

Formulation and Evaluation of Polyherbal Anti-Acne Facewash Gel

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Abstract:

Using a combination of different herbal substances, polyherbal anti-acne facewash gels are specially made cleansing solutions that successfully attack acne while preserving the natural balance of the skin. These gels are intended to rid the skin of pollutants, extra oil, and germs that cause acne, offering a mild yet efficient remedy for people who frequently break out.

Common ingredients in these facewash gels include neem, which has antibacterial properties, and aloe vera, which soothes and hydrates the skin. Other common herbs include tea tree oil, which is well recognized for its capacity to reduce inflammation and heal acne, and turmeric, which has antioxidant qualities and brightens the skin.

A multifaceted treatment to acne is made possible by the polyherbal method, which addresses both the underlying causes and the symptoms. These facewash gels might offer a more thorough treatment than single-ingredient treatments since they combine the benefits of multiple herbs. They are also appropriate for daily use because most skin types tolerate them well.

In conclusion, polyherbal anti-acne facewash gels, which combine the power of several herbs to support healthier and clearer skin, provide a natural and efficient substitute for cleaning the skin and preventing.

1. INTRODUCTION

The use of herbal remedies has grown significantly in recent years due to the negative effects of conventional medications. The demand for using herbal medications is rising globally. Increased sebum production is a symptom of acne, a chronic inflammatory condition of the pilosebaceous unit. Sebaceous gland development and aberrant hair follicle desquamation happen in reaction to rising testosterone levels when puberty sets in. The face, shoulders, back, neck, chest, and upper arms can all develop pimples and patches due to acne, a chronic inflammatory skin disorder. When follicles are blocked, follicular distention results, which frequently triggers an inflammatory reaction and the growth of the *Propionibacterium acnes* bacteria.

This study's objective was to create and assess a herbal face wash gel utilizing Carbomer Ultrez 20 that contained distillates of *Azadirachta indica* (neem), *Curcuma longa* (haldi), *Coriandrum sativum* (dhaniya), *Aloe barbadensis* (aloe vera), and *Mentha* (pudina). According to published reports, the plants have strong antimicrobial, antioxidant, and anti-inflammatory properties. Numerous characteristics, including color, appearance, consistency, pH, viscosity, stability studies, and consumer approval tests, were assessed for the prepared product. According to published reports, the plants have strong anti-inflammatory, anti-microbial, anti-oxidant, anti-aging, and antiseptic properties.[1]

The skin makes up almost 15% of an adult's total body weight, making it the biggest organ in the body. It carries out numerous essential tasks, including as preventing excessive water loss from the body, protecting against external physical, chemical, and biological threats, and aiding in thermoregulation. The mucous membranes that line the body's surface are part of the continuous skin. Maintaining healthy, clear, and shiny skin requires a balanced diet. In addition to eating a healthy diet, both sexes' bodies undergo numerous changes due to hormonal changes, particularly throughout puberty. *Acne vulgaris* is the most

prevalent of these alterations. A prevalent skin ailment with a significant burden of cutaneous and psychological diseases is acne vulgaris. Numerous activities within the pilosebaceous unit contribute to the pathophysiology of acne by causing inflammation and bacterial proliferation. This disorder usually appears during the pubertal transition when the function of the pilosebaceous glands is altered by changes in the body's hormonal environment. Follicle epithelial cells first undergo aberrant differentiation, develop stronger intracellular adhesions, and then shed less easily. This process results in the formation of hyperkeratotic plugs, also known as microcomedones, which gradually grow into non-inflammatory, closed or open comedones. A synergistic anti-acne face wash gel has been developed to treat acne vulgaris and eliminate the need for synthetic medications like clindamycin.[2]

Oils from the glands combine with dead skin cells to block hair follicles. Under the blocked pore, oil builds up. Skin bacteria can then grow very quickly. This infection makes the skin become swollen and red, which becomes visible. The face, chest, back, and upper arms are most common places for acne to happen. Acne is common during puberty, when a person is turning from a child into an adult, because of high levels of hormones. Acne becomes less common as people reach adulthood.

The term acne is derived from Greek word acme which means prime of life. Although generally considered to be a benign, self-limiting condition, acne may cause severe psychological problems or disfiguring scars that can persist for a lifetime. It is a polymorphic disorder and can manifest at any time during life but it most commonly presents between ages of, which estimates of 85% of population affected.

The incidence of acne peaks at teenage, but substantial numbers of men & women between 20-30 years of age are also affected by the disorder.[3]

2. Various Types of Acne

I. Acne Rosacea

It is an adult skin condition that frequently affects women and causes the face's blood vessels to expand, giving the appearance of flushing. Rosacea is a prevalent, long-lasting, and medically treatable skin ailment that resembles adult acne. Rosacea typically affects the nose and the center part of the face, causing flare-ups and reliefs. The skin may be clear for weeks, months, or years, and the symptoms may come and go before recurring. Rosacea tends to appear in specific phases and results in inflammation of the facial skin, particularly the chin, nose, cheeks, and forehead. Rosacea is characterized by redness of the face, little red pimples, and fine red lines on the skin of the face. a crimson nose that is bulbous and swollen. issues with the eyes, such as conjunctivitis and puffy, red eyelids.[4]

