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EVALUATION OF pH OF DIFFERENT CONSUMER PRODUCTS FOR QUALITY CONTROL

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ABSTRACT

Background: PH has an important role in the quality of product, the changes in the PH may affect many features of product. **Objective:** Evaluation of pH of different consumer products for quality control. **Method:** A prospective observational study was conducted in 15 products for a period of 6 months. **Result:** A Total of 15 products included and analyzed, among them Hand washes, floor cleaners, toilet cleaners, sanitizers, surface cleaners, and toilet soaps were showed different PH ranges of Mello tenderose hand wash (7.5), Mello herbalove hand wash (7.5), Ecclence total protect hand wash (6.5), Ecclence hygiene plus hand wash (6.5), Raze floor cleaner lime (6), raze floor cleaner pine (6), raze toilet cleaner (3), raze multi surface cleaner (6), Ecclence germ expert hand sanitizer (6.5), ecclence pro active hand sanitizer (6.5), ecclence immune pro gel hand sanitizer (6.5), Mello tenderose toilet soap (9), mello herbalove toilet soap (9), mello almondream toilet soap (9) and ecclence white soap (9) respectively. **Conclusion:** So that awareness should be created among chemists so that appropriate adjustment of PH should improve product quality and then quality of life.

INTRODUCTION

Fast Moving Consumer Goods (FMCG) industry runs in a rapidly changing and very competitive environment. FMCG includes wide range of consumer products that are used for daily needs, are non-durable and hence purchased frequently. They mainly fall under three categories they are: foods and beverages, households and personal care.

Ph is one of the important parameter when coming to the features of the product.

The pH value indicates the hydrogen potential or potential of hydrogen ions and it is used to determine the degree of alkalinity or acidity of a specific product or for other type of solution, it will be based on the amount of positive hydrogen ions contained in the compound.

The pH scale ranges from 0 to 14. A product is considered to be very acidic when its pH value is between 0 and 4, and alkaline or low acidity when its pH is above 4.5. products with a value between 4 and 4.5 are considered neutral or acidic.

Ph of products can be measured in two ways

- Through a pH meter, a device that has a sensor bulb with two electrodes, one is calibrated and the other one is sensitive to H+ ions. When it is inserted in to product, the potential difference between the electrodes is activated and the actual pH value appears on the digital display. It is the most accurate and quickest way.
- Using litmus paper strips. These are strips of paper impregnated with a mixture of indicators that, when they are immersed in product, change their color depending on acidity. The pH value is obtained by comparing with a color scale shown on the container. This is a homemade, inexpensive and rather less accurate way.

The surface of our skin is slightly acidic, which giving rise to the concept of the acid mantle. Studies have already shown that potential of hydrogen (pH) of skin increases in proportion to the pH of cleanser used. Increase in pH causes an increase in dehydrative effect, irritability, less stability. Changes in the pH are reported to play a major role in the pathogenesis of some skin diseases. Therefore, the use of skin cleansing agents with a pH of about 5.5 may be of appropriate in the prevention and treatment of those skin diseases.

Due to the logarithmic nature of the measurement, even small errors in the pH value are significant. Variations of PH can impact flavor, consistency and shell life.

METHODOLOGY

Study site

Carebea private limited.

Study design

Prospective observational study.

Study duration

6 months.

Sample size

Samples of branded soaps, Hand washes, sanitizers, toilet cleaners, floor cleaners and glass cleaners were collected.

Study criteria

Inclusion criteria

- FMCG PRODUCTS

Exclusion criteria

- RAW CHEMICALS

Determination of pH

Readings of pH were taken using pH meter after calibrating with the standard solutions, (pH = 7). The samples were given names before the analysis of the pH. Procedure was divided so that one person was involved in measuring the sample, another in coding, then another in mixing and measurement of pH, so that the person who performed the measurement of pH does not know the identity of the sample being tested. The pH of distilled water used ranged from 6.50- to 7.

