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Formulation and Evaluation of Antibacterial Polyherbal Paper Soap

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Abstract: Hand washing with soap is important because it is proven to clean hands from germs and bacteria and chemicals which can cause personal harm or disease. This is especially important for people who handle food or work in the medical field, but it is also an important practice for the general public. In response to this concern, we formulated the antibacterial Polyherbal Paper soap with combination of Curcumin (Turmeric), almond and neem oil and evaluate their parameter like physicochemical, pH, foam height, form retention, Sensitivity, Irritation and Paper spread ability

Keywords: Polyherbal paper soaps, Antibacterial activity, Medicinal plants

INTRODUCTION:

Cleanliness is a very important thing due to the increasing number of diseases caused by bacteria and germs.¹ Soap is a substance used with water for washing and cleaning, made of a compound of natural oils or fats with sodium hydroxide or another strong alkali, and typically having perfume and coloring added. Even today, soap is not just used for cleaning to maintain the health of the skins; there are also some soap that also serves as softening soap and whitening soap. In making soap often used various kinds of fats or oils as raw material. For being used in soap manufacture the type of oil needs to be selected in accordance with the use of soap itself.²

Soap is an important surface-active agent and it is chemically the alkaline metal salt of long-chain fatty acids. The most common used fat or oils for production of soap through saponification reactions are

animal tallow, coconut oil, palm oil, kernel oil and linseed oil. Similarly potassium and sodium hydroxides are widely used as the caustic alkaline for the purpose.³

Paper Soap is a sheet of soap that is dry, light weight, and can dissolve with a small amount of water within seconds. It is a convenient, pocket-sized cleaning product that can be used on hands and face as well.

Today, people want hand-washing soap that is practical to carry anywhere. Paper soap itself is one solid soap product innovation that printed or molded as thin as paper, paper soap will dissolve when exposed to water; it turns out to be foam. Soap paper is generally used as a disposable hand-washing soap because of its small size and thin so it easy to carry anywhere and suitable for use during at any outdoor activities.⁴

Today, soap is produce from fats and an alkali. The cold process method is the most popular soap making process today, while some soap makers use the historical hot process.

MATERIAL AND METHODS

Selection and Collection of herbs

The materials and herbs used were selected on the basis of literature review. The Curcumin, Neem oil, pure almond oil, rosewater, aloe vera gel are selected for the development of paper soap.

Herbal paper soap

Paper soap is a thin soap sheet. It is an anionic surfactant that is used in conjunction with Water for washing and cleaning, but these times every person use Herbal because Herbal products no side effects this reason to we are using Herbal products and making Herbal paper soap.⁴

Table 1: Formulation ingredients for Herbal Paper Soap

Sr. No	Name of Ingredients	Quantity
1	Curcumin	1 gm
2	Neem Oil	5 ml
3	Almond Oil	10 ml
4	Fuller's Earth	6 gm
5	Sodium Lauryl Sulphate	10 gm
6	Rose Water	20 ml
7	Glycerin	15 ml
8	Aloe vera Gel	15 ml
9	Perfume	3 ml
10	Orange Colour	2 gm
11	White Petroleum Jelly	10 ml

Procedure

The Curcumin (Turmeric) extract and combinations of other ingredients like Neem oil, Almond oil, Aloe vera, Fuller's earth, Glycerine, Rosewater were added in water and Sodium lauryl sulphate along with perfume stirred well and both the contents were mixed together thoroughly and the volume was made up using orange colour. And warm the semi solid liquid and we added white petrolium jelly and shaking some times and A4 size butter paper on spread. After that drying paper some time and cut the paper in size then covered to pack for the development of Poly Herbal paper soap strip.

Evaluation Poly Herbal paper soap strip

Evaluations done by various parameters like physicochemical, pH foam height, form retention, Sensitivity, Irritation and Paper spread ability were performed to establish quality of the prepared paper soap strip.^{4,5}

✓ Physicochemical Evaluation

Various physicochemical parameters like colour, odour and texture were performed to establish quality of the prepared formulations.

✓ pH

The pH of prepared paper soap strip formulations was determined by using Digital pH Meter. The formulations were dissolved in 100 ml of distilled water and stored for two hours.

✓ Foam Height

0.5gm of sample of soap was taken dispersed in 25 ml distilled water. Then, transferred it into 100 ml measuring cylinder, volume was making up to 50 ml with water. 25 strokes were given and stand till aqueous volume measured up to 50 ml and measured the foam height, above the aqueous volume.

✓ Foam Retention

50 ml of the 1% liquid of paper soap solution was taken into a 250ml graduated measuring cylinder. The cylinder was covered with hand and shaken 10 times. The volume of foam at 1- minute intervals for 4 minutes was recorded.

✓ Sensitivity

It is tasted by "patch test. Apply product on 1 cm patch of skin, if no any inflammation or rashes then it considered as free from sensitivity

✓ Irritation

It is carried out by applying product on the skin for 10 minutes. If no irritation then it is considered as non irritation product.

✓ Paper spread ability

A pinch of product should be easily spreadability on paper.

RESULTS AND DISCUSSION

Evaluation Poly Herbal paper soap strip

✓ Physicochemical Evaluation

Various physicochemical parameters which are mentioned below were performed to establish quality of the prepared formulations. (Table 2)

Table 2: Evaluation Poly Herbal paper soap strip

Sr. No	Parameter	Observation
1	Colour	Light Orange Colour
2	Odour	Characteristics and Pleasant
3	Texture	Smooth
4	pH	7.2
5	Foam Height	24 cm
6	Foam retention	4 min
7	Sensitivity	No rashes
8	Irritation	Non irritation

✓ pH

The pH of all the prepared formulations was determined by using Digital pH Meter. (Table 2)

✓ Foam Height

Foam height measure in ml.

✓ Foam Retention

Foam height measure in min.

✓ Sensitivity

After application of paper no any inflammation or rashes was observed so it considered as free from sensitivity

✓ Irritation

Applying product on the skin for 10 minutes shows no irritation so it is considered as non irritation product.

CONCLUSION

The process of making paper soap is performed by spreading material on A4 size butter paper shows the best results as compared to other selected papers. Formulated paper soaps was evaluated for physicochemical, pH foam height, form retention, Sensitivity, Irritation and Paper spread ability and the obtained results were in the acceptable limits. The formulated liquid soap containing turmeric Neem oil, Almond oil, Aloevera was found to be easier and simpler, to produce stable paper soap. It is also having accepted range of antimicrobial efficacy which may act as alternative of the liquid soap and very easily to carryout in purrs containing synthetic antimicrobial agent.

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