II. Acne Vulgaris:

The most prevalent type of acne typically affects individuals between puberty and early adulthood. Comedones, nodules, papules, pustules, cysts, and seborrhea are all signs of acne vulgaris, a widespread skin disorder. It appears on parts of the skin like the face, legs, back, and upper chest where there is a lot of hair development. Sebaceous glands get clogged and diseased. development of several eruptions, both big and minor.[4] [5]

Hickey, pimple, zit A tiny inflammatory elevation of the skin; a pustule or papules which are common signs in acne. Difference between a pimple and acne unlike typical acne, rosacea is not primarily a disease of youth but develops more often in adults (ages 30-50), especially in those with fair Skin. Unlike acne, rosacea typically doesn't have any blackheads or whiteheads. Acne, a chronic or protracted condition that affects many teens and adults, is indicated by the frequent eruption of spots with lots of pus-filled pimples in some people and the occasional spot or two in others. More or less all human beings in the world gets pimples at some point of time sooner the body enter into puberty stage at the age of 12, there commence to release hormones and start to function in the bodies of man or woman irrespectively and at this juncture food or pollution, ought to upset hormonal balance thereafter.[5]

3. Types of Pimples

When the skin generates a lot more oil, germs grow and block the pores, causing swelling and redness. This is how pimples or spots appear. There is no way that pimples can spread. The most prevalent types of pimples are listed below and are seen in Figure 1.

Six types of pimples:

1. **WHITEHEADS:** These tiny structures stay beneath the skin's surface.
2. **BLACKHEADS:** These appear black and rise to the skin's surface, yet they are not caused by dirt. The reason black heads are black is not because of the dirt. The protein known as keratin is typically oxidized by air.
3. **PAPULES:** These are tiny, delicate pink pimples that are easily noticeable on the skin.
4. **PUSTULES:** Known also as zits or pimples, pustules are visible on the skin's surface and are red at the base with pus on top.
5. **NODULES:** Easily discernible on the skin's surface. These are big, painful, solid pimples that are visible on the skin's surface yet are located deep within the skin.
6. **CYSTS:** Easily discernible on the skin's surface. They are unpleasant, pus-filled, deeply ingrained, and prone to scarring readily.

Acne – Baby Pimples:

Acne in babies is fairly frequent; it starts at birth but shows up a few weeks later. They resemble teenage acne and appear as red-skinned pimples or white or red lumps. Usually found on the cheeks, newborn acne can also occasionally be noticed on the forehead, chin, and even the back. It is easier to spot when the baby is hot or boisterous. Although it may take months to clear up, baby acne often goes away in a few weeks. Treatment with light topical medication is unavoidable if it doesn't go away after three months. Avoid using over-the-counter medications for acne. Avoid cleaning. Since dirt isn't the cause of infant acne, over cleaning irritates the baby's skin. Avoid using greasy lotions on the baby's skin since this exacerbates their acne. It's sufficient to wash the baby's face once a day with mild baby soap water and pat it dry gently.[7]

Acne-Symptoms:

Anywhere on your body, acne can appear. It typically appears on the shoulders, chest, neck, back, and face. If you have acne, you may usually see black or white pimples in

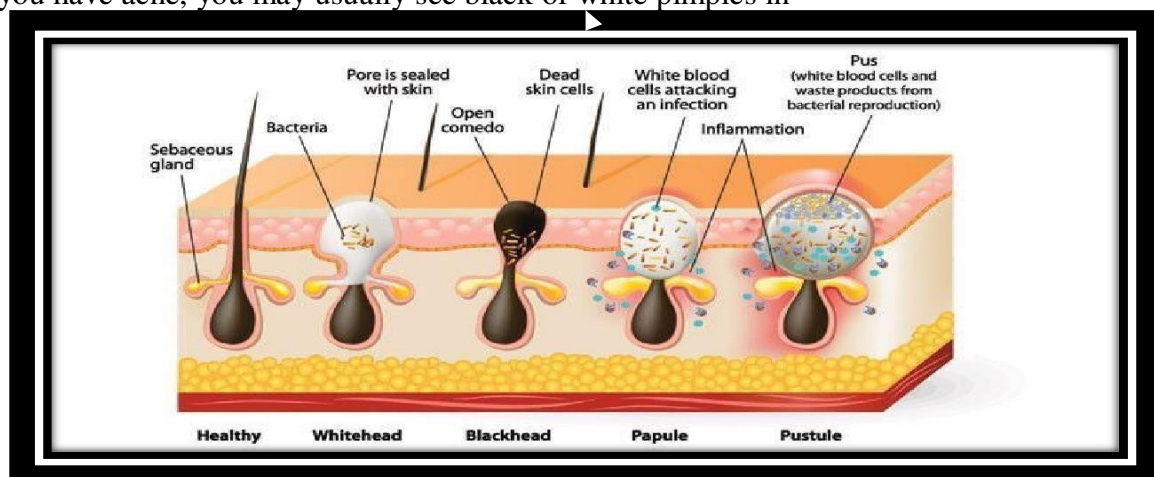


Fig.No.1 Types of Acne Pimple

look. Come down are the term for both blackheads and white heads. They seem black because black heads open at the skin's surface. White heads seem white because they are closed just beneath the skin's surface. Although blackheads and whiteheads are the most prevalent forms of acne, other lesions can also appear. Papules, pustules, nodules, and cysts are examples of inflammatory lesions that are more prone to leave skin scarring.[8]