Study Procedure/ Methodology

- Step 1: A prospective observational study is conducted in CAREBEA PRIVATE LIMITED
- PH of different products evaluated and documented.
- PH of different products is assessed by comparing standard protocols.
- Obtained data is subjected to suitable statistical evaluation.

RESULTS

The study included total no of 15 different products of different uses.

1. **Mello tenderose hand wash**

Table 1

Standard PH	Observed PH
5.5-10	7.5

- The observed pH was found to be normal, it's alkaline in nature.

2. Mello herbalove hand wash

Table 2

Standard PH	Observed PH
5.5-10	7.5

- The observed pH was found to be normal, it's alkaline in nature.

3. Ecclence total protect plus hand wash

Table 3

Standard PH	Observed PH
5.5-10	6.5

- The observed pH was found to be normal, it's weakly acidic in nature.

4. Ecclence hygiene plus hand wash

Table 4

Standard PH	Observed PH
5.5-10	6.5

- The observed pH was found to be normal, it's weakly acidic in nature.

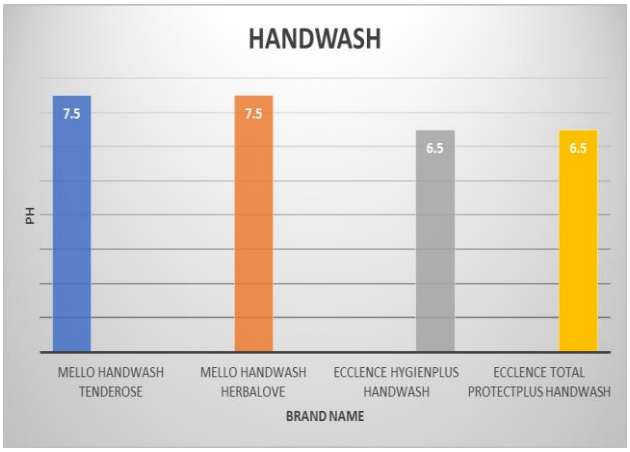

Figure 01: Which shows most common pH range for Hand washes.

Out of total 4 Hand wand washes two of them were with PH of 7.5 and and the other two with PH of 6.5.

5. Raze disinfectant toilet cleaner

Table 5

Standard PH	Observed PH
1-3	2

- The observed pH was found to be normal, it's strongly acidic in nature.
- PH was assessed by comparing with Indian Standard Amendment No.1 October 2011 to

IS 7983: 1994 Toilet cleaner, liquid - specification.

6. Raze disinfectant floor cleaner lime

Table 6

Standard PH	Observed PH
5-7	6

- The observed pH was normal, it's weakly acidic in nature.
- PH was assessed by comparing with Indian standard Amendment no.3 September 2008 to IS 14364: 1996 Quaternary ammonium compound-based surface cleaner, Liquid – Specification

7. Raze disinfectant floor cleaner pine

Table 7

Standard PH	Observed PH
5-7	6

- PH was assessed by comparing with Indian standard Amendment no.3 September 2008 to IS 14364: 1996 Quaternary ammonium compound-based surface cleaner, Liquid – Specification.

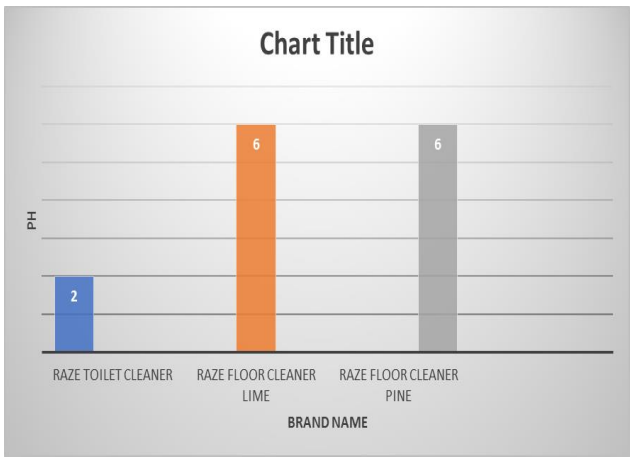

Figure 02: Which shows most common pH range for Toilet cleaner and Floor cleaner.

