

Formulation and Evaluation of Herbal Face Wash: Aloe Vera

Swapnil S. Markad¹, Abhijeet B. Surwase²

¹Student, JBVP Vidyanketan Collage of Pharmacy, Lakhewadi, Maharashtra, India.

²Assistant Professor, Dept. Of Pharmaceutical Quality Assurance,
JBVP Vidyanketan Collage of Pharmacy, Lakhewadi, Maharashtra, India

Abstract: Face is sensitive part of our body so care of face is one of the important task for human beings. There are several preparation are available for face care, from which face wash plays important role for improving appearance as well as for treating several facial skin conditions. Face washes prepared by herbal ingredients are better than the synthetic ingredients to avoid skin irritation and other side effects. In the present work an attempt was made to formulate & evaluate face wash with antioxidant, antibacterial and antiseptic properties which are necessary to keep the skin, smooth and attractive. Herbal Face wash is made from Aloe vera extract, turmeric powder extract, orange peel extract for anti-acne, anti-inflammatory also anti-bacterial activity and to improve the skin and enhance beauty. Face wash improves circulation and cleanse the entire face. prepared face wash evaluated for colour, odour, consistency, pH, spread ability, wash ability, grittiness, foamability..

Keywords: Aloe-Vera extract , Turmeric ,Herbal Face wash , Orange peel ,Therapeutic uses , Additives.

I. INTRODUCTION

Cosmetics are developed to reduce wrinkles, fight acne and to control oil secretion. By considering this parameter face wash is one of the important formulation. Skin is the major part of body and face skin is one of the sensitive and representative parameter human personality. Also it indicates the health of an individual it is composite of material such as carbohydrates, amino acids, lipids etc. A balanced nutrition is required for the skin to keep it healthy, clear and glossy. A part sexes causes many changes in the body the acne is one of the problem in adult and teenager, also due to excessive pollution, UV-radiation there is decreases tone of face skin and also these is the one of the reason of premature ageing of face skin. So to avoid these or to prevent at specific level herbal face wash is one of the effective formulation. As it does not contain synthetic ingredient so there is no side effects.¹

1) Face wash

a) Definition

A cleanser is a facial care product that is used to remove makeup, dead skin cells, oil, dirt, and other types of pollutants from the skin of the face. This helps to unclog pores and prevent skin conditions such as acne. A cleanser can be used as part of a skin care regimen together with a toner and moisturizer.

b) Advantages of face wash

- ☐ It helps to remove dead skin cells that helps new skin cells replace old one
- ☐ It helps to keep skin fresh and healthy.
- ☐ It makes the skin to look radiant
- ☐ The mixture of dead skin cells and excessive oil clog pores, which can lead to acne white heads, blackheads and total weary appearance. Exfoliating the pores regularly, avoids all the above skin problems.

Properties of face-wash:

- ☐ It should be stable and should have a good appearance.
- ☐ It should soften on application to the skin.



□It should spread easily without dragging.

Role of face wash

To remove all traces of make –up every day

For cleansing the skin

For used as anti-aging

Bath and renewal keeping the skin clean and shiny

e) Formulation of face wash

1) Categories of therapeutic agents used in face wash

Antibacterial

In its broadest definition, an antibacterial is an agent that interferes with the growth and reproduction of bacteria. While antibiotics and antibacterials both attack bacteria, these terms have evolved over the years to mean two different things. Antibacterials are now most commonly described as agents used to disinfect surfaces and eliminate potentially harmful bacteria³. Examples; alcohols, chlorine, peroxides, and aldehydes.

Anti acne

Different types of antiacne drugs are used for different treatment purposes, depending on the severity of the condition. For example, lotions, soaps, gels, and creams containing substances called benzoyl peroxide or tretinoin may be used.⁴

2) Advantages of Herbal Cosmetics over Synthetic cosmetics

Herbal cosmetics are the modern trend in the field of beauty and fashion. These agents are gaining popularity as nowadays most women prefer natural products over chemicals for their personal care to enhance their beauty as these products supply the body with nutrients and enhance health and provide satisfaction as these are free from synthetic chemicals and have relatively less side-effects compared to the synthetic cosmetics. Following are some of the advantages of using natural cosmetics which make them a better choice over the synthetic ones: Synthetic chemicals and have relatively less side-effects compared to the synthetic cosmetics.

