



EXPLORING THE EFFICACY AND COMPOSITION OF HERBAL FACE WASHES : A COMPREHENSIVE REVIEW

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ABSTRACT

Products called face wash are used to cleanse faces without overly drying them out. Another frequent name for it is "cleanser." All skin types are found to benefit equally from this product. A face wash is a gentle cleanser that fulfills the essential tasks of keeping skin clear, smooth, germ-free, and fresh. It also hydrates the horny layer of the skin without being too harsh on it. That skin appears vibrant and youthful. There are many different kinds of herbal substances that can be utilized to make face wash. This article provides an overview of the several kinds of herbal or ayurvedic substances that can be used to make herbal face cleanser.

Keyword: Face wash Herbal Natural cosmetics

INTRODUCTION

Face washes are products that clean your face without leaving it feeling dry. One other common name for it is "cleanser". It has been shown that all skin types can use this product. Your face can be cleansed to get rid of surplus oil, makeup, and debris. These impurities dissolve in oil. You can also try using a face cleanser to get rid of them, albeit it may not work as well. Because facial skin is so delicate, using regular soaps may cause it to dry out. A face wash is a mild cleanser that does the vital job of keeping skin clean, sterile, smooth, and fresh while also successfully moisturizing the horny layer of the skin without endangering it. Fresh, silky, and antiseptic. in order for the skin to appear young and vibrant.

A face wash is a facial cleansing solution that removes debris, oil, filth, dead skin cells, and makeup from the face. This helps to prevent skin problems like acne and cleans the pores. As part of a skin care regimen, you can use a cleanser, toner, and moisturizer.

Skin care preparation for face:

1. Face pack and masks
2. Cleansing creams and lotion
3. Rouges

4. Face washes
5. Compact powder

The biggest organ in the body, the skin makes up 15% of the adult body weight. It carries out a multitude of essential tasks, including as preventing the body from losing too much water and aiding in thermoregulation, in addition to providing defense against external physical, chemical, and biological threats. Females experience acne more frequently than boys, indicating that female puberty begins earlier and that the severity of the diseases varies based on a number of circumstances. It affects the pilosebaceous units and is a chronic inflammatory condition. Pastules, inflammatory papules, and comedones are common acne lesions. psychological distress and scarring from cysts and nodules. Two forms of comedoneal acne exist, neither of which is inflammatory. White heads (closed comedones) might appear as new or blackheads.

Advantages of face wash

1. It aids in the replacement of old skin cells with new ones by removing dead skin cells.
2. It promotes healthy, youthful skin.
3. It gives the skin a glowing appearance.
4. Excess oil and dead skin cells clog pores, resulting in the appearance of fatigue and whiteheads and blackheads in acne. Frequent pore exfoliation helps prevent all of the aforementioned skin issues.
5. Eliminating dead skin cells, which will cause wrinkles to appear more slowly.

"Properties of face washes include cleaning, moisturizing, anti-acne, and anti-wrinkle effects. It is believed that skin-lightening agents function by inhibiting the generation of melanin in melanocytes, hence lowering the quantity of melanin on the skin's metabolism and melanin production. Whitening cosmetics contain substances including propanediol, arbutin, kojic acid, evodia rutaecarpa fruit extract, and vitamin C and its derivatives that decrease the production of melanin since they are not poisonous to melanocytes.

They are hypothesized to have at least four distinct functions, including bringing back equilibrium, boosting sebum production in pores to avoid blockage, getting rid of the propionibacterium acnes bacteria, reducing inflammation, and influencing hormone levels. There are many detrimental effects of using synthetic pharmaceuticals on one's health, which is why natural materials are being employed in product composition at an increasing rate. The anti-microbial, anti-inflammatory, and antioxidant qualities of marigold, licorice, and orange peel make them some of the most effective antioxidants and free radical scavengers, but they also have a very positive impact on acne. Acne cures include benzoyl peroxide, salicylic acid, alpha hydroxyl, azelaic, nicotinamide, retinoids, antibiotics (topical or oral), hormonal therapy, antiseborrheic, antiandrogen, and keratolytic soaps.

• Literature Review

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Forms of face wash

1. Face cleanser with cream base
2. Face wash with gel base
3. A facial cleanser with a liquid basis
4. A powdered face wash

Types of Face Wash

All skin types can benefit from face washes, but there are now many products available that are designed to



cater to different skin types. For example, an oily skin face wash is made for those with oily skin types; it leaves a thin layer of oil on the skin instead of containing oils. Face washes come in a wide range of variations, including options for oily, dry, and normal skin.