Scars	Characteristics
Box car scars	Angular scars occur on cheeks and can be either superficial or deep similar to chickenpox’s scars.
Ice pick scars	Deep pits are most common, sign of acne scarring.
Rolling Scars	Wave like appearance in skin.
Pigmented scars	True scars, change in the skin’s pigmentation, as a result of nodular or cystic acne, inflamed red mark

Table No.1: Various types of scars and their characteristics

Acne – Causes

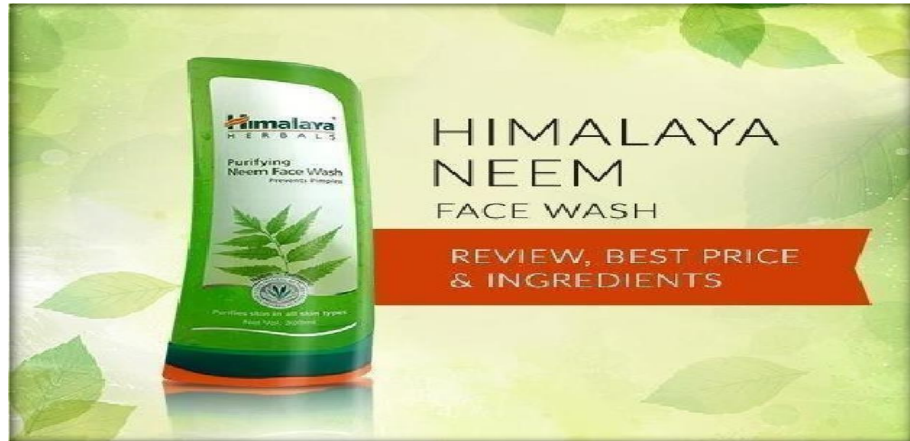
- Some risk factors that may contribute to acne development include the following.
- administration of hormone adjustments brought on by pregnancy or puberty.
- some drugs, like corticosteroids or birth control pills.
- a diet heavy in carbohydrates or refined sweets, such as bread and chips.
- Acne is more common in young persons going through puberty. The body experiences significant hormonal changes throughout this period.
- These hormones have the potential to stimulate oil production, which raises the risk of acne. When a teen approaches maturity, hormonal acne associated with puberty often goes away.
- Whiteheads, blackheads, tiny pimples, nodules, and cysts are all indicative of acne lesions.
- Even though acne is essentially a natural physiological phenomenon, the following serious illnesses may exacerbate its symptoms.
- Women's hormone levels fluctuate during their periods.
- poking, prodding, or barely pressing the acne lesions, which disturbs them.
- Wearing clothing, headgear, sports helmets, and other items that completely cover the face and forehead might exacerbate acne breakouts.
- It is best to stay away from pizza, fatty and fried foods, and junk food because they are not good for your general health, even though they don't cause acne or exacerbate it.
- Washing too much to remove acne-related debris can irritate and dry up the skin. In essence, a moderate wash should be chosen.
- Avoid applying pressure on the acne at all costs.
- Acne in some cases may be inherited or may worsen as a result.
- Some individuals' acne may worsen as a result of pressure from collars, suspenders, chin straps, helmets, and similar items.

Certain drugs, such as those that contain iodides, bromides, oral or injectable steroids, prednisone, deltas one, orasone, prednisone-M, liquid red, or steroids, can either induce or exacerbate acne. Acne production may result from exposure to industrial products in some occupations.

Certain skin care and cosmetic items block pores. For those who suffer from acne, water-based solutions are typically the best option available.

Rosacea: This condition primarily affects persons over the ages of 30 to 40 and is characterized byby pimples but not comedowns. It also causes redness and flushing in the central area of the face.[9][10]

Stages of Acne:



Different types of acne are referred to by different names, including comedones, papules, pustules, nodules, and cysts. In essence, clogged follicles are referred to as comedones (plural for comedo); an open comedo is called a blackhead because its surface is visible and turns black when exposed to air. A whitehead that resembles a blackhead but is closed at the surface is called a closed comedo. It is possible for irritated and swollen follicles to rupture, damaging the tissues around them. A clogged follicle can develop into a pimple if it appears above the skin's surface, or a red lump like a nodule or cyst if it appears beneath the skin's surface. An excellent cleaner with antifungal[10]

What is Himalaya Neem Face Wash?

One of the earliest companies to popularize herbal beauty products was Himalaya Herbals. Because the brand's herbal medicines are made entirely of natural ingredients, they have excellent ratings for both goodness and efficacy. The Himalaya Neem face cleanser is one example of this ideal fusion of science and nature. For those with acne and acne scars, this is the recommended face cleanser. [11]

1. Eliminates Impurities: Himalaya Neem Face Wash is a very good way to get rid of dirt and impurities that accumulate in the skin's pores.
2. Prevents Acne and Pimples This face cleanser, which has an antibacterial ingredient, stops bacteria that cause acne and pimples from growing and stops them from coming back.
3. Assists with Dry Skin This face wash's powerful cooling ingredients, which include glycerin and turmeric, are excellent skin soothers for dry skin.
4. . Helps Cure Itchiness and Irritation
Aids in the Treatment of Itching and Irritation Bacterial growth is mostly the cause of itching and irritation. This herbal mixture helps treat any type of skin irritation and itching because it is antimicrobial and anti-inflammatory.
5. Improves Skin Health
Enhances Skin Health By retaining the essential moisture content, this face wash helps treat the aforementioned skin issues while also enhancing the general health of the skin. Additionally, it makes the skin elastic and velvety.