1. Compatible with all skin types

Natural cosmetics are suitable for all skin types. No matter if you are dark or fair, you will find natural cosmetics like foundation, eye shadow, and lipstick which are appropriate irrespective of your skin tone. Women with oily or sensitive skin can also use them and never have to worry about degrading their skin condition. Coal tar-derived colors are used extensively in cosmetics, Coal tar is recognized as a human carcinogen and the main concern with individual coal tar a color (whether produced from coal tar or synthetically) is they can cause cancer. But natural colors that are obtained from herbs are safer.

2. Wide selection to choose from

Natural cosmetics may still be a new type in the beauty industry but they already offer a variety of beauty products for all make up crazy people out there to choose from. One will find a variety of foundation, eye shadow, lipstick, blush, mascara, concealer and many more which are all naturally formulated. Furthermore, one will find locally made natural cosmetics or those made by famous designers worldwide. There exist a large variety of herbal extracts, to name a few Andrographis Paniculata (Kalmegh), Asparagus Racemosus (Shatawari), Boswellia Serrata (Salai Guggal), Asphalt (Shilajit) etc.

3. Fits your budget

Natural cosmetics are not that expensive. In fact, some of these products are more affordable than synthetic ones. They are offered at discounted prices and are sold for a cheap price during sales. Just need to survey enough to look for great deals. An estimate of WHO demonstrates about 80% of world population depends on natural products for their health care, because of side effects inflicted and rising cost of modern medicine. World Health Organization currently recommends and encourages traditional herbal cures in natural health care programs as these drugs are easily available at low cost and are comparatively safe.



4. Not tested on animals

Some cosmetics are initially tested on animals to ensure that they are safe and effective to use for human. However, natural cosmetics need not be tested on animals. These natural formulations are tested by experts in laboratories using state of the art equipment with no animals involved.

5. No side effects

The synthetic beauty products can irritate your skin, and cause pimples. They might block your pores and make your skin dry or oily. With natural cosmetics, one need not worry about these. The natural ingredients used assure no side effects; one can apply them anytime, anywhere. For example herbal cosmetics are free from parabens that are the most widely used preservative in cosmetics and can penetrate the skin. And are suspected of interfering with hormone function. to clear up mild to moderately severe acne. Isotretinoin (Accutane) is an oral drug that is prescribed only for very severe, disfiguring acne.⁵

3) Various herbs used in cosmetics

a. Aloe (Aloe vera)

The pulp of Aloe (*Aloe vera*) is an exceptional skin cleanser. Juice of the plant counteract infection and promote healing. Split off a portion of *Aloe vera* leaf and rub the pulp directly on the skin.⁶

b. Amaranth (*Amaranthus spinosus*)

Make a tea from Amaranth (*Amaranthus spinosus*) seeds and use as a face wash. To make the tea bring 3 cups of water to boil, add 2 teaspoons of seeds. Cover and boil for five minutes;

c. Neem (*Azadirachta indica*)

Neem (*Azadirachta indica*) is valued in Ayurvedic medicine for its varied healing properties due to its antibacterial, antifungal, and antiviral capabilities. For acne, fresh 5 leaves everyday taken in the morning helps in removing stubborn acne.

d. Lemon (*Citrus limon*)

Clean your skin and apply Lemon (*Citrus limon*) juice with a cotton ball. The acid in Lemon helps flush out the pores and keeps the skin looking beautiful. Another method using Lemon juice is to "steam clean" the face by putting it over a pan of boiling water with a towel over your head to trap the steam. This will loosen the dirt and oil. Then apply a cotton ball to remove the dirt and oil buildup. Use this method once a week.⁷

e. Basil (*Ocimum basilicum*)

Make an infusion of Basil (*Ocimum basilicum*) leaves. Put two to four teaspoons of dried Basil leaves in a cup of boiling water, steep for 10 to 20 minutes, cool, and apply to the acne.⁸

f. Cucumber (*Cucumis sativus*)

Liquefy a peeled Cucumber (*Cucumis sativus*) in a blender and apply the juice to the acne.⁹ Another variation of this remedy is to drink four or five cups of Cucumber juice daily for a week. This is said to purify the blood and lymphatic system, resulting in a clearer skin.¹⁰

g. Grape (*Vitis vinifera*)