Figure 1: Facewash

Source: <https://himalayawellness.in/products/himalaya-purifying-neem-face-wash>

Features of face wash:

1. Eliminating dead cells.
2. Skin cell rejuvenation reduces stress.
3. Eliminates contaminants, oil, and grime.
4. Lowers the skin's microbial flora.
5. Allow skin to breathe and remain fresh.

Herbs Used in Face Wash

Azadirachta indica is an indigenous Meliaceae tree that is cultivated practically everywhere in India. Locally and globally, it's called "neem" or "vembu." The chemical components of this plant product that have been discovered include flavonoids and saponin. It contains the bitter alkaloid margosine. A yellow, bitter fixed oil makes from 10–31% of seeds. Ingredients in Action The nimbodin component of neem seed oil has been shown to include a significant amount of stearic and palmitic acid.



Figure 2: Azadirachta Indica (Neem)

The oil contains free and volatile fatty acids. Together with a trace amount of lauric acid, the volatile fatty acids most likely consist of a mixture of stearic and oleic acids. Neem may relieve and calm inflamed skin since it is a natural healer. Face wash products containing neem can help calm skin and lessen redness and irritation. Face cleansers with neem as an ingredient have several antibacterial properties. This not only gets rid of acne but also protects skin from outside aggressors that might damage it. This method treats acne-causing bacteria while



Figure 3 : Aloe vera

also preventing their growth

Aloe vera belonging to the (*family Liliaceae*) is commonly known as “aloe gel.” It is locally called “kattalai” which is found all over India.

Active constituents

Barbalin, isobarbolin, and saponins are considered.

Properties

1. Aloe vera's anti-inflammatory qualities assist to lessen the redness of wounds, burns, and acne. Additionally, it accelerated the healing of wounds and acne scars by enhancing skin cell formation and healing qualities. Furthermore, it lessens itching and scorching.
2. Aloe vera provides several skin advantages, from maintaining smooth and supple skin to giving you a radiant complexion. Now that aloe vera face wash has so many more advantages, it's time to incorporate

it into your regular skincare routine. These are a few aloe vera face cleansers that you may want to purchase. Aloe vera is a miraculous plant that is found in a wide variety of products for skin and hair care. Aloe vera has several nutritional advantages in addition to its therapeutic qualities.

3. Aloe's antioxidant qualities save skin cells from deterioration. For dry skin, it moisturizes and helps lessen skin irritation.



Figure 4: Lemon

Lemon, or *Citrus limon*, is an edible fruit that grows on a tiny tree or spreading bush of the rue family (Rutaceae). A common ingredient in many pastries and sweets, including tarts and the classic American lemon meringue pie, is lemon juice. The fruit's peculiar astringent flavour is used to improve several poultry, fish, and vegetable meals all around the world.

Active constituents

Citric acid, Ascorbic acid, minerals, flavonoids and essential oils. 20

Properties

1. Lemons are well recognized for their purifying properties and are a strong source of vitamin C and citric acid. You may experience this effect by adding a few freshly cut wedges to your drinking water. Lemons are becoming more and more popular as a natural remedy for skin issues including acne and age spots because of their many health advantages.
2. Some people who advocate applying lemon to the skin claim that the fruit is a natural way to boost collagen in the skin of the face. As we age, the protein collagen naturally degrades, leading to wrinkles and fine lines.
3. Because vitamin C is an antioxidant, it could be able to stop free radicals from damaging collagen, giving your skin a smoother appearance.
4. Lemon is supposed to do wonders in preventing skin outbreaks like acne, pimples, and blackheads by cleansing debris and oil from deep inside due to its acidic nature and anti-microbial qualities. To further assist you have smooth skin, it also helps to tighten the pores on your skin.



Figure 5: curcuma longa (Turmeric)

Curcuma longa L. inhabits places that are tropical or subtropical. Curcuma, a plant of to the Zingiberaceae family, is a genus that has been used for centuries as a spice, food preservative, and colorant in various regions of the world. It contains 70 species. In conventional medicine, it is frequently used as a home remedy for a variety of ailments.

Active constituent

Curcuminoids; curcumin (diferuloylmethane, the primary constituent responsible for yellow color of turmeric), demethoxycurcumin, and bisdemethoxycurcumin.

Properties

1. Furthermore, zingiberene, atlantone, and turmeric are volatile oils that have pharmacological action. Turmeric furthermore contains proteins, carbohydrates, and resins.
2. Turmeric is a fantastic skin-care component. Numerous skin issues, such as acne, rashes, skin pigmentation, darkening of the skin, etc., can be resolved by it. It has long been used to improve the skin's health and radiance.
3. Turmeric is a fantastic lightening and brightening agent for skin. Additionally, it includes curcumin, an antioxidant molecule with several advantages for the skin. It lessens skin pigmentation and combats acne and its scars.
4. *C. longa* possesses multiple pharmacological activities, including antioxidant, antimicrobial, anti-inflammatory, anti-carcinogenic, anticoagulant, antidiabetic and immunological.