Uses of Himalaya Neem Face Wash

1. Anti-bacterial

This face wash is frequently used as an antibacterial and antifungal formulation that shields the skin from various conditions thanks to active ingredients like neem.

2. Moisturizer

This face wash, which contains numerous beneficial herbal elements, is an excellent way to hydrate the skin and leave it feeling softer and more supple.

3. Antiseptic

This face cleanser also functions as an antiseptic formula because turmeric is one of its active ingredients. By preventing the growth of bacteria and cleansing the skin to the point where your inherent beauty is reflected, this soap-free, herbal face wash can also help even tone your complexion and give it a natural glow.

4. Anti-inflammatory

This face wash helps to heal any type of skin irritation and imperfections by soothing skin that is prone to acne, pimples, or extreme dryness.

5. Hypoallergenic

This face cleanser, which is made of a combination of natural components, is unlikely to trigger an adverse reaction.

How to Use Polyherbal Face Wash

The ideal approach to use this face wash is as follows:

- Apply water to your face.
- Gently apply a coin-sized amount of this face wash on your hand.
- Work it into a lather by massaging in circular motions.
- Use cool water to rinse and pat dry.
- Immediately after using this, apply a high-quality moisturizer.
- For optimal effects, use this product twice a day.

4. Materials and Methods:

Collection of Herbs and Chemicals:

Herbs

All the herbs were collected from plant nurseries and dried in sunlight.

Chemicals

- Citric acid – preservative
- Glycerin – moisturizing agent
- Sodium Lauryl Sulphate [SLS] – foaming agent

Preparation of Herbal Synergistic Extract:

- Neem
- Coriander
- Aloe vera
- Turmeric
- Mint leaves

Formulation of Polyherbal Face Wash Gel:

All of the herbal constituents are combined to create the first herbal extract. Put the coriander, neem, and mint leaves in a mortar and pestle, mash them well, and separate the extract. Next, add fresh plant aloe vera gel and turmeric extract, and combine everything well. Finally, check the pH; it should be about 6.

- Characterization and Evaluation of Gel
- The manufactured face wash gel was assessed for several parameters.
- Colour: The colour of the face wash gel was visually analyzed.
- Scent: By sniffing the formulation, its scent was assessed.
- Consistency: A manual determination was made.
- Viscosity: A Brookfield viscometer was used to measure the gel's viscosity. The results were recorded for both the sample and the water.
- Spreadability: The gel's spreadability was manually assessed by gently rubbing it onto the skin.

- Under running water, the product was administered to the hand and observed.
- A tiny quantity of gel was placed in a water-filled beaker. After noting the initial volume and shaking the beaker ten times, the final volume was recorded. Additionally, foamability was examined by applying it to skin that had come into touch with water.
- Grittiness
- The product was applied to the skin to check for the presence of any gritty particles.

Accelerated Stability Studies:

In accordance with ICH Guidelines, the face wash gel formulation was tested for stability for two months at 40°C ± 2°C and 75% relative humidity. The gel formulation's pH, phytochemicals, and appearance were examined. [12]

6.Role and Uses of Herbs

Neem (Azadirachta indica)

The dried leaves of Azadirachta indica, a moderately to fairly large evergreen tree with a sturdy trunk and spreading branches that grows up to 900 meters in elevation across the nation, make up neem (leaves). The first polyphenolic flavonoids to be isolated from fresh neem leaves were quercetin and β-sitosterol, which were found to possess antifungal and antibacterial properties. Neem's antimicrobial qualities make it a great addition for skin care products. It fights bacterial diseases including acne, boils, and ulcers while enhancing overall skin health and immunity. Neem fights microorganisms at their source and stops blemishes from coming back. The tree's seeds, leaves, blossoms, and bark are all thought to have therapeutic qualities and are used to make a variety of medicinal concoctions.

Neem is used to make a variety of oral health items as well as cosmetics like soap, neem shampoo, balms, and creams like Margo soap. Traditional Indian medical professionals advised chicken pox victims to lie on neem leaves. Teeth have traditionally been cleaned by chewing thin neem branches. For this purpose, neem twigs are still gathered and sold in markets. In rural India, it's common to see kids chewing on neem twigs on the streets since the branches and twigs have excellent dental benefits.[13]



Fig.No.3 Neem (Azadirachta indica).

