W3,W5 and W6 for ISO4 treatments respectively. For the detergents, however, the wash fastness can be rated moderate, but D2 and D4 detergents gave the highest wash fastness properties for ISO3 treatments, but for ISO4 treatments, the wash fastness can be rated very poor the samples gave low wash fastness values i.e. there was bleeding of the dyes from the fabrics – fading occurs. It is therefore recommended that the soaps and detergents mentioned above could be used for washing fabrics (wrappers) with ISO3 treatments. Generally, ISO3 treatments gave better results than ISO4 treatments.

INTRODUCTION

Fabric is an essential aspect of life and plays an important role in forming first impressions. A family good amount of income is spent on fabrics and they remain with user for quite some time. For these reasons they need to be kept clean and fresh till they are considered useless. Then serviceability of fabrics depends on the type of care taken for their maintenance. One of the prime factors considered when selecting fabrics (wrappers) is the print/colour and the colour fastness (Wyne, 1997). Colour fastness is the resistance of colour of dyed materials to the influence of external agencies such as light, water, soap, detergent, and scrubbing (rubbing). This is important to the manufacturer and the users and/or consumers. (Adamu and Isa, 2009) Though colour fading/bleeding is considered a fashion in certain items, good colour fastness continues to be the major concern of most of the user. For a lay user, however, it is difficult to come to know colour fastness of fabrics, unless until the user has experience of using them. The solubility of dyes in water has a bearing on the penetrability into fibers and consequently on their fastness in addition to methods of application, (Abrahart, 2001). Some dye particles tends to be bigger in size and do not dissolve fully in water. Such dyes present poor colour fastness to crocking and bleeding. An environment to facilitate dye penetration should be created. This differs from fibre to fibre and dye to dye. It is

created by medium, heat, pressure, P^H and auxiliaries used. For a coloured , dye should penetrate fibre and locked inside the fibre. Fibres that dye easily are those that are absorbent types and have dye sites in them, which are capable of reacting with the dye molecules. During dyeing, dye molecules first reacts with the surface molecules of the fibres, but as the fibres swells in the presence of heat and moisture, much more sites are exposed in the fibre and dye molecules have an increased access to them. After dyeing, when dried, dye molecules get trapped within the fibre as the chains creep back to their original compact structure after cooling (Ofoghor, 2001). Fabrics (Wrapper) get dirty or soiled whether at rest or at work by different means (Adamu, and Isa, (2009). The phenomenon of soiling is the collection of dirt from varying pollutants on the fabrics and they are of varying natures, mainly loose dust, grease, stain, perspiration or a combination of these. The removal of these soils depends on the nature of the soil on the fabric (Ameh, 2001). Perspiration and other such soils which are water soluble can be effectively removed by wet cleaning. During the removal of these soils or dirt's some of the colours are removed and/or bleeded out. Water is a major cleaning agent commonly used in laundering fabrics. Water alone can dissolve several salts in perspiration and other water-soluble soil, adhering to fabrics (Bird and Boston, 1999).

However, due to surface tension present in water, fabrics need to be laundered with soap and detergent. The laundering of fabrics can be accomplished by a variety of methods ranging from pure mechanical separation e.g. abrasion, kneading, squeezing e.t.c. When used for cleaning, soap serves as a surfactant in conjunction with water. Soaps are saponification products of alkalis and fats. According to Eduard *et al*. (2002) the type of alkali metal used determines the kind of soap produced. Sodium soaps, prepared from sodium hydroxide, are firm, whereas potassium soaps, derived from potassium hydroxide, are softer or often liquid. Historically, potassium hydroxide was extracted from the ashes of bracken or other plants. Lithium soaps also tend to be hard—these are used exclusively for the removal of greases. According to Werner, (2002), detergent is a surfactant or a mixture of surfactants with "cleaning properties in dilute solutions." In common usage, "detergent" refers to alkylbenzenesulfonates, a family of compounds that are similar to soap but are less affected by hard water.

MATERIALS AND METHODOLOGY

Materials

100% printed cotton fabric (African print), Scissors, Tape rule, Thread (yarn), Needle, Water, Soda ash,(Na_2CO_3),Soaps ,Detergents, Analytical weighing balance (Saronus Max. 320g), Measuring cylinder, Pipette, Glass beaker, Magnetic stirrer, Hot plate, Thermometer, Stop watch, Steel balls (10),Grey scale.