Research Through Innovation



Figure 6: Carica pipaya

Papaya is the common name for a member of the Caricaceae family, the papaya. Locally, it is known as "papali-pazham." It flourishes throughout the world's subtropical and tropical climates. Papain, chymopapain, pectin, carposide, carpaine, carotenoids, and antheraxanthin are some of the chemical components of this plant.

Active constituents

Chymopapain and papain pectin, carposide, carpaine, carotenoids and antheraxanthin.

Properties

1. AMG choose papaya, also known as Carica papaya, for its face cleanser because it naturally contains beta carotene and the papain enzyme. By dissolving the protein, both of these are effective in eliminating dead skin cells from the skin. The enzymes papain and chymopapain, which are found in papaya, are excellent skin moisturizers and moisture retainers that can also lessen inflammation. Papain is a chemical that dissolves proteins and is used in a lot of exfoliating products. By lessening acne, these solutions unclog pores from dead skin cells that may otherwise cause acne. Papain can also be used to eliminate damaged keratin, which can build up on the skin and result in little lumps."

2. Papaya may be used as an anti-aging face mask since it contains alpha hydroxyl acids, which help to prevent fine lines and wrinkles. Your skin is rejuvenated by the vitamins C and E. Mash half a cup of overripe papaya and add a spoonful, honey, and milk to it. Apply it on your face and neck.



Figure 7: *Mintha viridis* (Mint)

Menthaviridis Lamiaceae) a perennial, creeping aromatic herb of 30 to 90cm high, widely cultivated throughout the plains of India for culinary and medicinal purposes.

Active constituents

Menthol, Menthone and menthyl acetate.

Properties

1. This face cleanser with mint tones, cools, revitalizes, and minimizes oiliness. Simply combine rose water and lemon juice, then let the mint leaves steep in it.
2. After putting the liquid in the fridge, use it to cleanse your face. If you have dry skin, you may also use honey in place of lemon juice.
3. This herb is commonly used for beauty care since, in addition to its health advantages, it has several cosmetic benefits.
4. It improves blood circulation to the skin's surface and has a stimulating impact on the skin. Moreover, mint possesses calming, protective, anti-inflammatory, and antibacterial qualities.
5. It also contains salicylic acid which is also beneficial for preventing and treating pimples. That is why it also helps to control and prevent other skin eruptions, like acne, boils, and heat rash. Mint treats acne, strong antibacterial properties and vitamin A present in mint eliminate acne. It cleanses pores and tightens them, preventing blackheads, antioxidant in mint keeps the skin damage free by neutralizing free radicals, thus diminishing dark circles. Mint boosts the circulation of blood and hydrates your skin, thus delaying the formation of wrinkles.



Figure 8: Coriander

Coriander seeds (*Coriandrum sativum*), (family: Apiaceae) are sourced from Morocco and Russia, angelica root (*Archangelica officinalis*) from Germany, and orange and lemon peels from Mediterranean countries.

Active constituent

Inalool (72.7%) followed by λ -terpinene (8.8%), α -pinene (5.5%), camphor (3.7%),

limonene (2.3%), geranyl acetate (1.9%) and p-cymene (1.5%).²⁴ The oil composition changes, depending on the maturity of the seed.²⁵

Properties

1. Beta-carotene, vitamin C, antioxidants, and folate are all abundant in coriander. When your cells are shielded from oxidative stress, your skin appears smooth, radiant, and soft. Antioxidants can provide them with defense against stress and degradation.
2. By stopping free radicals from moving across the body, these antioxidants slow down the aging process. It keeps the skin's suppleness intact. It is an iron powerhouse that raises hemoglobin levels in the body and wards against anemia, which can result in dull skin.
3. It's common knowledge that your skin serves as an indicator of your overall health. Chewing fresh coriander leaves first thing in the morning on an empty stomach is a terrific healthy habit, regardless of whether your skin is too oily, too dry, or even a mix of the two. Coriander juice works like a charm on any skin type, whether it be oily or dry, acne or pigmentation, zits or blackheads.
4. Eczema has even been reported to be treated by the anti-fungal and anti-microbial properties of coriander. It works as a cleaner, a detoxifier, and even for dark lip treatment. Coriander is an antiseptic, antibacterial, and anti-inflammatory herb that helps manage and treat acne. Lemongrass and coriander leaves can be used to manage acne.

