



FORMULATION & EVALUATION OF HERBAL FACE WASH

Abhishek Singh^{1†}, Harshita Singh²

Shri Ram Murti Smarak College of Engineering and Technology (Pharmacy), Bareilly-243202, (U.P.), India.

ARTICLE INFO

Article History

Received: 12th July, 2020

Accepted: 14th July, 2020

Corresponding Author:

† Abhishek Singh

Email: as3703944@gmail.com

Mob. No.: +91-9870746402

† Shri Ram Murti Smarak
College of Engineering and
Technology (Pharmacy),
Bareilly-243202, (U.P.), India.

ABSTRACT

The goal of this work is to use natural ingredients to formulate and test a cosmetic herbal face pack for the radiant skin. With the varying concentrations, formulations containing ingredients such as multani mitti, turmeric, aloe vera, Liquorice root, Honey, Orange tincture, Lemon juice, sandal wood, orange peel, neem and nutmeg; were prepared. The prepared formulations were evaluated by different parameters like organoleptic properties and physico-chemical parameters and stability along with irritancy test and microbial load.

Keywords: Neem and turmeric Face Wash, Acne, Dermal Safety

© www.albertscience.com, All Right Reserved.

INTRODUCTION

Acne vulgaris is an extremely common [pilocebaseous unit] skin disorder that affects virtually all individuals at least once during their lifetime. The incidence of acne peaks in adolescents but significant numbers of men and women between the ages of 20-30 are also affected by the disorder [1].

Comedonal acne is non-inflammatory & divided into two types: blackheads & whiteheads. White heads present as fresh or white, raised bumps, while blackheads present as open pores containing melanin, sebum, dark colored skin roughage. Papules often appear smaller than 5 mm in diameter as red, strong, elevated lesions. Puastules are circumscribed elevations of the skin which contain purulent material. Cysts are less than 5 mm in diameter whereas nodules exceed 5mm.

Numbers of formulations with a variety of active pharmaceutical ingredients for treating acne are available on the market. The following topical products are available on the market: gel, cream, lotion, face wash or cleanser, face pack or mask. Neem (*Azadirachta indica*, Meliaceae), turmeric (*Curcuma longa*) & nutmeg (*Myristica fragrance*, *Myristic aceae*) are reported to have very beneficial effect on acne due to anti-microbial, anti-inflammatory & anti-oxidant activities of different chemical constituents. Face skin is the major part of the body, which indicates the health of an individual. It is made up of materials such as amino acids, lipids and carbohydrates, etc., so that the skin needs a healthy diet to keep it clean and healthy, it deals with the formulation and characterization of cosmetic herbal face wash preparation. In ancient times women are very aware of their beauty and have started dressing up because they wanted to increase their own beauty [6].

Even today, people especially in rural areas, and hilly region select the natural remedies like plants extracts for cosmetics perposous like neem, orange rose. Herbal cosmetics are products that are used for the purification and beautification of the skin. The biggest benefit of using a natural cosmetic is that it is pure and has no side effects on people with raw skin and human body. If they are not vigilant enough, the skin is dark due to over-exposure of the sun [2]. In this article we share home best homemade face packs and face mask to whiten the skin naturally for men's and women skin. These face packs have natural lightening of the skin and can be prepared easily at home [7]. Facial skin is sensitive, and ordinary soaps may cause loss of moisture. A face wash is a mild cleanser that does the vital job of keeping skin clean, germ free smooth, and fresh and moisturizes the horny layer without any harshness to the skin look younger and energetic. The purpose of face-wash may be to impart cleansing, anti-wrinkle effect, anticancer property, moisturizing effect and fairness of skin [8].

Face pack is the smooth powder which is used for facial application. These preparations are applied on the face in the form of liquid or pastes and allowed to dry and set to form film giving tightening, strengthening and cleansing effect to the skin. They are usually left on the skin for ten to twenty five minutes to allow all the water to evaporate, the resulting film thus contracts and hardens and can easily be removed. The warmth and tightening effect produced by application of face pack produces the stimulating sensation of a rejuvenated face, while the colloidal and adsorption clays used in these preparations remove the dirt and grease from the skin of the face. When the applied face pack is eventually removed skin debris and deposited dirt gets removed with it.

