



FORMULATION AND EVALUATION OF HERBAL FACE WASH

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I.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.

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

II.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.
- Removing dead skin cells that means your skin will develop wrinkles at a slower pace.
- The exfoliation accelerates the blood circulation and promotes skin regeneration and rejuvenation.
- Facial pores and Oily skin is caused by over secretion of sebum by sebaceous glands which clogs the makes the skin oilier.
- Oily skin requires cleansers with herbs and botanicals which will clean the pores and reduce oil buildup. These exfoliating cleansers contain anti-inflammatory agents and antioxidants that improve and nourish the damaged skin.
- Known for its beneficial properties, Herbal Face Wash is used to treat acne and pimples. Containing rich plant-based ingredients like feverfew and neem, Herbal Face Wash removes excess oil without removing nutrients from the skin.

c) 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.
- During application it should not have oily or greasy feel.
- After evaporation of water the cream residue should not become viscous.
- Its physical action should be that of flushing on the skin and pore opening rather than absorption.
- A thin emollient film should remain on the skin after its use².

d) Role of face wash

- 1) To remove all traces of make –up every day
- 2) For cleansing the skin
- 3) For used as anti-aging
- 4) Bath and renewal keeping the skin clean and shiny

5) It stimulates three generation of the skin cells and their renewal

6) It also helps plug the pores clear

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

¹ 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.

² 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;

³ 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.

⁴ 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.

⁵ 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.

6 Cucumber (*Cucumis sativus*)

Liquefy a peeled Cucumber (*Cucumis sativus*) in a blender and apply the juice to the acne. 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.

7 Grape (*Vitis vinifera*)

Grape (*Vitis vinifera*) seed extract is a powerful all around antimicrobial agent and is an excellent disinfectant. 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.

8 Chickpea (*Cicer arietinum*)

Wash your face with Chickpea (*Cicer arietinum*) paste (mix one teaspoon of chickpea flour with a little water). Dry with a clean towel. This is also a good remedy to cure acne.

4) Additives used in face wash**Antioxidants**

Antioxidants are manmade or natural substances that may prevent or delay some types of cell damage. Antioxidants are found in many foods, including fruits and vegetables. They are also available as dietary supplements.

Examples; Lycopene, Vitamin A, Vitamin C, Vitamin E.⁷

Gelling agent

Gelling Agents are ingredients that will turn your water, or oil, phase into a gel, which is thickened but, without stiffness. Emulsions thickened with Gelling Agents will be more mobile, and fluid, than rather than stiff. Some of these gels will thin when force is applied (thixotropic) and return to viscosity when the force is removed. These gels make it possible to create thick products, that can be shaken, or stirred under high shear, for easier bottling, or for spraying.

Examples; carbopol940, carbopol934.⁸

Preservative

The primary reason for using preservatives is to make foods safer by eliminating the influence of biological factors. The greatest threat to consumers is that of food being spoiled, or from becoming toxic by the effect of microorganisms (e.g. bacteria, yeast, moulds) occurring in them. Some of these organisms can secrete poisonous substances ("toxins"), which are dangerous to human health and can even be fatal.

Examples; methyl paraben, propyl paraben.⁹

Humectants

A humectants are a hygroscopic substance used to keep things moist; it is the opposite of a desiccant. It is often a molecule with several hydrophilic groups, most often hydroxyl groups; however, amines and carboxyl groups, sometimes esterified, can be encountered as well (its affinity to form hydrogen bonds with molecules of water is the crucial trait). They are used in many products, including food, cosmetics, medicines and pesticides. A humectants attracts and retains the moisture in the air nearby via absorption, drawing the water vapor into and/or beneath the organism/object's surface.