Methodology: Preparation of Soap Solution

5 g and 2 g of soap and soda ash were weighed out using the Analytical weighing balance (Saronus Max. 320 g) and dissolved in 1000 cm^3 (1 litre) of water. The mixture was slightly warmed to give a homogeneous soap solution.

Preparation of Detergent Solution

10 g and 2 g of detergent and soda ash were weighed out using the Analytical weighing balance (Saronus Max. 320g) and dissolved in 1000cm^3 (1 litre) of water. The mixture was slightly agitated to obtain a homogeneous detergent solution.

Wash Fastness Treatment

The printed fabrics (wrappers) were subjected to ISO_3 and ISO_4 wash fastness treatment as follows:

International Standard Organization Test 3 (ISO_3) Treatment

The ISO_3 treatment involves the preparation of soap and detergent solution using 5g/l soap/detergent and 2g/l soda ash (Na_2CO_3) in a liquor ratio of 50:1 for 30minutes at a temperature of 60^oC (140^oF)

International Standard Organization Test 4 (ISO4) Treatment

The ISO_4 treatment involves the preparation of soap and detergent solution using 5g/l soap/detergent and 2g/l soda ash (Na_2CO_3) in a liquor ratio of 50:1 for 30minutes at a temperature of 95^oC (203^oF).

Assessment of Change in Colour

The specimen in to be tested was stitched with an undyed cloth measuring 5cm x 4cm as the composite sample. The composite test specimen was agitated in a washing wheel machine containing 5g/ soap solution with other additives under specified condition of liquor ratio, temperature and time. The test 2 below.

was conducted for 45mins at a temperature of 50^oC+2^oC as specified under the ISO test 3. The composite specimen was then removed, rinsed and dried. The change in colour of the tested specimen and the staining of the adjacent undyed cloth were assessed using the 1 – 5 scale for specifying fastness as indicated in all the tables.

Assessment of staining

The staining was assessed using the grey scale for assessing stain (BS1006:978). This scale consist of nine (9) pairs of pieces of cards numbered 5, 4-5, 4, 3-4, 3, 2-3, 2, 1-2, 1 where 5 is a pair of white and the other consist of a grey, giving series of contrast increasing in geometric progression. No. 1 showing the highest contrast 36.2 CIELAB units of colour difference.

RESULTS AND DISCUSSION

The results of the experimental work for Soaps and Detergents are show on Tables 1-

Table 1: Effect of selected soaps on the wash fastness of the fabrics (African print)

Treatments	ISO3												ISO4											
Wash fastness rating	Charge in colour						Staining						Charge in colour						Staining					
Samples	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6
S 1	4	3	3	1	4	2	4 – 5	4	4 – 5	2	2	1 – 2	2	3	4	1	4	3	3	1	4 – 5	1 – 2	4 – 5	2 – 3
S 2	5	3	4	3	5	4	5	3 – 4	4 – 5	3 – 4	4 – 5	4 – 5	4	4	4	2	4	4	4 – 5	1	4 – 5	1	3 – 4	3
S 3	4	5	4	2	4	5	4 – 5	5	4 – 5	1 – 2	4 – 5	5	4	5	4	4	3	2	4 – 5	4 – 5	4	4	4 – 5	4 – 5
S 4	4	5	4	3	5	5	4 – 5	5	4 – 5	1 – 2	5	5	5	3	1	1	4	5	4 – 5	4	3 – 5	2	4 – 5	4
S 5	4	4	2	4	5	5	4 – 5	4 – 5	3 – 4	3 – 4	5	5	5	1	4	3	4	5	4	1 – 2	4 – 5	4	4	4 – 5
S 6	4	4	5	1	4	5	4 – 5	1 – 2	5	1 – 2	4 – 5	2 – 3	4	3	2	1	4	2	4 – 5	2 – 3	3 – 4	1 – 2	2 – 3	3 – 4
S 7	4	3	5	1	4	3	4 – 5	2	4	1 – 2	2	1 – 2	2	3	1	1	1	2	2 – 3	3 – 4	2 – 3	4 – 5	1 – 2	1 – 2
S 8	5	4	4	5	3	5	5	3	3	2	2	5	1	2	4	4	1	4	1 – 2	1 – 2	4 – 5	3 – 4	1 – 2	3 – 4
S 9	4	4	5	3	4	3	4 – 5	3 – 4	5	4	4	3 – 4	4	3	3	2	1	2	4 – 5	3 – 4	2 – 3	3 – 4	2 – 3	3 – 4
S 10	5	3	4	1	4	5	4	2 – 3	3 – 4	1 – 2	4 – 5	5	4	4	3	4	3	4	3 – 4	4 – 5	3 – 4	2 – 3	4 – 5	4 – 5