Grape (*Vitis vinifera*) seed extract is a powerful all around antimicrobial agent and is an excellent disinfectant¹¹. Make a solution of 440 drops in four ounces of water and apply to the affected areas with a cotton ball two or three times a day.¹²

4) Evaluation of face wash

Colour, odour, consistency, spreadability, washability, foamability, grittiness. etc. are the important evaluation parameters of the face wash formulation. Evaluation of any formulation gives the quality of that formulation.²⁰

Uses of face-wash

- ☐ To remove all traces of makeup every day
- ☐ For cleansing the skin,
- ☐ Anti-aging,

Copyright to IJAR SCT
www.ijarsct.co.in



DOI: 10.48175/568



- ☐ Bath and renewal Keeping the skin clean and shiny
- ☐ Stimulates there generation of the skin cells and their renewal.
- ☐ Help plug the pores clear.¹²

ACNE

Acne is a skin disorder that leads to an outbreak of lesions called pimples. Acne usually starts shortly after puberty and begins because of hormonal changes and increased oil secretion. Acne develops when hair follicles, the site of acne, get plugged with dead skin cells. It is common to see patients (particularly women) in their 30s, 40s, and 50s with adult onset Types of acne lesions:

Blackhead (open comedone): Oil and dead cells leave a black plug on the skin surface.

Whitehead (closed comedone): Oil and dead skin cells leave a plug below the skin surface.

Papules (red pimples) and white pustules: The material in the plugged hair follicle seeps through the walls of the follicle and causes redness and tenderness.

Cyst: A very deep, ruptured, inflamed follicle.¹³

Acne treatment:

Therapy should help lessen the severity and reduce the amount of scarring, which could result from acne if left untreated. Different combinations of medications may need to be tried to determine which combination is best for you. It will take 8 to 12 weeks to see results in most people. Medications only suppress acne. If you stop your therapy, your acne is likely to recur.

Topical antibiotics (clindamycin, erythromycin): These help decrease or kill skin bacteria.

Oral antibiotics (tetracycline, doxycycline, minocycline, erythromycin, and others): Help decrease redness and kill bacteria. These are most helpful for red papules and cysts.

Retinoids (Retin A, Differin, Avita, Tazorac): These unclog pores to eliminate blackheads and whiteheads.

Benzoyl peroxides (Triaz, Brevoxyl): These unclog pores and prevent bacteria growth. They help prevent antibiotic resistance.

Finacea, Azelex: These unclog pores and may help decrease bacteria.

Accutane: This is our most potent acne medication. It has many possible side effects and is usually reserved for severe acne or for when other medications are not working well Skin care:

Wash your face two times per day with a mild soap or soap-free cleanser. (Dove, Oil of Olay Foaming Face Wash, Cetaphil Cleanser, Neutrogena or Purpose cleansers for sensitive skin.) DO NOT use harsh soaps and do not scrub vigorously.

Washing:

Wash gently but thoroughly twice daily with the recommended cleanser. Avoid harsh scrubs, masks, and other non-prescription products. Glycolic acid products aid in reduction of comedones (whiteheads and blackheads). These may be used as an after-cleansing step, before benzoyl peroxide, Differin or Retin-A, or topical antibiotics once or twice daily. To keep the skin free from acne, it should have antioxidants, smoothing and moisturizing property. Antioxidants will help to reduce the presence of free radicals which prevent ageing and inflammatory effects of skin. Moisturizing property will keep the skin smooth and impart cooling effect and prevent from dehydrating the skin.¹⁵

OBJECTIVES

This study was carried out with the following objectives

To study the ideal characteristics of face wash formulation.