Examples; Propylene glycol, hexylene glycol, and butylene glycol.¹⁰

Foaming agent

A foaming agent is a material that facilitates formation of foam such as a surfactant or a blowing agent. A surfactant, when present in small amounts, reduces surface tension of a liquid (reduces the work needed to create the foam) or increases its colloidal stability by inhibiting coalescence of bubbles. A blowing agent is a gas that forms the gaseous part of the foam

Examples; Sodium laureth sulfate, azodicarbonamide, titanium hydride.¹¹

5) 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

6) Uses of face-wash

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

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:

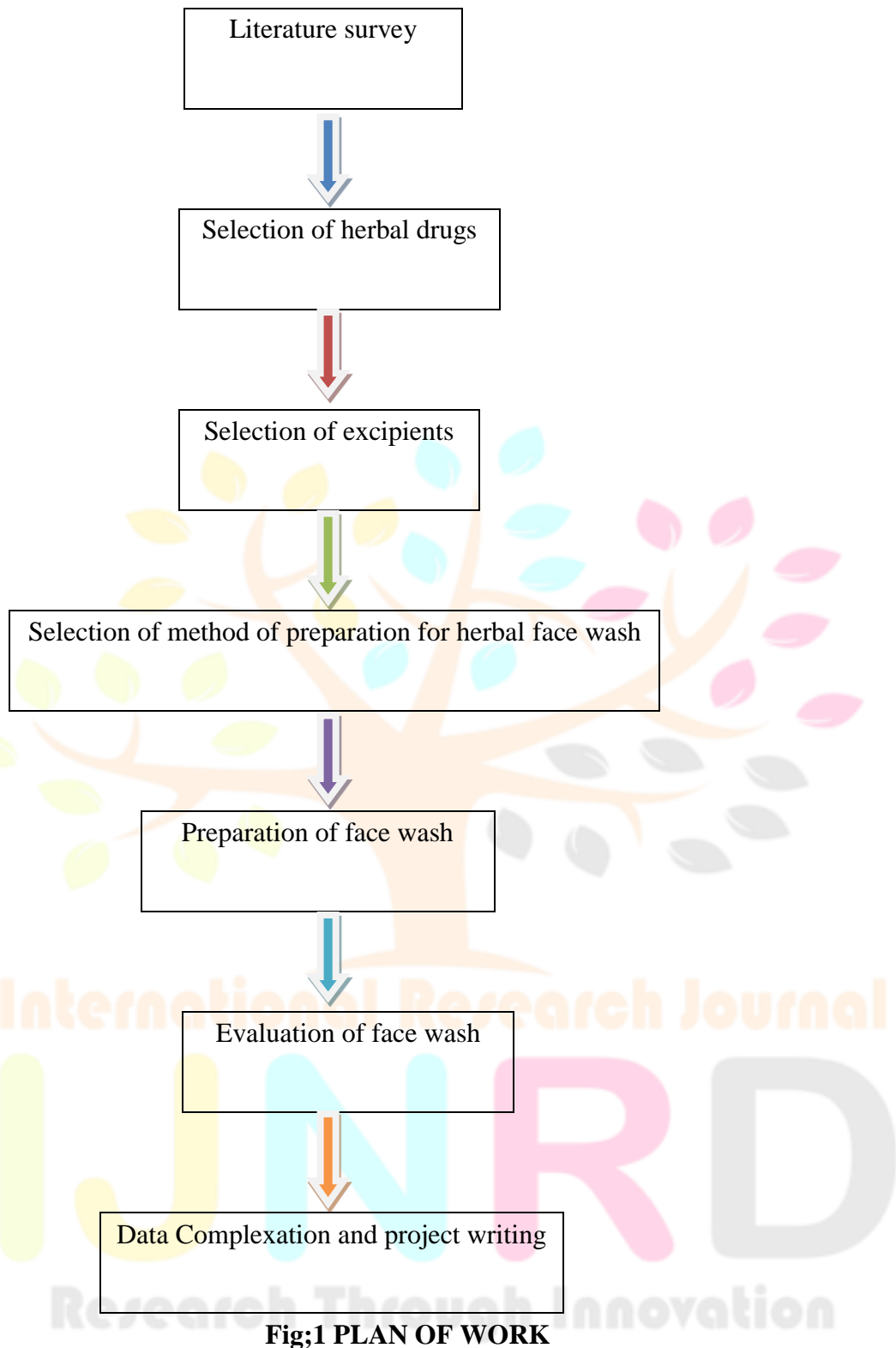
Wash gently but thoroughly twice daily with the recommended cleanser. Avoid harsh scrubs, masks, and other non-prescription products. Glycolic acid products aid in reduction of comedones (whiteheads and blackheads). These may be used as an after-cleansing step, before benzoyl peroxide, Differin or Retin-A, 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.¹³