W = Wrappers- (W1-Sample 1, W2-Sample 2, W3-Sample 3, W4-Sample 4, W5-Sample 5, W6-Sample 6).
S = Soaps – (S1-Sample 1, S2-Sample 2, S3-Sample 3, S4-Sample 4, S5-Sample 5, S6-Sample 6, S1)

Table 2: Effect of Selected Detergents on the wash fastness of the fabrics (wrappers)

Treatments	ISO3												ISO4											
Wash fastness rating	Charge in colour						Staining						Charge in colour						Staining					
Samples	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6	W1	W2	W3	W4	W5	W6
Detergent samples																								
D 1	4	3	2	1	3	4	4 – 5	3 – 4	1 – 2	2 – 3	3 – 4	2 – 3	3	2	1	1	2	2	4	3	1 – 2	1	1 – 2	2 – 3
D 2	4	4	3	1	4	4	3 – 4	3 – 4	4 – 5	1 – 2	3 – 4	4 – 5	4	4	2	1	3	2	4 – 5	4 – 5	4	1	4	3 – 4
D 3	2	3	3	2	4	3	2 – 3	2 – 3	2 – 3	3 – 4	2 – 3	3 – 4	3	2	3	1	3	3	3	1 – 2	3	1	3 – 4	4
D 4	4	4	2	4	3	4	4 – 5	3 – 4	2 – 3	4 – 5	2 – 3	3 – 4	3	2	2	2	3	4	4	4	3	1	3	4 – 5
D 5	3	2	4	1	4	3	2 – 3	1 – 2	3 – 4	1 – 2	4 – 5	4	3	2	3	2	4	4	3 – 4	1 – 2	3	2 – 3	4 – 5	4
D 6	3	4	3	1	4	3	4 – 5	4	4	2	3	3 – 4	2	3	3	2	4	4	3	3 – 4	3 – 4	1 – 2	3 – 4	4
D 7	4	3	4	2	4	4	4 – 5	2 – 3	3 – 4	2 – 3	4 – 5	4	4	4	3	2	4	4	4 – 5	4 – 5	2 – 3	1 – 2	3 – 4	4 – 5
D 8	4	2	3	1	3	4	3 – 4	2 – 3	3 – 4	1 – 2	3 – 4	4 – 5	4	3	1	1	3	4	4	3 – 4	1	1 – 2	2	4
D 9	3	4	3	2	2	3	4	4 – 5	3 – 4	2 – 3	1 – 2	3 – 4	4	3	2	1	3	2	4	4 – 5	4	1 – 2	2 – 3	1 – 2
D10	3	4	3	1	4	3	2 – 3	3 – 4	2 – 3	1 – 2	4	3 – 4	4	3	2	2	4	4	4 – 5	3 – 4	3	2 – 3	4 – 5	3 – 4

W = (African print)Wrappers- (W1-Sample 1, W2-Sample 2, W3-Sample 3, W4-Sample 4, W5-Sample 5, W6-Sample 6).
D = Detergents – (D1-Sample 1, D2-Sample 2, D3-Sample 3, 4-Sample 4, D5-Sample 5, D6-Sample 6).

Table 1, $IS0_3$ for soap1, W1 and W5 have the best wash fastness values with a change in colour rating of 4 and staining rating of 4 – 5 and 2 respectively. This is followed by W2, W2 with change in colour rating of 3 and staining rating of 4 and 4 - 5, however, S4 and S6 have poor washing fastness properties with a change in colour rating of 1 and 2 and staining rating of 2 and 1-2 respectively. For the ISO_4 treatment however, W3 and W5 had the best wash fastness values with a change in colour rating of 4 each and staining rating of 4 -5 each respectively. However, W1 and W4 have poor wash fastness properties with a change in colour rating of 2 and 1 and staining rating of 3 and 1 – 2 respectively.

