EVALUATION OF STANDARDS OF SOME SELECTED COSMETIC PREPARATIONS

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ABSTRACT

The aim of the present work is to analyze the standards of marketed cosmetic products which are largely consumed in day to day life of the people. The cosmeceutical should be tested for efficacy to ensure a proven skin benefit and also to substantiate marketing claims. The work was done by keeping the ideas of Bureau of Indian Standards to analyze the cosmetic products. The evaluation for the following cosmetics such as tooth pastes (Colgate, Closeup, Pepsodent, Vicco and Anchor) and face powders (Ponds, Eva, Fa, Cuticura and Spinz) are performed for their quality. All the marketed tooth pastes and face powders which had been evaluated complied with the standards specified by Bureau of Indian Standards. Hence all the selected marketed tooth pastes and selected face powders were found to be of good quality.

Key Words: Cosmetic products**,** Bureau of Indian Standards, Tooth paste, Face powder

INTRODUCTION

Cosmetics are defined as "articles with mild action on the human body, which are intended to be applied to the human body through rubbing, sprinkling or other methods, aiming to clean, beautify and increase the attractiveness, alter the appearance or to keep the skin or hair in good condition hence a modern face powder is a blend of several constituents[1,2]. Cosmeceutical are topically applied products that are more than merely cosmetic, yet are not true drugs that have undergone rigorous placebo controlled studies for safety and efficacy[3].The ingredients responsible for allergy to cosmetics were determined in 119 patients suffering from cosmetic-related contact dermatitis. Most reactions (56.3%) were caused by skin care products and skin care products are numerous and perplexing[4,5]. There continues to be a demand from consumers and patients for products that whiten and cleans the teeth and which decrease the incidence of tooth decay[6,7]. Ideally, the cosmeceutical should be clinically tested for efficacy to ensure a proven skin benefit and also to substantiate marketing claims[8].

Hence in this study, the standards of marketed cosmetic products which are largely consumed in day to day life of the people were analyzed. The evaluation of cosmetics is very important to know their performance, quality and effectiveness. It is also necessary to check whether the products have any sensitivity toxic effects on human body.. The work was done keeping the ideas of Bureau of Indian Standards to analyze the cosmetic products. So if the marketed product does not maintain the standards formed by the Bureau of Indian Standards various side effects like skin irritation, eye inflammation, hair falling, protein precipitation and heavy metal poisoning may occur. Certain marketed toothpaste and face powder was selected and which has been evaluated for its standards specified by Bureau of Indian Standards. The evaluation of following cosmetics such as tooth pastes (Colgate, Closeup, Pepsodent, Vicco and Anchor) and face powders (Ponds, Eva, Fa, Cuticura and Spinz) was done.

MATERIALS AND METHOS

Tooth pastes (Colgate, Closeup, Pepsodent, Vicco and Anchor) and face powders (Ponds, Eva, Fa, Cuticura and Spinz) were procured from local market and all the chemicals which are used for the evaluation were supplied Qualigens Fine Chemical, Mumbai, India.

Evaluation of tooth paste:

Evaluation of tooth paste was done by the following methods[9] and these tests were performed for all toothpaste samples (Colgate, Close-up, Pepsodent, Vicco and Anchor).

Determination of hard and sharp edged abrasive particles:

The paste was extruded about 15 to 20 cm length from collapsible tube of each sample on a butter paper. Then all the samples were tested by pressing it along its entire length by a finger for the presence of hard and sharp edged abrasive particles for all samples.

Determination of spread ability:

About 1 gm of each sample was weighed and placed at the centre of the glass plate (10X10 cm) and another glass plate was placed over it carefully. Above the glass plates 2 kilogram weight was placed at the centre of the plate avoid sliding of the plate. The diameter of the paste in centimeters was measured, after 30 minutes for all samples. The experiment was repeated three times and the averages were reported for all samples.

Determination of fineness:

10gm of each sample was accurately weighed and placed in a 100ml beaker. To this 50ml of water was added and allowed to stand for 30 mins with occasional stirring until the toothpaste was completely dispersed. This solution was passed through to 150 micron Indian Standard sieve. Then the sieve was washed with running tap water. Washing should be continued until all the matters passed by through the sieve. After washing the residue remains on sieves were collected and dried in an oven at 105°c.

Calculation:

For all the samples fineness was calculated by using the following formula,

Percentage by mass $= 100\, M_1 / M$

M_1 - Mass in grams of residue retained on sieve

M - Mass in grams of material taken for the test

Determination of pH:

5 gm of all samples was accurately weighed and placed in a 150 ml beaker. To this 45 ml of freshly boiled and cooled water was added at 27°C. It was stirred well to make a thorough suspension. The pH was determined for all samples within 5 minutes by using pH meter.

Determination of foaming power:

About 5gm of each sample was weighed and placed in a 100ml glass beaker. To this 10ml of water was added and the beaker was covered with a watch glass and allowed to stand for 30 minutes, this operation was carried out to disperse the toothpaste in water. The contents of the beaker were stirred with a glass rod and the slurry was transferred to a 250ml graduated measuring cylinder, during this transfer ensure that no foam was produced and no lump paste went into the measuring cylinder. The residue left in the beaker was transferred with further portion of 5-6 ml of water to the cylinder. The content of cylinder was adjusted to 50ml by adding sufficient water and the content has to be maintained at 30°C. Stir the contents of the cylinder with a glass rod to ensure a uniform suspension. As soon as the temperature of the content reached 30°C, the cylinder was stoppered and 12 complete shakes were given to it. The cylinder was allowed to stand for 5 minutes and the volume of foam with water and water only was noted for all samples.