Result of Analysis

DESCRIPTION	Yellowish	-
	Green pieces, taste-bitter	
MACROSCOPIC	Compound, alternate, Rachtis15-20cm long, 0.1cm thick, leaflets with oblique base, opposite, acute, serrate 7-8cm long	

PARAMETER	RESULTS	SPECIFICATIONS
FOREIGN MATTER	0.8%w/ w	Not more than 2%w/
TOTAL ASH	7.25%w/w	Not more than 10%w/
ACID INSOLUBLE ASH	0.4%w/w	Not more than 1%w/
ALCOHOL SOLUBLE EXTRACTIVE	15.7%w/w	Not less than 13%w/
WATER SOLUBLE EXTRACTIVE	21%w/	Not less than 19%w/
PHYTOCHEMICAL SCREENING	Complie	Triterpenoids and Sterol

Table No 2: Evaluation and Phytochemical Screening of Azadirachta indica (Neem)

Curcuma longa (Turmeric)

The dried and cured rhizomes of *Curcuma longa* Linn (Family: Zingiberaceae), a perennial herb widely grown throughout the nation, are used to make haridra. The crop is harvested after nine to ten months, when the lower leaves turn yellow, and the rhizomes are carefully dug up with hand picks between October and April. They are then boiled and dried. Extracts of turmeric and its CURCUMIN components that are soluble in fat and water show remarkable antioxidant activity. Similar to vitamins C and E.

CURCUMIN pretreatment reduced ischemia-induced cardiac alterations, according to a study on ischemia in the feline heart. Bovine blood endothelial cells were used in an in vitro investigation to assess the impact of CURCUMIN on endothelial heme oxygenase-1, an inducible stress protein. Increased cellular resistance to oxidative damage was the outcome of an 18-hour incubation period with curcumin. Curcumin demonstrates its potent antioxidant properties by scavenging free radicals.[14]



Fig.No.4 Turmeric (*Curcuma longa*)

Result Of Analysis	
DESCRIPTION :	Ovate, oblong, yellowish to yellowish brown
MACROSCOPIC	Rhizome ovate, oblong or cylindrical, about half as broad as long, latter 2-5cm long and about 1-1.8cm thick, externally yellowish to yellowish brown with root scars.
PARAMETER	RESULTS AND SPECIFICATIONS

FOREIGN MATTER :	0.85%w/w Not more than 2%w/w
TOTAL ASH :	6.2%w/w Not more than 9%w/w
Acid Insoluble ASH :	0.6%w/w Not more than 1%w/w
ALCOHOLSOLUBLE EXTRACTIVE :	9.7%w/w Not less than 8%w/w
WATERSOLUBLE EXTRACTIVE :	14%w/w Not less than 12%w/w
PHYTOCHEMICAL SCREENING :	Complies Polyphenolic curcuminoids ,Volatile oil.

Table No.3:Evaluation and Phytochemical Screening of *Curcuma longa* (Turmeric)

Coriander (*Coriandrum sativum* L.)

Dhanyaka is made from dried leaves of *Coriandrum sativum* Linn (Family: Umbelliferae), a slender, glabrous, branching, annual herb that grows 30 to 90 cm high and has a distinct scent when rubbed. The crop reaches maturity two to three months after it is sown. The antifungal and antibacterial qualities of coriander are excellent for your skin. Vitamin C, beta carotene, folate, and antioxidants are all abundant in coriander leaves and are vital for healthy skin. Applying coriander to your face helps shield it from oxidative stress, which causes skin aging. Additionally, coriander contains antioxidants that prevent free radicals from moving around the body, slowing down the aging process and increasing skin suppleness. The anti-fungal qualities of coriander leaves make them an excellent acne treatment ingredient. It is advised to perform a patch test on your hand even though coriander leaves are natural and often don't cause any negative side effects.[15]



Fig. No 5 Coriander Leaves (Dhaniya)

Result Of Analysis

DESCRIPTION :	Small chopped leaves and twigs
MACROSCOPIC	Dried leaves,30-90 cm high; giving characteristic aroma.
PARAMETER	RESULTS AND SPECIFICATIONS
FOREIGN MATTER :	0.42%w/w Not more than 1%w/w
TOTAL ASH :	1.36%w/w Not more than 3%w/w

Acid Insoluble ASH :	0.3%w/w Not more than 0.5%w/w
ALCOHOLSOLUBLE EXTRACTIVE :	6.80%w/w Not less than 4%w/w
WATER SOLUBLE EXTRACTIVE :	6.96%w/w Not less than 5%w/w
PHYTOCHEMICAL SCREENING :	Complies ,Volatile oil.

Table No 4: Evaluation and Phytochemical Screening of *Coriandrum sativum* L. (Coriander)

Aloevera (Aloe Berbadensis Linn)

Aloe vera is a succulent plant with a stemless or very short stem that grows 60–100 cm (24–39 in) tall and spreads by offsets. It is a member of the Liliacea family. Some types have white flecks on the upper and lower stem surfaces, and the leaves are thick, meaty, and green to grey-green in color. The leaf features tiny white teeth and a serrated edge. Each pendulous bloom has a yellow tubular corolla that is 2-3 cm (0.8-1.2 in) long. The flowers are produced in the summer on a spike that can reach a height of 90 cm (35 in). Aloe vera gel's hydrating and rejuvenating properties make it a popular ingredient in cosmetics and toiletries. It prevents UVB and UVA rays.

The enzyme brady kinase in aloes prevents sunburns and promotes immune system intervention. Raysand preserves the skin's natural moisture balance.