- The observed pH was found to be normal, it's weakly acidic in nature.
- Out of three two of the floor cleaners were under PH of 6 and Toilet cleaner of PH 2, both were acidic in nature.

8. Raze multi surface cleaner

Table 8

Standard PH	Observed PH
5-7	6

- The observed pH as found to be normal, it's weakly acidic in nature.

9. Ecclence antiseptic germ expert sanitizer

Table 9

Standard PH	Observed PH
5.5-7.5	6.5

10. Ecclence antiseptic proactive sanitizer

Table 10

Standard PH	Observed PH
5.5-7.5	6.5

11. Ecclence immune pro hand sanitizer

Table 11

Standard PH	Observed PH
5.5-7.5	6.5

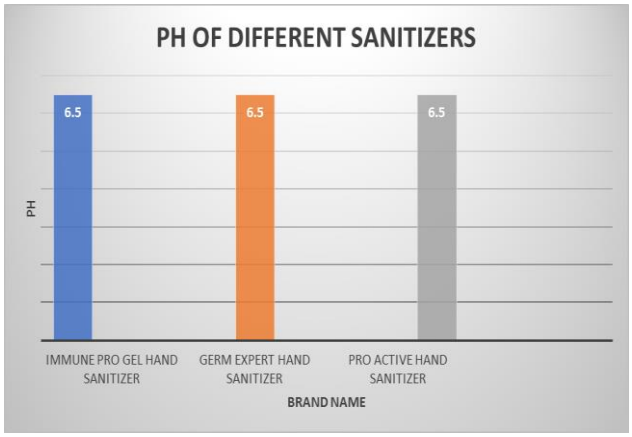

Figure 03: Which shows most common Ph range for Sanitizers.

Out of 3 sanitizers, two of them showed PH range of 6.5 and Gel showed the same 6.5.

12. Mello almondream soap

Table 12

Standard PH	Observed PH
5.5-10	9

13. Mello herbalove soap

Table 13

Standard PH	Observed PH
5.5-10	9

14. Mello tendrose soap

Table 14

Standard PH	Observed PH
5.5-10	9

15. Ecclence white soap

Table 15

Standard PH	Observed PH
5.5-10	9

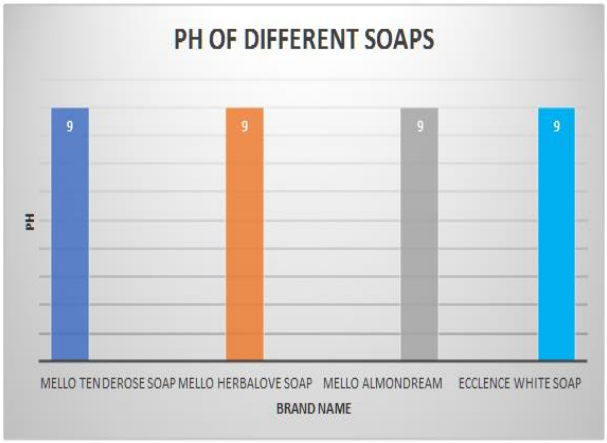

Figure 04: Which shows most common Ph range for Soap.

In our study out of 4 soaps all of the showed a PH of 9 and its alkaline in nature.

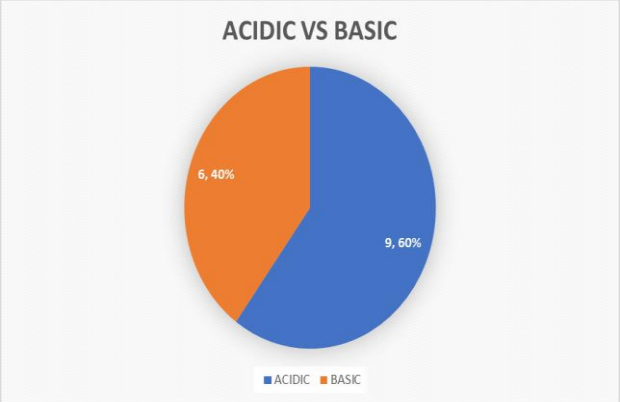

Figure: No. of products under each category.