FORMULATION

Different batches formulations having the necessary quantity of glycerine were made with the desired concentration of EDTA. The batches were then precisely weighed and blended with gentle stirring in hot filtered water (not exceeding 60 C; 50% of the batch size). The remaining water (50 percent of the batch size)

was then mixed with the necessary amount of Aqua SF-1 and allowed to dissolve. The primary surfactant, sodium lauryl ether sulphate, was then added. Triethanolamine was added as a neutralizer, followed by the addition of sodium metabisulfite, the secondary surfactant Cocamidopropyl Betaine, and the preservative Euxyl K120. Ultimately, it was integrated with the formula. There was just enough scent in each dish. Prepared formulations were packed and marked as needed in the proper container.

Content	Quantity
Steric acid	8.7gm
Cetyl alcohol	3.5gm
Glycerin	5ml
EDTA	0.1gm
Citric acid	3.5gm
Methyl paraban	0.05gm
Propyl paraban	0.06gm
Sodium lauyral sulphate	7.8gm
Carbacol	2gm
Distelled water	20m
Herbal extract(neem, aloe vera, lemon, turmeric, carica papaya, mint, coriander)	1.8gm

PREPARATION

Two preservatives—propylene glycol and sodium lauryl sulphate—were added and combined with a modest amount of water. The previously described solution was well mixed before carbopol was added to produce a gel-like dispersion. This was progressively mixed with the extract to create a gel-like consistency. Finally, triethanolamine was added to the mixture. 14

EVALUATION

Face cosmetics are assessed in three categories: physical attributes, aesthetic standards, and pressure testing. Physical characteristics include color, adhesiveness, pH, net content, odor, size and shape of the particle, and moisture content. Aesthetic characteristics that are tested include shape control, color dispersion, bloom testing, adhesiveness, spreadability, covering power, and handling test. 3. Evaluation of herbal cosmetics is important, but no rigid code of conduct can be created for all products or even all product categories. Cosmetics are assessed to make sure they meet the requirements for stability, processing operation, storage, and efficacy. Herbal cosmetics are evaluated in a manner similar to other readily accessible cosmetics. The best components should be used in cosmetics to minimize sensitivity and discomfort. Physical assessment criteria for herbal cosmetics include color, aroma, form of physical state, pH, and net content. The additional assessments done on herbal cosmetics include sensitivity, irritation, and grittiness tests. The irritancy and sensitivity test can be performed using prophetic or predictive testing in addition to diagnostic testing. In diagnostic procedures, several patch tests are commonly employed to determine the cause of cosmetic-induced dermatitis. Testing for animal skin irritation, testing for primary irritants, testing for eye irritation (such as the rabbit eye test), testing for irritancy in people, and testing for animal skin irritation are all considered prophetic or predictive testing. In

order to search for air gaps, only recently developed cosmetic chemicals for compacts are examined for their tendency to irritate and sensitize." Analysis is done on the dentifrices' abrasiveness, consistency, pH, specific gravity, taste, odor, color, moisture content, and fragrance test. Cosmetics in semisolid form go through rheology and bleeding tests in addition to standard testing. Stability, toxicity, and microbiological tests were also performed in order to examine the cosmetics goods. Herbs have long been used in cosmetics, as documented by historical records and some contemporary research that supports their use in cosmetic formulation. In order to verify that standards are met, assess the caliber of manufactured goods, and ensure that the process is operating efficiently, analytical evaluations are used to assist the commercial development and deployment of novel ingredients. Analytical procedures are widely used by enforcement and regulatory bodies to verify that items meet legal standards and are safe and correctly promoted. Determining the optimal protocol, managing the data, and interpreting the results all still heavily involve the analytical chemist. The classical method and the instrumental approach are the two primary kinds of analytical procedures. Analytes' chemical reactivity in solution is seen and measured in standard methods. The comprehensive evaluation forms the basis for the instrumental methods."