- It facilitates the synthesis and release of collagen.
- It can reduce scarring and hasten the healing process of wounds from reliable sources.
- It shortens the recovery period for both first- and second-degree burns, according to a reliable source.
- It is a reliable source that works well for bacterial and fungal illnesses.
- It shields the skin from radiation therapy's harmful effects.
- Its 98% water content helps to hydrate, calm, and moisturize the skin.
- It facilitates the synthesis and release of collagen.
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- It shortens the recovery period for both first- and second-degree burns, according to a reliable source.
- It is a reliable source that works well for bacterial and fungal illnesses.
- It shields the skin from radiation therapy's harmful effects.
- Its 98% water content helps to hydrate, calm, and moisturize the skin.
- Instead of making the skin hard and leathery, it helps make it more elastic and flexible.
- It has a cooling impact on sunburns and rashes.
- and flexible as opposed to rigid and leathery
- It has a cooling impact on sunburns and rashes.

Its leaves produce a gel that is rich in vitamins A, C, E, and B12. A remarkable blend of different vitamins, minerals, fibers, and enzymes may be found in aloe vera leaves. These multipurpose nutrients consist of copper, magnesium, potassium, zinc, and Vitamin B12 (one plant high in this nutrient is aloe vera). A, B, C, D, and E vitamins Aloe Vera has about 75 important chemicals. These substances combine to generate two distinct ingredients: The cross section of aloe vera leaves contains a transparent substance called aloe gel. The interior layers of aloe vera leaves contain a yellowish liquid called aloe latex.[16]

Benefits of Using Aloe Vera Face Wash

Aloe Vera has antibacterial and anti-inflammatory qualities by nature. Aloe Vera can treat a variety of skin conditions thanks to these qualities. Additionally, it contains a lot of antioxidants and amino acids, which

promote the process of cell renewal. Let's get into more detail about this "plant of immortality's" advantages

Helps To Treat The Sunburn:

Aloe Vera is an efficient treatment for sunburn because of its potent healing properties at the skin's epithelial level. In addition to restoring skin hydration, it serves as a barrier against damaging UV radiation. Aloe Vera's antioxidant and nutritional capabilities help sun-damaged skin heal more quickly. • Aloe Vera Face Wash Is Excellent for Moisturizing

Aloe Vera Face Wash Acts As A Great Moisturizer:

There is no oily aftertaste. For this reason, aloe vera is especially excellent for those with greasy skin. If you use mineral-based make-up, Aloe Vera face wash will offer you the correct quantity of moisture required before the makeup application. It has a cooling effect and absorbs extremely quickly. Even in the middle of summer, when everything is too sticky and heavy, you can use it..

Helps To Treat Cold Sores:

No greasy aftertaste is present. Aloe vera is therefore particularly beneficial for people with oily skin. Aloe Vera face wash will provide you with the right amount of moisture beforehand if you wear mineral-based makeup. It absorbs quite fast and has a cooling effect. You can use it even in the midst of summer, when everything is too thick and sticky.

Helps To Slow Down The Signs Of Aging:

Aloe Vera supports the firmness, strength, and suppleness of skin cells. It increases the synthesis of collagen and elastin fibers. It makes the skin tight, shiny, and wrinkle-free. Your skin becomes sagging and full of fine lines and wrinkles when it lacks collagen. Aloe Vera contains zinc, which tightens pores by acting as an astringent. Vitamins C and E are examples of antioxidants that stop the creation of free radicals. Overall, aloe vera face wash improves the skin's natural firmness while also keeping the skin nourished.

It Fights Acne:

Aloe Vera's anti-inflammatory qualities aid in lessening the redness of burns, wounds, and acne. Additionally, the improved skin cell generation and healing qualities hasten the healing of wounds and acne scars. Furthermore, it lessens itching and scorching. By the end of the day, your zits will have significantly reduced in size because of this face wash for spots.[17]

It Works As An Exfoliating Agent:

To remove dead cells and unclog pores, exfoliating the skin is essential. Aloe Vera face cleanser contains salicylic acid, which exfoliates skin. It softly exfoliates the skin without causing it to become dry. You need to start using aloe vera in any form if you're having symptoms like spots, blackheads, whiteheads, or even oils. By using it regularly, dead skin cells and oils that block pores and cause blemishes are removed from the skin's surface.

It Lessens The Visibility Of Stretch Marks:

Our skin functions similarly to a large piece of plastic. It may constrict or expand as a result of growth or other bodily changes. However, the flexibility of your skin may be harmed if it swells excessively quickly and widely as a result of pregnancy or abrupt weight loss or growth. Stretch marks are the result of such an event. The skin sustains small tears as a result of severe stretching and expansion. Stretch marks are the result of these tears. By curing these small sores, aloe vera effectively gets rid of stretch marks.

Reduces Infection

Additionally, aloe vera reduces pore sizes, which helps keep dirt, sebum, and microbes out of the skin. Aloe vera's anti-inflammatory, antiseptic, and antibacterial qualities enable it to protect skin from bacteria and other pathogens, which cause inflammation and infection.