Table 1: List of ingredients and their uses

Sr. No	Ingredients	Botanical name	Uses
1.	Neem leaves	<i>Azadirachta indica</i>	Antibacterial, antifungal, anti-inflammatory, antiseptic, and highly beneficial for oily and acne prone skin.
2.	Turmeric rhizomes	<i>Curcuma longa</i>	Antibacterial, antifungal and it protects the skin from many infections and also adds glow to the face.
3.	Nutmeg seed	<i>Myristica fragranca</i>	Antibacterial, anti-inflammatory, antiseptic, bactericide.
4.	Liquorice root	<i>Glycyrrhiza glabra</i>	Delivers valuable soothing properties to the skin. Highly rejuvenating and nutritive qualities are attributed to it.
5.	Honey	<i>Apis mellifera</i>	Light humectants and nutrients used as a thickening agent to give body to facial mask, creams and lotion.
6.	Orange tincture	<i>Citrus reticulata</i>	As perfume.
7.	Lemon juice	<i>Citrus lemon L</i>	To lighten skin and reduce blemish marks on the skin .it also quite effective for treating acne and pimples. As a natural pH adjuster in cosmetics.
8.	Xanthan gum	<i>Xanthomonu Scompestres</i>	A gum produced by the pure culture fermentation of a carbohydrate also called Corn Sugar Gum. it is used as a non toxic thickener and stabilizer
9.	Multani Mitti	<i>Calcium bentonite</i>	Multani mitti helps skin by different ways like diminishing pore sizes, removing blackheads and whiteheads fading freckles, soothing sunburns, cleansing skin, improving blood circulation, complexion, reducing acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients. Multani mitti is rich magnesium chloride.
10.	Aloe Vera	<i>Aloe barbadensis</i>	Aloe vera is a great moisturizer intended for a skin. Aloe vera rejuvenates skin, hydrates this and keeps skin layer looking fresh all the time. Aloe vera has anti-microbial property rendering it ideal to deal with acne and pimples. Aloe vera powder contains several nutrients like glycerin, sodium palmate, sodium carbonate, sodium palm kemelate, sorbitol, etc.
11.	Orange peel extract	<i>Citrus reticulata</i>	Antioxidant, anti-inflammatory, anti-microbial, orange-peel properties can maintain the natural balance of skin oils and tighten the skin by absorbing excess oils and removing dead skin cell
12.	Rose water	<i>Rosa</i>	Used as solvent; it also has antibacterial and antiseptic properties which eventually cure acne.
13.	Propyl paraben		Preservatives
14.	Methyl paraben		Preservatives
15.	Sodium laury Sulfate		Surfactant

MATERIAL AND METHOD

1. Collection

Leaves of neem were collected from the local area of Sakoli. Fruits of Nutmeg, orange peel, liquorice root, turmeric root, Aloe Vera, Multani Mitti, rosewater were collected from the local market of Sakoli.

2. Preparation of extracts

Leaves of neem, roots of liquorice, rhizomes of turmeric, orange peel, were kept in hot air oven for draying purpose at 45°C and grinded into small pieces by using grinder. Shahijeera (Cumin) and nutmeg seeds were crushed to make powder. Weighed desired quantities of herbal drugs, and macerated each herb in conical flask with rose water. A moderate shaking of conical flask allowed dried herbs to mix with rose water for 3 days. Separately After 3 days, contents were filtered out by using simple filtration method and filtrates were collected in vessels separately [13].

3. Filtration

Extract filtration was achieved by two-fold using simple filter muclin cloth and funnel.

4. Evaporation

Evaporation was done by using water bath. Filtrates were allowed to evaporate in water bath at 60°C temperature until the desired concentration of the extract was obtained.

5. Development of Formulation

Various formulation batches were prepared according to the Table 2. The desired concentration of gelling agent i.e. xanthium gum was weighed accurately and dispersed in hot rose water (not more than 60°C; 50 % weight of the batch size) with moderate stirring, avoiding air entrapment and Desired amount of lemon juice was dissolved by gentle stirring in desired amount of honey. To the remaining volume of rose water, required quantity of concentrated herbal extracts were added and combined by gentle stirring with the above honey mixture. Essentially this was combined with previously soaked gel formulate on. Prepared formulations were filled in a suitable container and labeled accordingly.