III.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, Alovera and orange peel extracts.
- To evaluate herbal face wash for colour, odour, consistency, pH, spread ability, wash ability, grittiness, foam ability.

IV.PLAN OF WORK



Fig;1 PLAN OF WORK

V.LITERATURE SURVEY

I. 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.

II. 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 *Aloe barbadensis* 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.

VI.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

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-inflamentry

It is used as anti acne and help to smooth skin

2. Turmeric



Figure no. 3: Turmeric

Synonym: Haladi, 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

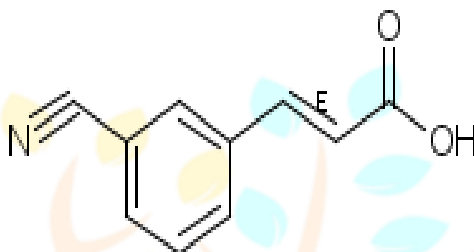
Use: Antioxidant, prevent pimples and acne

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

B) EXCIPIENT PROFILE

1. Carbapol

Structure:



IUPAC name: Poly (acrylic acid)

Other names: PAA, PAAc, Acrysol, Acumer.

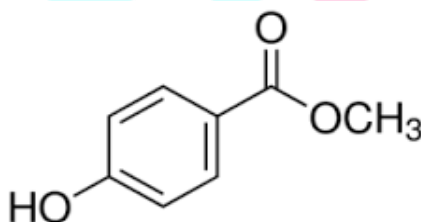
Chemical formula: $(C_3H_4O_2)_n$

Molar mass: variable

USES: Polyacrylic acid and its derivatives are used in disposable diapers, ion exchange resins and adhesives. They are also popular as thickening, dispersing, suspending and emulsifying agents in pharmaceuticals, cosmetics and paints.

2. Methyl paraben

Structure:



IUPAC name: Methyl 4hydroxybenzoate

Other names: Methyl paraben

Chemical Formula: $C_8H_8O_3$

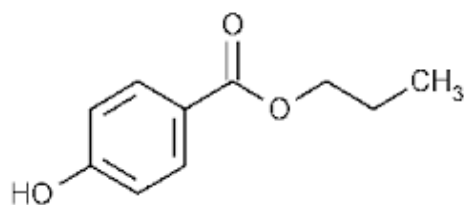
Molar mass: $152.15 \text{ g}\cdot\text{mol}^{-1}$

Uses: Methyl paraben is an antifungal agent often used in a variety of cosmetics and personal care products. It is also used as a food preservative.

Methyl paraben is commonly used as a fungicide in *Drosophila* food media.

3. Propyl paraben

Structure:



IUPAC name: propyl 4hydroxybenzoate.

Other names: 4Hydroxybenzoesäurepropylester;

Chemical formula: C₁₀H₁₂O₃

Molar mass: 180.2 g/mol

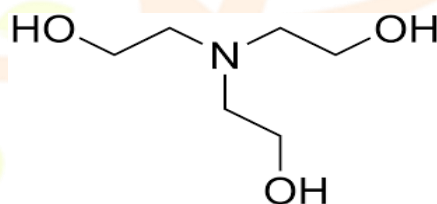
Density: 1.0630 g/cm³

Melting point: 96 to 99 °C (205 to 210 °F; 369 to 372 K)

Use: In cosmetics, pharmaceuticals and foods. , it used as Preservative .