S2 however, indicates that W_1 and W_5 have the best wash fastness properties with a change in colour rotating of 5 each and staining rating of 5 and 4 - 5 respectively. However, W3 and W6 also exhibited a good wash fastness properties with a change in colour rating 4 each and staining of 4 -5 each. For ISO_4, W1, W2, W3, W5 and W6 had the best wash fastness with a change in colour rating of 4 each and staining 4 – 5, 3 – 4 and 3 respectively. W4 had very poor wash fastness with a change in colour rating of 2 and staining rating of 1. The sample generally showed good fastness properties towards the W2 for ISO_3 and ISO_4 treatment.

The results on table 1 for Soap 3 showed that W2 and W5 have the best wash fastness properties with a change in colour rating of 5 each and staining rating of 5 each. However, W1, W3, and W5 showed good wash fastness of with a change in colour rating of 4 each and staining rating of 4 - 5 each respectively; but sample 4 shows poor wash fastness with a change in colour rating of 2 and staining rating of 1 – 2 for ISO_3. For ISO_4 treatment, W2 had the best wash fastness with a change in colour rating of 5 and staining rating of 4 – 5. This is followed by W1, W3, and W4 with a change in colour rating of 4 each and staining rating of 4 – 5 each respectively but W5 had moderate wash fastness with a change in colour rating of 3 and staining rating of 4 – 5. This shows that soap sample (S3) exhibits good wash fastness toward W3 for both treatments.

Table 1 also indicated that for Soap 4 for ISO3 treatments, W2, W5, W6 has the best wash fastness properties with a change in colour rating of 5 each and staining rating of 5 each followed by W1, W3 and S4 with change in colour rating of 4, 4 and 3 with staining rating of 4 – 5, 4 – 5 and 1 – 2 respectively. For ISO_4 treatment however, W1 and W5 had the best wash fastness with change in colour rating of 5 each and staining rating of 4 – 5 and 4 followed by W5 and W2 with change in colour rating of 4 and 3 and staining rating of 4 – 5 and 4 respectively. W3 and W4 had poor wash fastness properties with a change in colour rating of 1 each and staining of 3 – 5 respectively.

From Table, ISO_3 treatment Soap 5, W5 and W6 gives the highest wash fastness value with a change in colour rating of 5 each and staining rating of 5 each followed by W1, W2, W4 with a change in colour rating of 4 each and staining rating of 4 – 5, 4 – 5 and 3 – 4, respectively while S_3 gives poor wash fastness with a change in colour rating of 2 and staining rating of 3 – 4. For ISO_4 treatments, W1, and W6 gives the highest wash fastness properties with a change in colour rating of 5 each and staining rating of 4 and 4 – 5 followed by W3, W5 and W4 with a change in colour rating of 4, 4 and 3 and staining rating of 4 – 5, 4, 4 respectively. W5 however, gives a poor wash fastness properties with a change in colour of 1 and staining rating pf 1 – 2.

From Table 1, ISO_3 for Soap 6, shows that W3 and W6 gives the highest wash fastness

with a change in colour rating of 5 each and staining rating of 5 and 2 – 3 followed by W1, W2 and W5 with a change in colour rating of 4 each and staining rating of 4 – 5, 4 – 5 and 1 – 2 respectively. W4 gives poor wash fastness with a change in colour rating of 1 and staining rating of 1 – 2. however for ISO_4 treatments, S_1 and S_5 gives the highest wash fastness with a change in colour rating 4 each and staining rating of 4 – 5 and 2 – 3 followed by W2, W3 and W4 with a change in colour rating of 3, 2, 2 and 1 with a staining rating of 2 – 3, 3 – 4, 3 – 4 and 1 – 2 respectively. The samples generally show poor wash fastness for ISO_4 treatments.