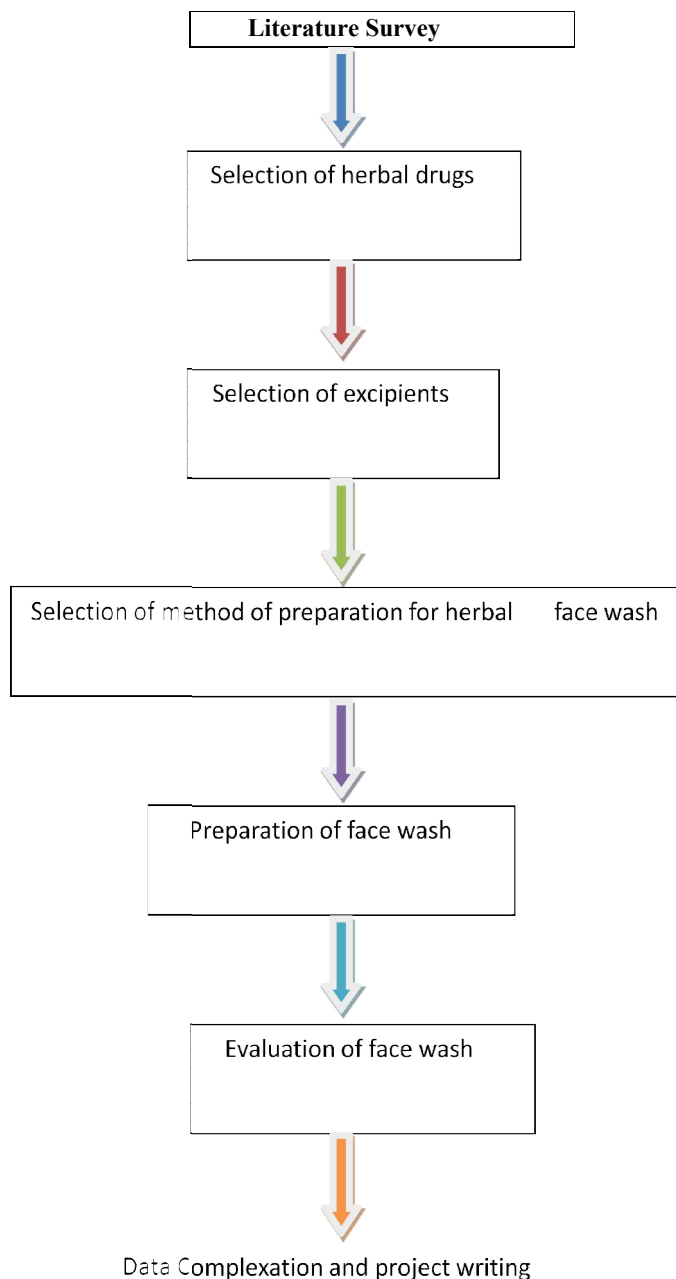
To develop skill of making face wash formulation.

To formulate herbal face wash containing Turmeric, Aleovera and orange peel extracts.

To evaluate herbal face wash for colour, odour, consistency, pH, spread ability, wash ability, grittiness, foam ability.¹⁶



PLAN OF WORK



II. LITERATURE SURVEY

Sowmya. K. V, Darsika. C, X. Fatima Grace* and S. Shanmuganathan. et al., (2015) were prepared a face wash with antioxidant, antibacterial and antiseptic properties which are necessary to keep the skin, smooth and attractive. Face wash was prepared and evaluated for its spread ability, consistency, grittiness, foamability, pH and the results were found to be satisfactory.

Dr. vallabha chandegara and Anil varshney. et al., (2012)



Several species of the genus aloe has been in use under the common name of aloe viz. Aloe vera, Aloe barbadensis, Aloe ferox, Aloe chinensis, Aloe indica, Aloe peyrii, etc. Amongst these Aloe vera Linn syn. *Aloe barbadensis* Miller is accepted unanimously as the correct botanical source of aloe. In most reference books *Aloebarbadensis* Miller is regarded as the correct name but as per the WHO monograph Aloe vera (L) Burm f. is accepted as the legitimate name for this species. The genus aloe is placed taxonomically in *Liliaceae* family. It has also been known as *Aloevulgaris* ("common aloe") and *Aloe barbadensis*.

Suja D, Bupesh G.G., Nivya Rajendiran mohan. et al., (2017)

The fruit peel ethanolic extract of *C.limon* and *C.sinensis* exhibited potent anti-oxidant activity and antibacterial activity against Gram positive and Gram negative organisms. The present study has shown the usefulness of the extraction methodologies adopted for efficient extraction, processing and utilization of these citrus fruit peel wastes and also to characterize the phytochemicals, antioxidant property and antibacterial activities of fruit peel wastes of lemon and oranges.

Prashanth G. K1, G.M. Krishnaiah. et al., (2014) were studied Phytochemical screening of the aqueous and ethanolic extracts of the leaves revealed the presence of alkaloids, reducing sugars, saponins etc, in them. GC-MS of the ethanolic extract revealed the presence of many compounds in the leaves of *Azadirachta Indica* Linn.