4. Triethanolamine

Structure:



IUPAC name: Tris (2hydroxyethyl) Amine

Other names: Triethylolamine

Chemical Formula: C₆H₁₅NO₃

Molar mass: 149.19 g·mol⁻¹

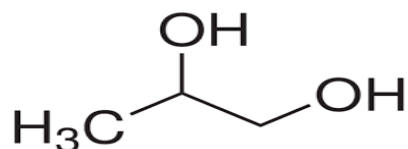
Density: 1.124 g mL⁻¹

Melting point: 21.60 °C; 70.88 °F; 294.75 K

Use: Triethanolamine is used primarily as an emulsifier and surfactant. It is a common ingredient in formulations used for both industrial and consumer products. The triethanolamine neutralizes fatty acids, adjusts and buffers the pH, and solubilises oils and other ingredients that are not completely soluble in water.

5. Propylene glycol

Structure:



IUPAC name: Propane1, 2 diol

Other names: Propylene glycol

Chemical formula: C₃H₈O₂

Molar mass: 76.10 g·mol⁻¹

Density: 1.036 g/ cm³

Melting point: -59 °C (-74 °F; 214 K)

Use: Forty five percent of propylene glycol produced is used as chemical feedstock for the production of unsaturated polyester resins. In this regard, propylene glycol reacts with a mixture of unsaturated maleic anhydride and isophthalic acid to give a copolymer. This partially unsaturated polymer undergoes further crosslinking to yield thermoset plastics.

6. Sodium lauryl sulphate

Structure:



IUPAC name: Sodium lauryl sulfate

Other names: Sodium monododecyl sulfate

Chemical formula: NaC₁₂H₂₅SO₄

Molar mass: 288.372 g/mol

Density: 1.01 g/ cm³

Melting point: 206 °C (403 °F; 479 K)

Use: SLS is mainly used in detergents for laundry with many cleaning applications. SLS is a highly effective surfactant and is used in any task requiring the removal of oily stains and residues.¹⁵

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 were formulated face wash gel for that purpose carbopol 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	Ethanollic extract of Turmeric powder	1 gm	Anti-inflammatory
3	Ethanollic 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

Aloevera extract¹⁸



Procedure

Wash the hand because of gel does not get contaminated



Select mature and healthy plant then cut off outer leaf aloe plant



Place the leaves upright in cup for ten minute because of yellow resin drain out



All the green portion separate out from white layer gel by using sharp peeler



Gel is collected by using spoon



Finally filtered by means of filter paper for 2-3 times



Figure no. 7: Alovera

Exatraction of turmeric powder

Maceration process: The process in which property communitied drug is placed or permitted to soak in ethanol for 48 hours. The cellular structure is softened and penetrated by the solvent and soluble constituents are dissolved and extracted out.

Procedure: plant material is placed in the ethanol for two to three days. Then heat it on water bath for 15min. then filter it by suction. Then heat the filtrate up to dried product get.