Table 1, ISO_3 treatment for Soap 7 indicates that W3 gives the highest wash fastness properties with a change in colour rating of 5 and staining rating of 4 followed by W1 and W5 with a change in colour of rating of 4 each and staining rating of 4 – 5 and 2 respectively. W4 showed poor wash fastness with a change colour of 1 and staining rating of 1 – 2. For ISO_4 treatments, the wash fastness properties for the following W2, W1, W6, W3, S4, were generally poor with change in colour rating of 3,2,2,1,1,1 and staining rating of 3 – 4, 2 – 3, 1 – 2, 2 – 3, 4 – 5, 1 – 2 respectively. The samples shows a general trend of poor wash fastness towards soap 7 for the two treatment.

In Table 1 also, ISO_3 treatment, for Soap 8, W4 and W6 gives highest wash fastness values with a change in colour rating of 5 each and staining rating of 5, 2, 5 followed by W2, W3 and W5 with a change in colour rating 4, 4 and 3 with a staining rating 3, 3, and 2 respectively. However, for ISO_4 treatment, W3, W4 and W6 gave the highest wash fastness value with a change in colour rating of 4 each and staining rating of 4 – 5, 3 -4 and 3 – 4 respectively W1, W2 and W5 gave a very poor wash fastness toward Swift Soap with a change in colour rating of 1, 2, 1 and staining rating of 1 – 2, 1 – 2 and 1 – 2 respectively. From Table 1, Soap 9 for ISO_3 treatments, W3 gave the highest wash fastness values with a change in colour rating of 5 and staining rating of 5 followed by W1, W2, W5, W4, and W6, with a change in colour rating of 4, 4, 4, 3 and 3 staining rating of 4 – 5, 3 – 4, 4, 3 – 4, 4 respectively. For ISO_4 treatments, there was a general moderate to poor wash fastness property with W1, having the highest wash fastness value with a change in colour rating of 4 and staining rating of 4 – 5 while W4, W5 and W6 gave poor wash fastness with a change in colour rating of 2, 1 and 2 and staining rating of 3 – 4, 2 – 3, and 3 – 4, respectively.

Table 1 shows that for ISO_3 treatment for soap 10, W1 and W5 gave the highest wash fastness value with a change in colour of 5 each and staining rating of 4 each and 5 followed by W3, and W5 with a change in colour rating of 4 each and staining rating of 3 – 4 and 4 – 5 while S4 gave a poor wash fastness with a change in colour rating of 1 and staining rating of 1 – 2 for ISO_4, however, W1, W2, W4 and W6, give the highest wash fastness value with a change in colour 4 each and staining rating of 3 – 4 and 4 – 5, 2 – 3 and 4 – 5 while$W3_3$, and W5 gives a change in colour rating of 3 each and staining rating of 3 – 4 and 4 – 5 respectively.

Table 2 for ISO_3 treatments for detergent 1, W1 and W6 gives highest wash fastness value with a change in colour rating of 4 each and staining rating of 4 – 5 and 2 – 3 while SW and W4 gave very poor wash fastness with a change in colour rating of 3 and 1 and staining rating of 4 – 5 and 3 and 1 and staining rating of 4 – 5 and 1-2 respectively for ISO_4 treatments.

The sample exhibited very poor wash fastness properties. However, the order of fastness from moderate to poor is in the order

W1 > W2, W5 W6 > W3, W4, with a change in colour rating of 3, 2, 2, 2, 1, 1, and staining rating of 4, 3, 1 – 2, 2 – 3, 1 – 2, and 1 respectively. The samples SW, W2, W3, W4, W5, and W6 showed poor wash fastness towards detergent (D1).

Table 2, ISO_3 treatments for Detergent 2, W6, W5, W1 and W2 gave the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 – 5, 3 – 4, 3 – 4 and 3 – 4.

W3 and W4 gave poor wash fastness values with a change in colour of 3 and 1 and staining rating of 4 – 5 and 1 – 2 respectively. W4 however, gave very poor wash fastness properties towards Detergent 2. For ISO_4 treatment, however, W1 and W2 gave the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 – 5 each. W3, W6 and W4 gives a poor wash fastness with W4 having the poorest wash fastness towards detergent 2.