Determination of foaming power:

Foaming power $= V_1 - V_2$

V_1 - Volume in ml of foam with water

V_2 - Volume in ml of water only

Evaluation of face powder:

Evaluation of face powder was done by the following methods[10]. These tests were performed for all face powder samples (Ponds, Eva, Fa, Cuticura and Spinz)

Determination of matter insoluble in boiling water:

1gm of each sample was weighed and transferred to a 500ml beaker. Each sample was wetted with little rectified spirit. To this 200ml of water was added and boiled. It was allowed to settle and the supernatant liquid was filtered through Gooch crucible. The residue was washed with water and completely transferred to the filter. The residue remains in the crucible was dried at 105°C to obtain a constant mass. This procedure followed for all individual samples.

Calculation:

Mater insoluble in boiling water, percent by mass = $100 \, M_1 / M$

M_1 - Mass in grams of the residue,

M - Mass in grams of the material taken for the test

Test for solubility of colors:

1gm of each sample was taken. To this 50 ml of water was added and boiled for 15 minutes and filtered. From this filtered solution 10ml of sample was taken and 15ml of rectified spirit was added. It was refluxed for 15 minutes and filtered. The filtrate should be colorless or faintly colored.

Determination of fineness:

About 10gm of each sample material was placed in specified (standard sieve 150 micron) sieve. It was washed by means of slow stream of running tap water and finally with fine stream from a wash bottle until as much material had passed through the sieve. In case the material was not easily wetted by water, the washing should be started with slow stream of filtered denatured spirit. The water should be completely drained from the sieve and it was dried on steam bath. Then residue was carefully transferred to a tarred watch glass carefully and dried at 105°C for constant mass.

Calculation:

The fineness of all samples was calculated by using the following formula.

Material retained on the specified sieve, percent by mass = $100 \, M_1 / M$

M_1 - Mass in grams of the residue retained on the specified sieve,

M - Mass in grams of the material taken for the test

Determination of pH of aqueous suspension:

10gm of each sample face powder was taken in a 150ml beaker. To this 90ml of freshly boiled and cooled water was added. It was stirred well to make a thorough suspension. The pH was determined within 5 minutes for all samples using pH meter.

Determination of moisture and volatile matter:

About 5gm of each sample material was weighed accurately and placed in a porcelain or glass dish, about 6-8cm in diameter and about 2-4cm in depth. It was dried in an air oven at a temperature of 105°C to a constant mass.

Calculation:

The moisture and volatile matter of all samples were calculated by using the following formula. Moisture and volatile matter, percent by mass = $100 \, M_1 / M$

M_1 - loss in mass in g on drying and,

M - Mass in grams of the material taken for the test

RESULTS AND DISCUSSION

Hence to avoid unwanted effects of cosmetics, these products should be analyzed for their standards .So according to the standards specified by the Bureau of Indian standards IS 6356-1993, the tests were carried for tooth pastes samples (Colgate, Closeup, Pepsodent, Vicco and Anchor) and face powder samples (Ponds, Eva, Fa, Cuticura and Spinz). The tests were done for all individual samples. The values for all the samples were calculated by using the suitable formula. Sample value were compared with standard values (specified in the Bureau of Indian standards IS 6356-1993) and are updated in table 1 and table 2 respectively for tooth paste and face powder. All the samples were complies with Bureau of Indian standards and they found to be of good quality.

Table-1 Evaluation of tooth pastes of various brands

S.No	Brand name	Hard and sharp edged abrasive particles	Spread ability (cms)	pH	Fineness (% by mass)	Foam formation (ml)
1	Colgate	Absent	4.8	7	0.40	52
2	Closeup	Absent	6.8	6	0.35	53
3	Pepsodent	Absent	4.9	7	0.41	56
4	Vicco	Absent	3.5	7	0.42	52
5	Anchor	Absent	5.7	7	0.38	54
Standard value		Absent	(Max.) 8.5	5.5-10.5	(Max.) 0.5	Min 50

Table -2 Evaluation of face powders of various brands

S.No.	Brand name	pH	Solubility of colors.	Matter insoluble in boiling water (mg)	Fineness (% by mass)	Moisture and volatile matter (% by mass)
1	Ponds	8	Colorless	83	0.4	2.0
2	Eva	7.5	Colorless	87	0.5	1.8
3	Fa	8	Colorless	81	0.45	1.6
4	Cuticura	7.5	Colorless	84	0.4	1.8
5	Spinz	8	Colorless	85	0.38	1.6
Standard value		5.5-8	Colorless	(Max) 90	(Max) 0.5	(Max) 2

CONCLUSION

All the marketed tooth pastes and face powders which had been evaluated complied with the standards specified by BIS. Hence all the marketed tooth pastes (Colgate, Closeup, Pepsodent, Vicco and Anchor) and face powders (Ponds, Eva, Fa, Cuticura and Spinz) were found to be of good quality.

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