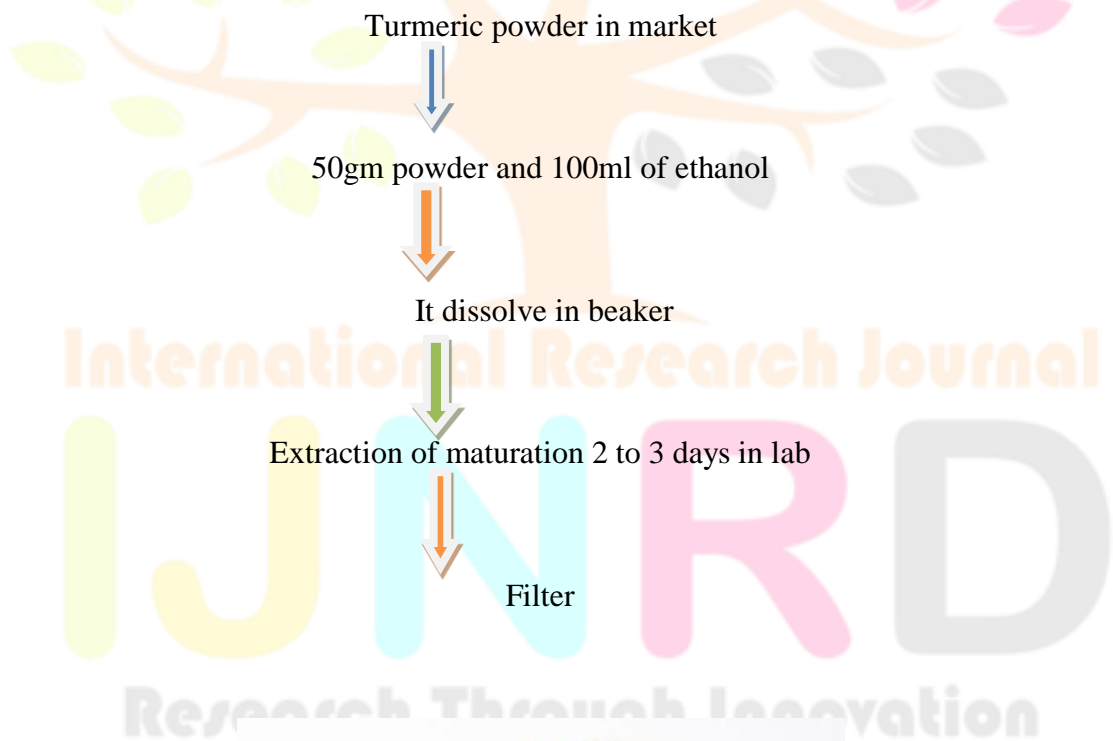


Figure no. 8: Turmeric powder

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

I.EVALUATION

The prepared face wash formulation was evaluated for following parameter

Table no. 2: Evaluation table

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

Colour: Colour of all three formulation are pale i.e pale yellow colour while the marketed formulation having yellow colour. It was evaluated by visual observation.

Odour: Due to presence of rose oil all three formulation having rosy smell while the marketed formulation show characteristic smell. We are rose oil as a perfume because there is chances to change in their odour at the time of storage so rose oil due proper perfume which will increase the acceptance of face wash.

Consistency: It was determined manually.

All three formulation shows semisolid consistency and also the marketed formulation shows semisolid consistency.



Figure no. 10: Consistency

Spreadability: The spread ability of the formulation was found manually by applying the gel on the skin with gentle rub.

Easy spreadability is one of the important characteristics of any face preparation as far consumer acceptance higher spreadability allows ease of application thereby increased surface area available for active ingredient permeation. The value of spreadability indicate herbal face wash easily spreadable small amount of shear.



Figure no. 11: Spreadability

Washability: The product was applied on hand and showed under running water.

When formulation were applied to the skin it was evenly applied and it shows good wash ability, when washed in running water that adherence of formulation is good it doesn't take so much time for removing from the skin formulation F2 has a good wash ability as compared to formulation F1 and F2 formulation F3 is more viscous one.



Figure no. 12: Washability

Foamability: Small amount of gel was taken in a beaker containing water. Initial volume was noted, beaker was shaken for 10 times and the final volume was noted.

It was determined by taking 19m sample on 10ml of water initial volume is measured and when it shaken with water it shows final volume is more than that of initial one. All three formulations shows good foam ability, but batch F2 shows most satisfactory result when it compared with marketed formulation.



Figure no. 13: Foamability

Grittiness: The product was checked for the presence of any gritty particles by applying it on the skin.¹⁷

One of the important parameter by which we can say that such formulation can easy to apply and evenly apply on face skin if it does not contain any gritty particle, so it can gives batches does not contain any gritty particle so there are easy to apply.



Figure no. 14: Grittiness

pH : The pH of formulation F1, F2, F3, was found to be 7.7, 7.3 and 7.3 respectively.



FIG : 15 PH TEST

II.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.

III.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.



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