Hada D. and Sharma K. et al., (2014)

There is a need to search for an environmentally safe and economically viable strategy for the control of diseases and to reduce the dependence on the synthetic agrochemicals. Use of plants as a source of medicine is as old as humanity that's why focus of the world is shifting towards natural products and analogues. These natural products or plant extracts can be exploited either as leads for chemical synthesis of new agrochemicals, or as commercial products in their own right, or as a source of inspiration to biochemists for the development of new bioassays capable of detecting other, structurally simpler, compounds with the same mode of action. Use of medicinal plants may thus offer a new source of antibacterial, antifungal and antiviral agents with significant activity against microorganisms.

Louay Labban. et al., (2014)

Curcumin can be considered a great potential therapeutic agent for a variety of inflammatory conditions and cancer types. Consequently, there is extensive interest in its therapeutic potential as evidenced by the number of ongoing phase II and III clinical trials. The primary obstacle to utilizing curcumin therapeutically has been its limited systemic bioavailability, but researchers are actively involved in trying to find the most efficient method of application.

FORMULATION OF FACE WASH

A) HERBAL MEDICINES

1. Aloe vera



Figure no. 2: Aloe vera

Synonym: Aloe , musabbar

Biological source: Aloe barbadensis miller (or Curacao Aloe)

Family: Liliaceae

Chemical constituent: Aloe-emodin , Aloin ,barbaloin , Beta barboloin

Copyright to IJARSCT
www.ijarsct.co.in



DOI: 10.48175/568



Chemical nature: the principal active composition of aloe is aloin, it having various chemical barbaloin chrysophanic acid choline the major source of glycoside Use:

It is used as purgative

It is used as carminative

It is used as anti-inflammatory

It is used as anti acne and help to smooth skin

2. Turmeric



Figure no. 3: Turmeric

Synonym: Haldi, Indian saffron

Biological source: *Curcuma longa* Linn.

Family: Zingiberaceae

Chemical constituent: Curcumin

Zingiberene

Borneol

Caprylic acid

Curcumanoids

Use:

Antiseptic

Expectorant

Anti-inflammatory

Spice

Carminative

Antimicrobial

Antioxidant

Burns and wounds treatment

Itching

Skin cosmetics

3. Orange peel





Figure no. 4 Orange peel

Synonym: Orange cortex

Biological source: Citrus Aurantium Linn

Family: Rutaceae

Chemical constituent: Vitamine c,

Pectin,

Volatile oil,

Hesperidin,

Iso-hesperidin ,

Neohesperidin,

Aldehydes,

Citral

Use: Antioxidant, prevent pimples and acne

Orange peel are used as carminative, aromatic, stimulant. Flavoring agent.¹⁴

C) FORMULATION OF HERBAL FACE WASH

In our formulation we have selected active agents like aloe vera peel extract, turmeric powder extract and orange peel extract to achieve anti-acne property anti-inflammatory, antibacterial property. We formulated face wash gel for that purpose carbapol was used as gelling agent. Methyl and propyl paraben were used as preservatives. Triethanolamine was used as alkalizing agent to achieve good stability. Propylene glycol was added it also gives emollient effect on skin. Sodium lauryl sulphate was added to produce foam.

While is application. The formulation ingredient and its concentration shown in table no. 1.