1. Colour - The colour of the face wash gel was visually analyzed.
2. Odour- The formulation was evaluated for its odour by smelling it.
3. Consistency- It was determined manually.
4. Viscosity- Viscosity of the gel was determined using Brookfield viscometer. The values obtained for the sample and for water were noted down.
5. Spreadability- By personally putting the gel to the skin and gently rubbing it, the spreadability of the gel was determined.²⁶ The area to which a gel easily spreads after application to the skin or affected part is referred to as spreadability. The Spreadability rating affects the gel's bioavailability effectiveness as well. Spreadability is measured in seconds and is determined by the amount of stress required for the upper slide to separate from the gel between the two slides. The spreadability is improved by the speed at which two slides are separated. Each slide had measurements of 6 cm 2 cm, and 500 mg of the formulation was sandwiched between them. A weight of 100 g was placed upon the upper slide so that the formulation between the two slides get pressured uniformly to form a thin layer.⁵

Spreadability = $M \times L/T$ When,

m=Weight tied to upper slide, l=Length of the glass slide (6 cm), t=Time in seconds

Ten healthy participants of either sex participated in the skin irritancy test after giving their consent. On the hand, a 6 cm² area of skin was covered with a gauze patch, and around 0.5 grams of gel were applied there. For an hour, the patch was held on the skin using a semi-occlusive covering. The gauze was removed after an hour of exposure, and any test material that remained was scraped off without affecting the integrity or response of the epidermis. At one, six, twelve, twenty-four, forty-eight, and seventy-two hours, the skin was examined for any visible reaction.

1. **Washability:** The product was applied on hand and was observed under running water
2. **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. Foamability was also analysed by applying onto skin with contact with water.
3. **Grittiness:** The product was checked for the presence of any gritty particles by applying it on the skin.²⁴
4. **Accelerated Stability Studies:** The Face wash gel formulation was subjected to stability testing for 2 months as per ICH Guidelines at a temperature of 40°C ± 2°C and RH 75%. The Gel formulation

was analysed for the change in appearance, pH and phytochemical.²⁸

5. **Consumer Acceptance test:** The Product was evaluated for consumer acceptance by 30 targeted consumers who were between 15-30 years old. The Evaluation was done on the basis of four parameters: (1) Appearance; (2) Foaming; (3) Fragrance; (4) After Rinse-off feel. This test was carried out with consent of all the participants.

Stability during storage of cosmetic items is assessed for both the produced product's composition and the product's packing container. There are categories for the physical properties of the content, including its viscosity, texture, color, odor, pH, absorption of water, oxygen, or carbon dioxide, and loss of volatile elements. The degradation of the active ingredient, interaction between the constituents, and loss of the constituent due to sorption by the container are additional divisions of the chemical characteristic.

Microbial degradation and antimicrobial preservative efficaciousness are the two kinds of microbiological properties. Packaging for cosmetics is checked for corrosion, leaks, and stress cracks. One of the mechanical characteristics of the skin is the measurement of skin friction, which indicates the degree of greasiness or smoothness of the skin. Skin elasticity is assessed to determine how fair or supple the skin is, and the point of indentation is utilized to quantify the softness of the skin. The main criteria used to evaluate antidandruff products are their antibacterial activity, capacity to dissolve in oil, penetration capacity into hair follicles, and cytostatic effect. The methods will provide qualitative data on the chemical composition of substances and the identification of specific chemicals in cosmetic products. The assessment of the skin can be carried out by eye inspection or through super facial skin sample and cell image analysis. The concentration of cutaneous peroxides and the free radical scavenger properties of cosmetics that can protect skin from UV radiation and pollutants can be determined using the fluoroscan II technology. The free radical scavenging capabilities may also be evaluated by suppressing UVB-induced skin erythema with skin reflectance spectrophotometry. The skin tanning chemicals used to create healthy skin without running the risk of the acute and chronic harmful effects of extended UV exposure may be evaluated visually or scientifically using a Minolta Chromameter or Diastron Erythema/Melanin Metre.

CONCLUSION

Herbal face washes are used to improve blood flow, maintain elasticity in the skin, remove stubborn dirt, and revitalize the muscles. One benefit of herbal-based cosmetics is their non-toxicity. It nourishes the facial skin. The skin receives the nutrients it needs from the face wash. It helps to get rid of pimples, blemishes, and scars. Face washes provide a cooling, calming, and soothing effect on the skin in addition to exfoliating it. To restore the skin's natural brightness, they act as quickly as possible. Using natural face wash on a regular basis improves the skin's texture and look. Regular use of face wash can help to lessen the negative effects of pollution and harsh environments on the skin.

They help to maintain the elasticity of skin cells and slow down the aging process of the skin. The natural face is a useful tool for effectively managing fine lines, wrinkles, and loosening skin. In our study, we found that the face wash has several excellent properties, but further investigation is needed to fully understand its potential as a cosmetic. Because they are safer and less prone to have unfavorable consequences than items with a chemical basis, natural therapies are becoming generally acknowledged. Many different herbal formulations are required to satisfy the needs of the growing worldwide market. The endeavor to make a herbal face wash with a range of plants that have medicinal benefits is successful.

Source of Funding

None.

Conflict of Interest

None.

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