Table 2: Composition of developed formulation

Sr. No	Ingredients	Uses	Qty for 50 ml (f1) batch
1.	Neem Extract	Antibacterial, Antiseptic	2.5ml
2.	Turmeric Extract	Anti-inflammatory, Antibacterial and improve fairness	1.25ml
3.	Nutmeg Extract	Bactericide	1.25ml
4.	Liquorice Extract	Soothing properties	1.25ml
5.	Orange peel extract	Anti-oxidant, antimicrobial	0.5ml
6.	Orange Tincture	As perfume	0.5ml
7.	Lemon juice Extract	Lighten skin, and natural pH adjuster	0.5ml
8.	Honey	Thickening agent, emollient, antiseptic and astringent, nutritive.	2.5ml
9.	Liquid Xanthan Gum	Stabilizer and thickening agent	0.5ml
10.	Multani Mitti	removing blackheads and whiteheads fading freckles	0.5mg
11.	Aloe vera gel	great moisturizer	1.0ml
12.	Rose Water	Solvent	q.s
13.	Methyl paraben	Preservative	0.05mg
14.	Propyl paraben	Preservative	0.03 mg
15.	Sodium lauryl sulfate	Foaming agent	1.5mg

COMPARATIVE EVALUATION OF FORMULATION

The prepared face wash was evaluated for various parameters as follows [9].

1. Physical evaluation

Physical parameters such as colour, appearance & consistency were checked visually.

2. Wash ability

Formulations were placed on the skin then manually tested for easy removal by washing with water [10].

3. Colour

The colour of the face wash was checked visually [10].

4. pH

pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter at constant temperature [12].

5. Viscosity

Using Brookfield Viscometer the viscosity of face wash was determined. The values for sample obtained are noted.

6. Spread ability

Spread ability indicates the extent to which the gel spreads readily to the skin or affected part upon application. The quality of a gel formulation's bioavailability also depends upon its spread nature.

The spread ability is expressed in terms of time in seconds taken by two slides to slip off from the gel, placed in between the slides, under certain load. Lesser the time taken for separation of two slides, better the spread ability. Two sets of glass slides of standard dimensions were taken. The formulation of the herbal gel was placed over one of the frames. 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. 100gm weight was placed upon the upper slide so that the gel between the two slides was pressed uniformly to form 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 weight of 20gm was carefully applied to the upper slide. The time taken for the upper slide to travel the distance of 6-7cm separated away from the lower slide under the influence of the weight was noted. The experiment was repeated three times both formulated gels & marketed gel & the meantime taken for calculation [13].

Spread ability was calculated by using the following formula: $S = M \times L / T$

Where,

S- Spread ability

M- Weight tied to the upper slide L- Length of the glass

T- Time in sec.

7. Irritancy test

The face wash was applied on left hand dorsal surface of 1 sq. cm and observed in time interval 1 to 2 hrs [15].

RESULTS AND DISCUSSION

The results of evaluation are displayed in Table 3. Formulation was orange in color, whereas, marketed formulation was green in color. Formulation was found to have semisolid consistency. The formulations were found homogenous, easily washable. The formulated face wash has a slightly alkaline pH that is consistent with natural physiological conditions.

Table 3: Evaluation of formulation

Sr. No	Parameter	Marketed Formulation	Formulated Batch
1.	Colour	Green	Orange
2.	Consistency	Semi-solid	Semi-solid
3.	Washability	Good	Good
4.	pH	6.9	6.5
5.	Viscosity	1690 cp	1566cp
6.	Spread ability	2.16	1.72
7.	Irritation test	Non irritant	Non irritant