Helps To Lighten Blemishes

It helps to lighten the imperfections since it might improve cell reproduction. Aloe Vera is commonly used to treat pimples because of its antibacterial qualities. Within a few days, this face wash for spots lessens imperfections.[18]



Fig. No. 6 Alovera (Aloe berbadensis Linn)

Results of Analysis:

DESCRIPTION:	Leaves are large with a wide base and an apex.
MACROSCOPIC	Leaves are thick and fleshy, green to grey-green, spike up to 90 cm (35 in) tall, each flower being pendulous, with a yellow tubular corolla 2–3 cm (0.8–1.2 in) long.
PARAMETER	RESULTS and SPECIFICATIONS
FOREIGN MATTER:	2.75%w/w Not more than 4 %w/w
TOTAL ASH:	3.4 %w/w Not more than 5 %w/w
Acid Insoluble ASH:	0.4%w/w Not more than 1%w/w
ALCOHOL SOLUBLE	7%w/w Not less than 5%w/w
EXTRACTIVE:	
WATER SOLUBLE	13%w/w Not less than 10%w/w
EXTRACTIVE:	

Table No 5:Evaluation and Phytochemical Screening of Aloe berbadensis Linn (Aloe Vera)

Mint (Menthaviridis)

The aerial portion of Menthaviridis Linn (Family: Lamiaceae), a perennial, creeping, aromatic plant that grows 30 to 90 cm high and is widely grown for both culinary and medicinal uses throughout India's plains, is what makes up pudina. Mint-infused face cleansers provide a cooling impact that can instantly revitalize your skin. Additionally, its antibacterial qualities can combat pollutants to give you skin that is clearer and smoother. A few applications are listed below.



Fig.No 7 Mint leaves(pudina)

1. Brightens Your Complexion:

Your skin feels incredibly calmed and refreshed after using mint. When applied to the skin, it acts on any potential imperfections while allowing the skin to relax. After every treatment, your skin seems renewed and radiant.

2. Treats Acne :

Both salicylic acid and mint's potent antibacterial qualities help to effectively prevent acne. Additionally, it contains vitamin A, which helps persons with oily and acne-prone skin regulate their oil secretion. Using this substance cleans your pores and dries up and gets rid of acne.

3.Soothes Mosquito Bites and Other Irritations

This ingredient's potent anti-inflammatory qualities relieve skin irritation caused by mosquito bites and other skin-irritating situations.

4.Hydrates Your Skin

Mint tightens your pores and retains moisture in your skin when combined with the proper components. Additionally, it soothes and softens dry, irritated skin.

5.Tones Your Skin

Mint can be used to tone your skin because it is a moderate astringent. Your skin will be smoother, softer, and more hydrated when the substance cleans and refines your pores of debris and filth.

6.Gets Rid of Blackheads

When oil and debris accumulate in your pores and plug them, blackheads develop. Mint tightens and cleanses your pores, as was previously indicated. This eliminates blackheads and stops them from coming back.

7.Rejuvenates Your Skin

Applying mint topically helps increase blood flow, which keeps your skin nourished. This maintains and revitalizes your skin. Additionally, the substance is high in antioxidants, which help to maintain healthy, damage-free skin.

8.Slows Aging

The only way to slow down aging is to make sure your skin is hydrated and nourished. Mint moisturizes and increases blood flow to your skin, which also prevents wrinkles and fine lines from appearing.

9.Lightens and

Mint leaves' salicylic acid concentration promotes even cell turnover. It guarantees the health of the young skin cells while releasing the dead ones. By reducing acne scars, this aids in the attainment of clear skin.

Result of Analysis-

Table No 6: Evaluation and Phytochemical Screening of Mentha viridis (Mint)

DESCRIPTION:		
MACROSCOPIC		Small chopped twigs; leaves opposite, decussate, shortly petiolate, petioles 2mm long; mature leaves 2.5 to 3.5 cm long and 1.5 to 2.0cm broad.
PARAMETER		Result and specifications
FOREIGN MATTER:		0.7%w/w Not more than 2%w/w
TOTAL ASH:		8 %w/w Not more than 14 %w/w
Acid Insoluble ASH:		2.5%w/w Not more than 4%w/w
ALCOHOL		
EXTRACTIVE:	SOLUBLE	4%w/w Not less than 2%w/w
WATER		
EXTRACTIVE:	SOLUBLE	9.2%w/w Not less than 7%w/w
PHYTOCHEMICAL SCREENING:		Complies Essential oils.

1. Formulation of Face wash Gel:

Herbal extract was used to create an anti-acne face wash gel. Table 6 lists the composition of the gel that was created in the lab.

INGREDIENTS	QUANTITIES
Neem extract	6ml
Coriander extract	12ml
Aloe vera gel	7ml
Turmeric extract	4ml
Mint leaves extract	3ml
Citric acid	2 g
Glycerin	8ml
Sodium lauryl sulphate	5 g
Distilled water	Upto qs

Table no.7: Formulation of Face wash Gel

Evaluation of Gel

In the subsequent tests, the created formulations were assessed and contrasted with the commercially available Ayush herbal face wash (lever ayush anti-pimple turmeric face wash).

Physical appearance: A visual inspection of the formulation's physical appearance was conducted.

[17] in color The formulas' colors were examined against a white backdrop.

[18] Odor The face washes' odor was personally examined.

Reliability [19] By putting it to the skin, the consistency was examined.

Greasiness [20] The application onto the skin was used to measure the greasiness.

pH: Within 24 hours of manufacturing, 20 mg of the formulation was placed in a beaker and its pH was measured with a digital pH meter.

Washability: After applying formulations to the skin, the degree and ease of washing with water were manually assessed.