Table 2, Detergent 3 for ISO_3 treatment, W5 gives the highest wash fastness value with a change in colour rating of 4 and staining rating of 2 – 3 but W2, W3, W6, W1 and W4, showed poor wash fastness properties with a change in colour rating of 3, 3, 3, 2, 2, and staining rating of 2 – 3, 2 – 3, 3 – 4, 2 – 3, 3 – 4 respectively. For ISO_4 treatments, the wash fastness of samples toward detergent 3, indicating that there was a general poor wash fastness for all the samples in the order W1> W3> W5>W6, > W4 with change in colour rating of 3, 3, 3, 3, 2, 1 and staining rating of 3, 3, 3, - 4, 4, 1 – 2, 1.

In Table 2, detergent 4 for ISO_3 treatments, W1, W2, W4 and W6 have the highest wash fastness as value with a change in colour rating of 4 each and staining rating of 4 – 5, 3 – 4, 4 – 5 and 3 – 4 respectively. W5, and W3 however, gives a poor wash fastness with a change in colour rating of 3 and 2 with a staining rating of 2 – 3 and 2 – 3 respectively. For ISO_4, the samples showed moderate to poor wash fastness properties with W6, > W1 > W5 > W2 > W3 > W4.

Table 2, indicates ISO_3 and ISO_4 treatment for detergent 5. The general trends is of moderate to poor wash fastness properties. For ISO_3, W5 and W3 gave the highest wash fastness value with a change in colour rating of 4 each and staining rating of 4 – 5 and 3 – 4 while W4 gives the poorest wash fastness with a change in colour rating of 1 and staining rating of 1 – 2. For the ISO_4 treatment, W5 and W6 gives the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 – 5 and 4 respectively.

From Table 2, ISO_3 treatment for detergent 6, indicates a poor to moderate wash fastness properties with W2 and W5 giving the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 and 3, while W4 gave the poorest of wash fastness with a change in in colour rating of 1 and staining rating of 2. For $IS0_4$ treatments, W5 and W6 gave the highest wash fastness value with a change in colour rating of 4 each and staining rating of 4 and 3 – 4 respectively. W1 and W2 had poor wash fastness with a change in colour rating of 2 each and staining rating of 3 and 1-2 respectively.

From Table 2, IS03 treatments for detergent 7, W1, W5, W6 and W3 had the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 – 5, 4 – 5, 4 and 3 – 4 respectively. W2 and W4 had poor wash fatness values with a change in colour rating of 3 and 2 and staining rating of 2 – 3 each respectively. For ISO4 treatments, W1, W2, W6 and W5 had the highest wash fastness value with a change in colour rating of 4 each fastness values with a change in

colour rating of 3, 2 and staining rating of 2 – 3 and 1 – 2 respectively.

In Table 2, ISO3 treatments for detergent 8, W6 and W1 gave the highest wash fastness values with a change values with a change in colour rating of 4 each and staining rating of 4 – 5 and 3 – 4 while W3, W4 gave moderate wash fastness values. W2 and W4 gave very poor wash fastness values with a change in colour rating of 2 and 1 and staining rating of 2 – 3 and 1 – 2 respectively. For ISO4 treatments, W1 and W6 gave the highest wash fastness value with a change in colour rating of 4 each and staining rating of 4 each, while W3 and W4 gave a very poor wash pertness value with a charge in colour rating of 1 each and staining rating of 1 – 2 and 1 respectively.

Table 2 , ISO3 treatment for detergent 9, there was a general poor wash fastness properties with W2 having the highest wash fastness value with a change in colour rating of 4 and staining rating of 4 – 5, the other samples gave low wash fastness values. For ISO4 treatments, the trend is the same i.e. low wash fastness value with a change in colour rating of 4 and staining rating of 4 while W2 and W5 gave moderate wash fastness values with a charge in colour rating of 3 each and staining rating of 4 – 5 and 2 – 3. W3 and W4 gave a low wash fastness values with a charge in colour rating of 2 and 1 with staining rating of 4 and 1 – 2, respectively.

From table 2, ISO3 treatments for detergent 10, W5 and W2 gave the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 and 3 – 4 while W6, W1 and W3 give moderate wash fastness values with a charge in colour rating of 3 each and staining rating of 3 – 4, 2 – 3 and 2 – 3, respectively. W4 however had a very poor wash fastness with a change in colour rating of 1 and staining rating of 1 – 2.