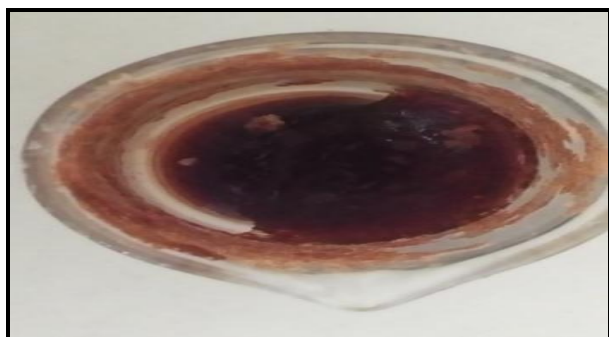


Figure 1: Formulated Face wash

CONCLUSION

The idea that natural treatments are better with less side effects than the synthetic ones is more appropriate. Herbal formulations are experiencing rising demand in the world market. It is a very successful attempt to make herbal face wash with aqueous extracts of neem leaves, turmeric rhizomes, liquorice root, and nutmeg seed. This study revealed that the developed herbal formulation of batch f1 was comparatively better than other formulation.

The herbal face wash is one of the most well recognized acne treatments, herbal face wash not only moisturized, they also used as a cleanser. They better used to physiology oily and dry skin. It provides numerous essential nutrients to the required for maintaining the normal skin functioning. it also promotes the natural glow to the skin. The herbal face wash was prepared from various herbs like Neem, Turmeric, Nutmeg, Liquorice, Honey, and the soothing agent as *Xanthungum* used for formulation. It gives beneficial effects to the face. The various parameters like colour, pH, consistency, washability, irritability and spread ability was checked and evaluated hence, from the present investigation it was found that the formulated herbal face wash was found to be more efficient as compared to the marketed face wash. In this formula contains all herbal ingredients that its nights produce and are reliable for any harmful action on the skin.

REFERENCES

1. Sowmya K.V., Darsika C.X., Grace F., Shanmuganathan S. Formulation & Evaluation of Poly-herbal Face wash gel. *World Journal of Pharmacy & Pharmaceutical Sciences*, 2015; 4(6):585-588.
2. Ashawat MS, Banchhor M. Herbal Cosmetics. Trends in skin care formulation. *Pharmacognosy Rev* 2009; 3 (5): 82-89.
3. Singh H.P., Samnhotra N., Gullaiya S., Kaur I. Anti- acne synergistic Herbal face wash gel Formulation, Evaluation, & Stability study, *World Journal of Pharmaceutical Research*, 2015; 4(9): 1261-1273.
4. Kanlayavattanakul M., Lourith N., Therapeutic agents & herbs in topical applications for acne treatment, *International Journal of cosmetic Science*, 2011; 33: 289-297.
5. Kapoor V.P., Joshi H., Chaubey M., Applications of seed gums in pharmaceutical formulations, *J Med Arom Plant Sci*. 2000; 22/4A & 23/1A: 42-44.
6. Kubo I., Muroi H., Kubo A., Naturally occurring anti-acne agents, *J Nat Prod*, 1994; 57(1): 9-17.
7. Sowmya K.V., Darshika C.X., Grace F., Shanmuganathan S. Formulation and evaluation of Poly-herbal Face wash gel, *World Journal of Pharmacy and Pharmaceutical Sciences*, 2015; 4(6):585-588.
8. Kanlayavattanakul M., Lourith N. Therapeutic agents and herbs in topical applications for acne treatment. *International Journal of cosmetics Science*, 2011; 33: 289-297.
9. Mitusi T. *New Cosmectic Science*; Elsevier Science B.V., the Netherlands; 1sted; 148-149 Indian standard-6608- 1978; Govt of India 1997: 4-5
10. Baby, A. R., Zague, V., Maciel, C.P.M., Kaneko, T. M., Consigliari, V. O., Velasco and M. V. R. Development of Cosmetics Mask Formulations. *Rev Bras Cienc. Farm* 2004; 40(10):159-161.
11. Ahmed, S.A. and M. Grainage, Use of indigenous plant resources in rural development, potential of neem tree. *Int. J. Dev. Technol.*, 1985; 3: 123-130.
12. Quddus, M. A., The cropland agroforestry experiences of the village and farm forestry project in Northwest Bangladesh. National Workshop, September 16-17, 2001 Gazipur, Bangladesh, 2001:229-239.