



Formulation and Evaluation of Multipurpose Polyherbal Face wash

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Abstract

Various type of face wash available in the market but people has suffered from many problems related to skin like allergy, acne, dry skin or inflammation etc. The present work deal with the formulation and evaluation of multipurpose poly-herbal face wash containing aqueous extract of *Azadirachta indica* leaves, *Curcuma longa*, *Glycyrrhiza glabra* root, *Myristica fragrans* seed, walnut granules, orange peel and gel of *Aloe barbadensis*, honey and juice of lemon. The plants have been reported in literature having good anti-microbial, anti-oxidant and anti-inflammatory activity. Various formulation batches i.e F1, F2 & F3 were prepared using carbopol 940 dissolve in rose water. Prepared formulation (F1, F2 & F3) was evaluated for various parameters like colour, appearance, washability, pH and spreadability. Optimized batch of formulation was compared with the marketed preparation. Result showed that the gels were non-irritant, stable and possess in multipurpose activity.

Keywords: *Azadirachta indica*, *Curcuma longa*, *Glycyrrhiza glabra*, *Myristica fragrans*, *Aloe barbadensis*, carbopol 940, multipurpose.

Introduction

The skin is the largest and primary protective organ of the body. Skin is covering its entire external surface and serving as a first-order physical barrier against the environment. Its functions include temperature regulation and protection against ultraviolet (UV) light, trauma, pathogens, microorganisms and toxins. The skin is also highly adaptive with different thicknesses and specialized functions in different body sites. The skin is primarily consisting of three layers. First upper layer is the epidermis, second layer is below the epidermis is called as dermis, and third and deepest layer is called as the subcutaneous tissue.

Epidermis: The outermost layer of skin, provides protective function to skin tone.

Dermis: Found in lower the epidermis, contains connective tissue, hair follicles, blood vessels and sweat glands.

Subcutaneous tissue: The deeper most layer is called as subcutaneous tissue (hypodermis) made-up of fat and connective tissue.

Healthy smooth and soft skin is wrinkle free and moist. Over the time harsh environmental elements wear on the skin making it dryer and tougher. To maintain good skin, needs utmost care otherwise many problems occur related to skin such as acne, Pimple, blackheads and whiteheads. The first step in skin care is cleansing of skin. The Face wash doing a basic job of cleansing to our face. Face wash are use to remove excess oil, dirt and Makeup from the face by its cleansing action. So the Possibility of occurrence of skin problems is reduced.

Acne: Acne vulgaris is an inflammatory disorder of the pilosebaceous unit, which is develops due to blockage in the skin's hair follicles.

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Material and Methods

Collection

Leaves of neem & aloe-vera were collected from the college botanical garden. Turmeric, honey, rose water, peel of orange & lemon are were collected from the local market.

Preparation of extracts

After collection of neem leaves, liquorice root, turmeric rhizomes and peel of orange are dryer in sun light and cut in small pieces using grinder. Seeds of nutmeg and walnut were crushed to make powder and granules. Taken desired quantities of herbal drugs were weight and each herb macerated with conical flask separately for 3 days.

Filtration

After 3 days, macerated herbs filtrated out by using simple filtration method. Filtration of extract was done by using simple filter paper and funnel for two times.

Preparation of formulations

The desired quantity of gelling agent i.e carbopol 940 was dispersed in rose water with moderate stirring, Taken a beaker aside and Sodium lauryl sulfate dissolve in rose water at 60°C temperature with continue stirring. The desired quantity of herbal extract are mixed one by one in gel base with moderate stirring and allowed to soak overnight, and solution SLS are mixed in a gel.

Table 2: Composition of prepared formulation

S.No.	Ingredients	Formulation		
		F1	F2	F3
1.	Carbopol 940	0.30g	0.40g	0.50g
2.	Sodium lauryl sulfate	0.5g	0.5g	0.7g
3.	Neem extract	1ml	2ml	4ml
4.	Turmeric extract	0.4ml	0.8ml	0.8ml
5.	Orange peel extract	1ml	2ml	2ml
6.	Liquorice extract	0.5ml	1ml	1ml
7.	Lemon juice	1ml	2ml	3ml
8.	Honey	1ml	2ml	5ml
9.	Walnut granules	q.s.	q.s.	q.s.
10.	Nutmeg seed extract	0.5ml	1ml	2ml
11.	Aloe-vera pulp juice	1ml	2ml	4ml
12.	Rose water	q.s.	q.s.	q.s.

Marketed formulation

Himalaya purifying neem face wash was purchased from local market.

Evaluation Parameters

Physical evaluation: Physical parameters like colour, appearance and consistency was checked visually.

Washability: washability of prepared Formulation were applied on the skin and washing with water and checked manually.

pH: pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant temperature.

Spreadability: Spreadability denotes the extent of area to which the gel readily spread on application to skin or the affected part. Two sets of glass slides of standard dimensions were taken. The herbal gel formulation was placed over one of the slides. The other slide was placed on the top of the gel, such that the gel was sandwich between the two slides in an area occupied by a distance of 6 cm along the

slide. 100g weight was placed upon the upper slide so that the gel between the two slides was pressed uniformly to from a thin layer. The weight was removed & the excess of the gel adhering to the slides was scrapped off. The two slides in position were fixed to stand without slightest disturbance & in such a way that only the upper slide to slip off freely by the force of weight tied to it. A 20gm weight was tied to the upper slide carefully. The time taken for the upper slide to travel the distance of 6 cm7 separated away from the lower slide under the influence of the weight was noted. Spreadability was calculated by using the following formula.

$$S = M \times L/T$$

Results and Discussion

Herbal gel was prepared by emulsification technique and optimized for various formulation variables. Finally the gel was prepared using carbopol dissolve in rose water and extract of various herbs mixed in it. The prepared gel was evaluated by various parameters like physical appearance, pH, washability and spreadability. The results of evaluation parameter shown in the Table 3.

Table 3: Evaluation parameters of prepared formulation

S.No	Evaluation parameter	Formulation			
		F1	F2	F3	Marketed
1.	Colour	Pale yellow	Pale yellow	Pale yellow	Green
2.	Appearance	Semi-solid	Semi-solid	Semi-solid	Semi-solid
3.	Consistency	Good	Good	Good	Good
4.	Washability	Excellent	Excellent	Excellent	Excellent
5.	pH	06.33	6.11	5.64	5.28
6.	Spreadability(gm-cm\sec)	15.4	19.7	20.9	12.5

Conclusion

Herbal formulations have growing demand in the world market because they are safer with fewer side effects. It is a very good attempt to establish the herbal face wash containing aqueous extracts of neem leaves, turmeric rhizomes, liquorice root, seed of nutmeg, aloe vera, honey and juice of lemon. This study concludes that the developed herbal formulation of batch F3 was comparatively better than other formulations.

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