For ISO4 treatments W1, W5 and W6 gave the highest wash fastness values with a change in colour rating of 4 each and staining rating of 4 – 5, 4 – 5, and 3 – 4 while SW, W3 and W4 had moderate to poor wash fastness with a change in colour rating of 3, 2, 2 and staining rate of 3 – 4, 3, and 2 – 3, respectively.

Conclusion

The results from the experimental work indicated that not all soaps and detergents can be used for washing wrappers. This is because most soaps and detergents affects the dye (colour), thereby leads to bleeding out – fading.

REFERENCE

Abrahart, E. N. (2001). Dyes and their Intermediates, 5th Edition, Vol. 10, London: Pergamon, p. 61-63.

Adamu, M. P. & Isa, A. (2009). Fastness Properties of Colourants Extracted from Onion Scales Leaves. Journal of Vocational and Technical Education (JOVTED), 11 (1): 37-44.

Adamu, M. P & Isa, A. (2009). Fastness Properties of Colourants Extracted from Gutta Percha (GAMJI TREE) Journal of Vocational and Technical Education (JOVTED), 11(1): 45-50.

Ameh, E. P. (2001). Effects of Resin Finishing on the Properties of Direct Dyed Cotton Fibres, A B.Sc. unpublished Research Project, Ahmadu Bello University, Zaria. p. 21-24.

Bird & Boston (1999). 'The theory of Coluration of Textiles, 7th Edition, Vol.12, Bradfort: Co. Publishers Trust, p. 152-154.

David, J. A., Sabine B., Ralf, C., Georg F., Steinberner U. & Alfred, W. "Fatty Acids" in Ullmann's *Encyclopedia of*

Industrial Chemistry 2006, Wiley-VCH, Weinheim.doi:10.1002/ 14356007. a10_245.pub2

Grierson, S. U. (2000). The History and Use of Natural Dyes in Scotland. Cauldron Publishers. p. 45-50.

Hollen, N, Saddlers, J, & Long, F. (2001). Textiles, 5th Edition, McMillan Publishers Co. Inco. New York.

Jezhi, S. C. (2008). The Effect of Soaps and Detergents on Cotton Fabric Dyed with Reactive Dyes. A B.Sc. unpublished Research Project, Ahmadu Bello University, Zaria p. 15-17.

Joyce, S (2002). Manual of Dyes and Fabrics. The Thame and London Hudson Publishers.

Nunn, D. M. (2003). The Dyeing of Synthetic-polymer and acetate Fibres, Bradford: Dyers Co. Publishers Trust, p. 43 47.

Oforghor, A. O. (1999). Effect of Heat and Auxiliary Treatment on the Absorption of Acid Dyes by Nylon 6, 6 Fibres, A Research Project, Ahmadu Bello University,Zaria. p. 11-15.

Oforghor, A. O. (2011). Synthesis and Application of 2- Hydroxyl-6-Napgthol Sulphonic Acid Dyes on Nylon 6, 6 Fibres. A Paper Presented at the 46th Annual Conference of Science Association of Nigeria (SAN) at the unpublished Ahmadu Bello University, Zaria

Peters, R. H. (2004). Textiles Chemistry. Vol.3, Amsterdam Elsevier Publishers. p. 134-136.

Thorsten Bartels et al. (2005) "Lubricants and Lubrication" in Ullmann's *Encyclopedia of Industrial Chemistry*, 2005, Weinheim doi:10.1002/14356007.a15_423

Tyebkhan G (2002). "Skin cleansing in neonates and infants-basics of cleansers", Indian J Pediatr. 69 (9): 767–9, doi:10.1007/BF02723687, PMID 12420908.

Vatsala, R.(2003). Textbook of Textiles and Clothing, New Delhi Chakravarty Publishers p. 156-161.

Venkataraman, K. (2002). The Chemistry of Synthetic Dyes, Vol.8, New York Academic Press Pp 81-87

Vickerstaff, T (2000). The Physical Chemistry of Dyeing, 2nd Edition, Vol. 8, and London: Oliver and Boyd. Pp. 141-147.

Werner Dabelstein, Arno Reglitzky, Andrea Schütze, Klaus Reders "Automotive Fuels" (2002). In: Ullmann's Encyclopedia of Industrial Chemistry 2002, Wiley-VCH, Weinheimdoi:10.1002/14356007.a16 _719.pub2