Homogeneity: After letting them settle in a container, homogeneity was examined visually. They are assessed for aggregate presence and appearance.

Grittiness: -The formulations were examined under a 40x magnification microscope to check for aggregates or particle debris.

Viscosity: The Brookfield viscometer spindle was used to measure the viscosities of the prepared gels. - 7 at 25°C and 50 rpm. The viscometer's corresponding dial reading was recorded.

The spindle was then gradually lowered. The factor listed in the catalog was multiplied by the dial reading.

Extrudability The weight in grams needed to extrude a 0.5 cm long ribbon of formulation in 10 seconds is known as extrudability. A typical capped collapsible aluminum tube was filled with the gel mixture, and the end was crimped shut to seal it. The tubes were clamped after

being positioned between two slides. After covering the slides with a 500 g weight, the cap was taken off. It was noted how long the ribbon of the formulation was after ten seconds.

Spreadability: -

Spreadability is the measure of how easily a gel spreads when applied to the skin or afflicted area. The spreadability rating also affects the gel's bioavailability efficiency. The amount of time, measured in seconds, needed for the upper slide to separate from the gel sandwiched between the two slides under a specific force is known as spreadability. The spreadability improves with the speed at which two slides can be separated. The two slides, each measuring 6 cm by 2 cm, were positioned between 500 mg of the formulation. In order to provide a thin layer of consistent pressure on the formulation between the two slides, a 100 g weight was placed on the upper slide.

The excess formulation that was sticking to the slides was scraped off after the weight was taken off. A straightforward pulley that was horizontally level with the fixed slide helped apply load to the lower slide, which was set on the board. It was recorded how long it took the upper slide to separate from the lower slide. $\text{Dispersion} = m \times l/t$ where t is the time in seconds, l is the glass slide's length (6 cm), and m is the weight attached to the upper slide. Test for skin irritability [29] Ten healthy human volunteers of either sex participated in this test after giving their consent. A gauze patch was placed over a 6 cm² region of the hand's skin, and 0.5 grams of gel was administered. For one hour, a semi-occlusive dressing kept the patch in touch with the skin. Without affecting the epidermis's integrity or responsiveness, the gauze was taken off after the one-hour exposure time and any remaining test material was discarded. The skin was checked for any obvious reactions at one, six, twelve, twenty-four, forty-eight, and seventy-two hours.[23] A straightforward pulley that was horizontally level with the stationary slide was used to provide load. It was recorded how long it took the upper slide to separate from the lower slide.

$\text{Dispersion} = m \times l/t$ where t is the time in seconds, l is the glass slide's length (6 cm), and m is the weight attached to the upper slide. Test for skin irritation Ten healthy human volunteers of either sex participated in this test after giving their consent. A gauze patch was placed over a 6 cm² region of the hand's skin, and 0.5 grams of gel was administered. For one hour, a semi-occlusive dressing kept the patch in touch with the skin. Without affecting the epidermis's integrity or responsiveness, the gauze was taken off after the one-hour exposure time and any remaining test material was discarded. The skin was checked for any obvious reactions at one, six, twelve, twenty-four, forty-eight, and seventy-two hours. Gel Viscosity Determination [20]

Viscosity of Face wash Gel

Formulation	Viscosity
Anti acne face wash gel	6702 ±55

Determination of pH, Physical properties

Physical parameter	Inference
Colour	Slightly yellowish
Odour	Sweet lemon
Appearance	translucent
Feel on Application	Smooth & Slippery
pH	6.15

Table No 8: Physical properties & pH of Face wash Gel

Spreadability, Consistency, Washability, Foamability and Grittiness of Formulation.

The spreadability figures show that a modest amount of shear can easily spread the face wash gel. The commercialized face wash gel has a spreadability of 7.5 g.cm/sec. When the tube is squeezed, the consistency indicates the gel's ability to be expelled in a consistent and desirable amount. The researched formulation's cone travel distance was consistent at mm, while the commercialized formulation's was 11 mm. The distance traveled by a falling cone is inversely proportional to consistency. Therefore, the face wash formulation's consistency was superior as in contrast to commercially available wash face gel. No gritty particles were found in the composition, and the developed antiacne face wash gel displayed a foam volume of milliliters per minute.[21]



Fig.No.8 UL Trashine Face Wash

7.CONCLUSION:

Additionally, the global industry is shifting towards polyherbal medications for both medical and cosmetic uses, including dermal preparations like face washes, gels, and anti-acne products. The usage of herbal products by consumers has grown dramatically in recent years, according to a review of worldwide skin

care industry trends. Using several natural substances such as neem, aloe vera, turmeric, mint leaves, and coriander, an attempt was made in this study to manufacture a polyherbal anti-acne face wash gel. The formulations were then tested for the necessary parameters. Physical characteristics such as color, odor, grittiness, greasiness, PH, viscosity, consistency, spreability, washability, skin irritation test, and stability studies were assessed for the prepared formulations' polymers.

Glycerine gives compositions the desired gel strength. Humectant activity is produced by aloe vera during stability studies. The spreadability of these preparations is good. It suggests that applying it to the skin is simple. in contrast to the commercially available Himalya face cleanser gel. Based on the findings, we draw the conclusion that the herbal gel made from aloe vera and coriander gel had better qualities than the others.

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