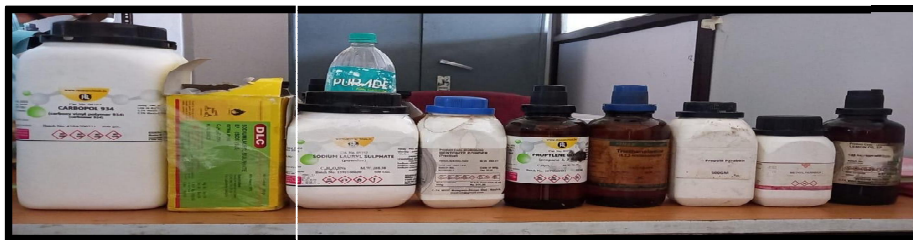


Figure no 5 : Ingredient for formulation



Table no. 1: Formulation table for herbal face wash

Sr. No.	Name of ingredients	Quantity for 100 ml	Property
1	Extract of aloe vera	1 gm	Antibacterial
2	Ethanol extract of Turmeric powder	1 gm	Anti-inflammatory
3	Ethanol extract of orange peel	1 gm	Antioxidant
4	Carbopol 940	0.5 gm	Gelling agent
5	Methyl paraben	0.1 gm	Preservative
6	Propyl paraben	2 gm	Preservative
7	Triethanolamine	2 ml	Neutralizer
8	Propylene glycol	2 ml	Humectant
9	Sodium lauryl sulphate	2 gm	Foaming agent
10	Bentonite	0.3	Anti-static agent
11	Distilled water	Q.S.	Vehicle
12	ROSE OIL	Q.S	PERFUME

METHOD FOR PREPARATION OF HERBAL FACE WASH

Turmeric powder, orange peel is selected. They were washed and sundried for 3 days and subsequently crushed mechanically via the use of manual grinder to particulate sizes of 2mm to obtain a larger surface area.

Finally, resulting samples were artificially dried using a tray drier at a temperature of 50°C for two hours.¹⁹

Extraction Procedure

Accumulated with the solvent at the siphon (or reflux arm) of the Soxhlet extractor. When the 50g of turmeric powder and orange peel powder respectively, were each weighed and put into the thimble of the Soxhlet extractor. 300ml of the solvent (ethanol) was measured with a measuring cylinder and poured into the still pot of the Soxhlet extractor, the apparatus was then coupled and the condenser unit was connected to an overhead water tank to cool rising solvent vapour. The heat source was a Bunsen burner operating at a temperature of 68°C. The solvent evaporated through the distillation path, thimble and the expansion adapter after which it condensed at the condenser unit of the Soxhlet extractor. At this point the condensed vapour returned to the thimble as liquid droplets and got in contact with the sample therein.

It then broke the sample membranes to release the oil content which solvent in the thimble rose to the level of the siphon top, the entire content of the thimble and siphon was emptied back into the still pot of the Soxhlet extractor. The process was repeated severally for about nine refluxes in 3 hours after which the extraction process was completed. Temperature was regulated using a thermometer.

Recovery of Extracted Oil

After extraction, the resulting liquid was a mixture of the solvent used for extraction and the oil extract. The liquid was discharged into a Liebig condenser to separate the solvent from the oil extract. The mixture was distilled at a temperature of 68°C until the oil extract was completely free of the solvent. Diethyl ether was then used to purify the oil extract after which it was exposed to the atmosphere for a while to ensure elimination of the solvent odour.¹⁶





Figure no. 6: Soxhlet Extractor



Aloe vera extract¹⁸

Preparation of face wash

A little quantity of water was added with preservatives

Then propylene glycol and sodium lauryl sulphate were dissolved well in above solution.

To the above solution carbopol was added little by little and stirred well until a gel like dispersion was obtained.

To this the extracts were added one by one to get a complete gel like consistency.

Then triethanolamine was added finally.





Figure no. 9: Face wash formulation

EVALUATION

Formulation Batches	colour	Odour	Consistency	pH	Spreadability	Wash ability	Grittiness	Foam ability
F1	Pale yellow	Characteristic	Semisolid	7.7	Easily spreadable	Good	No gritty particles	Good
F2	Pale Yellow	Characteristic	Semisolid	7.3	Easily spreadable	Good	No gritty particles	Good
F3	Pale yellow	Characteristic	Semisolid	7.3	Easily spreadable	Good	No gritty particles	Good
Marketed	Yellow	Characteristic	Semisolid	7	Easily spreadable	Good	No gritty particles	Good

RESULTS AND DISCUSSION

The turmeric powder, aloe vera, orange peel containing face wash were formulated and evaluated for color, odour, Consistency, pH, Spread ability, Wash ability, Grittiness, Foam ability and obtained results are given into table no.3.

