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Research Article

PREPARATION AND COMPARATIVE STUDY OF IN LAB AND COMMERCIAL TOOTHPASTE

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ABSTRACT

Toothpastes are complex mixtures of abrasives and surfactants, humectants (to prevent dry-out and increase the pleasant mouth feel), gum, preservatives and binders, to provide consistency and form. Binders keep the solid phase properly suspended in the liquid phase to prevent separation of the liquid phase out of the toothpaste. Sodium lauryl sulfate and ammonium lauryl sulfate can be used as surfactants that promote foaming action. The foaming action is equated with cleaning. Alginate or Xanthan gum are binding agents to maintain the consistency of toothpaste for mouth feel properties. Some harmful chemicals are use in some market products which may cause dangerous effect but in this study these are omitted.

IINTRODUCTION

In everyday life, we consume a plethora of chemicals, some directly and others indirectly. Numerous medicines, toothpaste, soaps, shampoo, etc. are commonly used chemicals, directly used for clinical and cleaning purposes. Peoples come directly dealings with these chemicals. Hence, constant research is going on to make these chemicals more useful and safer for daily use. Of these, soaps are consumed on a large scale for cleaning clothes and bathing.

Toothpaste is a paste or gel which is use with a toothbrush, to clean and maintain the aesthetics and health of teeth. Toothpaste serves as an abrasive that aids in removing the dental plaque and food from the teeth, assists in suppressing halitosis, and delivers active ingredients such as xylitol to help prevent tooth and gum disease. Most of the cleaning is achieved by the mechanical action of a toothbrush, and not by the toothpaste. Salt and sodium bicarbonate (baking soda) are among materials that can be substituted for commercial toothpaste.

Chemicals used :

Calcium carbonate
Glycerin
Sodium lauryl sulfate
Food color
Methyl paraben
Xanthane gum
Carboxymethyl cellulose
Sodium benzoate
Sorbitol
Flavors

EXPERIMENTAL METHOD

1gm of carboxy methyl cellulose added to 20 ml water. Allow to stand for one hour to obtained clear gel. In another beaker xanthane gum, sodium saccharide, methyl paraben, sodium benzoate, 1gm all and dissolved in little water then added to the prepared gel. Mixed properly by occasionally adding calcium carbonate and mix continuously. At the end flavor and colors added.

COPMPARATIVE STUDY

PH DETERMINATION

Suspension prepared by dissolving 1gm toothpaste sample of both in lab and commercial in 20ml of distilled water.

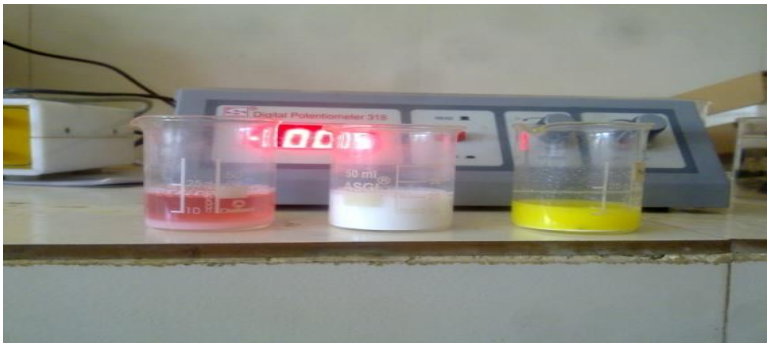

Fig :- Suspension of different flavored toothpastes i.e Colgate gel, miswak, lemon.

Prepared toothpastes	pH observed	Market product	pH observed
Paste 1	8.7	Colgate	8.35
Paste 2	8.9	Close up	6.35
Paste 3	8.5	Miswak	8.34
Paste 4	8.5		
Gel Paste 5	8.00		

Table :- pH observation of in lab and commercial products

FOAMING ABILITY

20 mL of one of in lab toothpaste suspension prepared into a 100 mL graduated cylinder. Cover the top of the cylinder with a piece of Para film. Place hand over the Para film and shake the graduated cylinder 25 times. Place the graduated cylinder and measure the height of foam above the water in cm. The foaming ability is the height of the foam.

CLEANING ABILITY

The cleaning ability of several toothpastes studied on the shells that are colored earlier. It is recommended only use 15 to 20 brush strokes for each toothpaste on each shell, excessive brushing may fails result. This is a comparison of cleaning ability, repeat the brushing procedure as exact as possible for each toothpaste tested.

Moisten a toothbrush with water and shake off any excess water. Brush one side of shell with the damp toothbrush for 15 to 20 strokes. (Each stroke is a complete back and forth motion). Inspect the shell to see if any color is removed. Rinse the toothbrush with water, shake of the excess water, and place a pea size amount of toothpaste on the brush. Brush one side of shell with the toothpaste for 15 to 20 strokes. (The same number of strokes should be used as previous). Shell rinsed and results recorded.

CONCLUSION

The commercial and in lab toothpastes have same pH as observation in table 2, cleaning test, foaming test are found same. Discarding fluoride and by maintaining pH in in-lab toothpastes shows good cleanings as commercial. Most of the cleaning is achieved by the mechanical action of toothbrush, and not by the toothpaste. Calcium carbonate and foam provide cleaning by friction.

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