DISCUSSION

Due to increased inappropriate production of Drugs and cosmetic products associated with quality problems needs to be solved. A prospective observational study was conducted in carebea private limited standard guidelines.

The PH analysis plays a major role in fast moving consumer goods, particularly in the production and the use of household goods like Soap, Handwash, Toilet cleaner, Floor cleaner, Multi surface cleaner and Sanitizer. It is of very important in certain production for the determination of PH to know whether the product is ready to use and not harmful for the health. The result obtained for such products are to be documented for further verification as per the legal procedures. Therefore, it is significant that the analysis method used for the determination of PH is perfect and that analyst is following highest grade of sincerity to achieve the result which are free from all possible errors.

As per the result, Hand wash is normal on pH range 5.5.-10, we found that the pH of MELLO TENDEROSE HAND WASH and MELLO HERBALOVE HAND WASH is 7.5. In the case of ECCLENCE HYGIENE PLUS HAND WASH and ECCLENCE TOTAL PROTECT PLUS HAND WASH is 6.5. This range of pH is safer to use on skin, never cause any irritations and harmful to the skin. The quality and shell life of the hand wash is stable on this pH and never impact on the color and fragrance of the product. (figure no: 1).

Consider the toilet cleaner, the standard pH range is 1-3, we found that the pH of the RAZE DISINFECTANT TOILET CLEANER as 2. Consider the toilet cleaner, the standard pH range is 1-3, we found that the pH of the RAZE DISINFECTANT TOILET CLEANER as 2. PH was assessed by comparing with Indian standard Amendment no.3 September 2008 to IS 14364: 1996 Quaternary ammonium compound-based surface cleaner, Liquid – Specification. Toilet cleaner is a highly acidic product and has a pH level of 1-3. It can be used to remove rust, mineral deposits, and other non- organic materials, and the Ph range also helps to perform in good efficacy.

And when comes to floor cleaner the standard Ph range is in between 5-7 and the PH observed is 6 and its normal. PH was assessed by comparing with Indian standard Amendment no.3 September 2008 to IS 14364: 1996 Quaternary ammonium compound-based surface cleaner, Liquid – Specification.

In our study PH of 3 types of sanitizers were evaluated and found 6.5 for Ecclence Immune pro Gel sanitizer and for Ecclence Germ expert and Ecclence proactive hand sanitizer found having PH of 6.5. Alcohol-based hand sanitizers have a pH around neutral. The recommended pH range for an effective and safe sanitizing solution is in between 5.5 and 7.5.

According to our study 4 different soaps were studied (out of these 3 were 72 tfm MELLO SOAPS) TFM and one with 76 TFM (ECCLENCE WHITE SOAP), In this all were under the range of PH 9), And all of them were showed ph OF 9.

Gyawali et.al (2014) research is conducted to understand the influence of chemist channel and consumer behavior with respect to changing environment, both studies concluded that Chemist channel have a huge impact on buying behavior due to various reasons such as: perceived quality, trust, knowledgeable seller and sense of satisfaction. Pakale, et al. (2018) conducted a study on PH meter and its working to get exact reading, this study helped to get exact reading in our study.

CONCLUSION

Fast moving consumer goods are most commonly used products in daily life of each individual. So that the importance of above products is remarkable.

In the study performed, it was concluded the PH is an important factor in HANDWASHES, SANITIZERS, FLOOR CLEANERS, TOILET CLEANERS AND SOAPS. It can affect efficacy, stability, Color and side effects etc. So that awareness should be created among chemists so that appropriate adjustment of PH should improve product quality.

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BIBLIOGRAPHY

1. Jadhav et al. Digital PH meter, 2018; 1-4.
2. Sajin KA et al; PH indicators: A valuable gift for analytical chemistry, 2020; 6(5): 393-400.
3. Gyawali et al. Influence chemist channel in consumer buying behavior of fast-moving consumer goods in Nepal, 2014.