Table no. 3: Observation and Evaluation of Herbal Face wash

Sr. No.	Parameters	Observations
1	Colour	Yellow

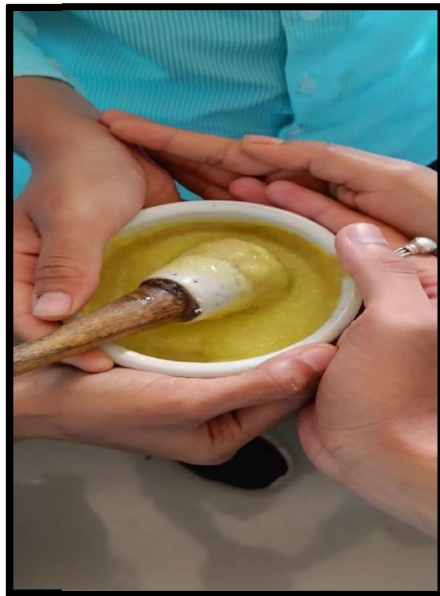


2	Odour	Characteristic
3	Consistency	Semi-solid
4	pH	7.0
5	Spread ability	Easily spreadable
6	Wash ability	Good
7	Grittiness	No gritty particles
8	Foam ability	Good

Colour of formulation was yellow. It shows characteristic odour. Consistency of formulation is semi liquid and it is easily pourable from container. pH of formulation was neutral. Formulation showed easy spreadability and it was easily washable. Also it was free from grittiness. Foam ability was checked and it shows good foam ability.

II. CONCLUSION

Herbal face wash gel containing, turmeric powder extract, aloe vera extract, orange peel extract was formulated successfully by using carbapol as a gelling agent. Prepared formulation was evaluated for colour, odour, consistency, pH, spread ability, wash ability, grittiness, foam ability studies and it shows acceptable results. So performed studies it can conclude that prepared formulation may effectively used for facial care still further studies related to effectiveness, adverse effect and anti-microbial activity of formulation are required to perform before to bring it in real use.



REFERENCES

- [1]. Sanju nanda, arun nanda, roop k. khar. cosmetics technology birla publication first edition 2006-2007 Page no. 243
- [2]. P. P. sharma cosmetics-formulation, manufacturing and quality control by m. pharm. Vandana publication third edition page no. 142.



- [3]. http://www.tufts.edu/med/apua/about_issue/agents.shtml.
- [4]. McNally, Robert A. Skin Health Information for Teens: Health Tips about Dermatological Concerns and Skin Cancer Risks. Detroit (/topic/Detroit.aspx), MI: Omnigraphics, 2003.
- [5]. Simons, Rae. For All to See: A Teen's Guide to Healthy Skin. Broomall, PA: Mason Crest, 2005.
- [6]. Sharma A, Shanker C, Tyagi LK, Singh M, Rao ChV (2008) Herbal Medicine for Market Potential in India : An overview. Academic Journal of Plant Science
- [7]. <http://www.greenmedinfo.com/blog/11herbsusedtraditionalacneremedies>
- [8]. <https://www.nlm.nih.gov/medlineplus/antioxidants.html>.
- [9]. http://www.ingredientstodiefor.com/category/Thickeners_Polymers_RheologyModifiers/c6
- [10]. <http://www.eufic.org/article/en/foodsafetyquality/foodadditives/artid/preservativesfoodlongersafer>.
- [11]. (<http://www.wisegeek.org/whatisanhumectant.htm>), wisegeek.org
- [12]. Compendium of Chemical Terminology 2nd Edition (1997)1972, 31, 612IUPAC
- [13]. https://storify.com/ASEEM_SOOD/benefitsofherbalfacewash.
- [14]. The Face and Skin Center at University of Mississippi Health Care • 601-815-3374 • www.thefaceandskincenter.com
- [15]. C.k.kokate, a.p.purohit, s.b.gokhale pharmacognosynirali prakashan 43rd edition, 12.10, 4.4, 20.5.
- [16]. <https://en.wikipedia.org/wiki>.
- [17]. Dr.vallabh chandegara,junagadh agriculture university book Dec 2012
- [18]. Barry,B. W, Dermatological Formulations, Marcel Dekker. Inc. New York, Basel, vol- 1983; 18: 96-115.
- [19]. Boudreau M.D., An evaluation of the biological & toxicological properties of Aloe vera Barbadensis (Miller) Aloe vera, Journal of Environ sci. health C. Environ carcinog Ecotoxicology Rev 24(1), 103-54.
- [20]. Patricia Maria, Extract in different conc. Assessed by skin bioengineering technique; Journal of Dermatology, 30 (10); 679, 683
- [21]. B.M. Mithal & R. N. Saha,Handbook of cosmetics, first edition 2000, pg no. 21

