



Review Paper

Review Of Formulation and Evaluation Anti Acne Herbal Cream

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ABSTRACT

ACNE is a common skin disorder that affects people of all age groups, especially Adolescence, and mainly caused by excessive sebum production, bacterial infection, inflammation. The present study focuses on the formulation and evaluation of an anti-acne herbal cream using natural ingredients known for their anti-bacterial, anti-inflammatory, and soothing properties. Herbal extracts such as Gotu kola (Centella asiatica), Neem (Azadirachta indica), Honey (Apis mellifera), Aloevera (Aloe barbadensis), Turmeric (Curcuma longa), Rose water (Rosa damascene), were incorporated into an oil-in-water cream base to enhance skin compatibility and minimize side effects with synthetic product. Turmeric possesses strong antibacterial and anti-inflammatory activity that helps to reduce acne causing microorganisms and skin and skin swelling. Aloevera provides soothing, moisturizing, and healing effects, thereby reducing irritation and promoting skin regeneration. Gotu Kola enhances collagen synthesis and supports skin repair, while honey act as a natural humectants and antimicrobial agent that maintains the skin hydration and helps to prevent infection. The formulated herbal cream was evaluated for various physiochemical parameters including appearance, Ph, Viscosity, Spreadability, Washability, Skin Irritation, Stability, and Antimicrobial activity. The results showed that the cream possessed good homogeneity, acceptable Ph suitable for skin application, smooth texture, and good spreadability. No signs of irritation or instability were observed during the study period. The study concludes that the formulated anti-acne herbal cream is safe, effective.

INTRODUCTION

1.1 ACNE

Acne is a long-term skin disease that arises when hair sacs are blocked with departed skin cells . It is categorized by spots, blackheads, whiteheads,

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redness, inflammations or oily skin. It can be of the inflammatory and non-inflammatory type of acne. Non-inflammatory includes blackheads, whiteheads while inflammatory includes pimples that are red and swollen. Skin areas with comparatively higher in oil glands such as the face, superior part of the upper body, and posterior majorly affected. The subsequent presence may lead to nervousness, reduced confidence and downheartedness. Genetics and increased sex hormones during adolescence in both the genders are the primary causes of acne in 78% of cases.

The subsequent presence may lead to nervousness, reduced confidence and downheartedness. Genetics and increased sex hormones during adolescence in both the genders are the primary causes of acne in 78% of cases. However, the role of food and smoking is still unclear. *P. acne* and *S. epidermidis* are the two major gram-+ve and gram-ve bacterial species responsible for acne vulgaris. The former one is an anaerobic, rod-shaped bacteria which lives at the base of the hair follicle breaks down sebum to consume as food, as bacteria increases, it causes inflammation which results in an immune response. Whereas the later induces acne together with other skin bacteria.

Most teenagers will have pimples at the some point and some have a few pimples that soon go on away. others develop persistent and clearly visible acne. This can be distressing, Particularly in puberty. however, there are a number of things that can be done about acne. Although patient is needed, this about acne in teenagers and younger known as common acne or "Acne vulgaris". It is basically the involvement of sebaceous gland which comprises pustules and papules means solid lesions occur on the skin. Normally, this sebaceous gland protects and moistures the skin and is very important for skin. However due to certain changes such as dirt, dust, or germ infections which can harm the skin.

Anti-acne creams are topical preparation treatment formulated to target the root causes of acne excess oil production, clogged pores, bacterial over growth, and inflammation. These creams typically contains ingredients like benzoyl peroxide, salicylic acid, retinoids, sulfur, each covering with distinct mechanisms that to reduce existing blemishes as extreme dirt, dust, germ infections, it harms the skin.

1.2 Types of ACNE -The following detailed Acne types are recognized clinically and dermatologically. 1. Non-Inflammatory Acne

- Open comedones (Blackheads): It form Darkened surface due to oxidized keratin/sebum.
- Closed comedones (Whiteheads): It form Flesh-colored bumps beneath the skin .

2. Inflammatory Acne

- Papules: It forms Small, tender, red bumps indicating inflammation.
- Pustules: It forms Similar to papules but with a visible white/yellow center (pus).

3. Severe Inflammatory Types

- Nodules: it forms Large, hard, painful lumps deep under the skin.
- Cysts: it forms Deep, pus-filled, soft nodules that may merge and scar.

4. Special Clinical Variants

- Acne Conglobata It is Interconnected nodules, cysts, abscesses; severe scarring.
- Acne Fulminans: It may occur Sudden, severe nodulocystic eruption with systemic symptoms (fever, joint pain). Medical emergency.
- Acne Mechanica: It can Triggered by friction/pressure (helmets, collars, masks).
- Acne Cosmetica: It is Caused by comedogenic cosmetic/hair-care products.
- Acne Medicamentosa (Drug-induced acne): It can be Triggered by steroids, lithium, isoniazid, phenytoin, B12, etc.

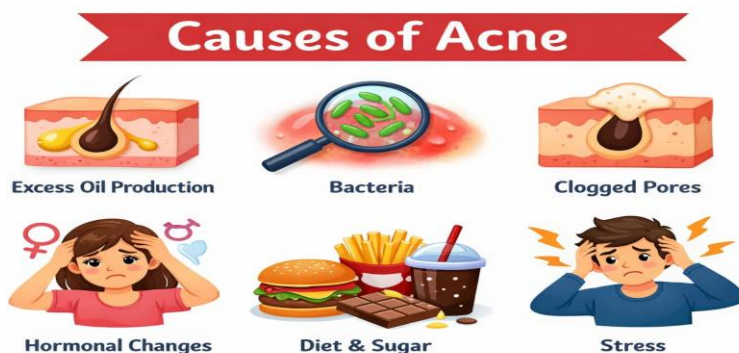


- Acne excooriee: It may result of compulsive picking/scratching that leading to excoriations.
5. Hormonal/Adult Acne.
- Occurs often along the jawline/chin.
 - It is Influenced by menstrual cycle, PCOS, stress-driven androgens.
6. Teen/Adolescent Acne
- It can be Driven by hormonal surge during puberty
 - It is Usually mixed comedonal + inflammatory.
7. Fungal Acne (Malassezia Folliculitis)
- It is Not true acne, but follicular infection by yeast.
 - It may forms Uniform itchy bumps, common on chest/back; worsens with sweat/humidity.



1.3 Causes of Acne

- Hormonal imbalance.
- Genetic factors.
- High GI Index food.
- Emotional stress.
- Medications, menstrual, cosmetics.
- Over reactive oil glands.
- Disease of the gastrointestinal tract.
- Clogged hair follicles.
- Inflammation, excess sweating.
- Insufficient water intake.
- Air pollution, humidity.



SYMPTOMS OF ACNE

Common Acne Symptom

- Blackheads (Open Comedones): Pores clogged with oil and dead skin cells that appear black on the surface.

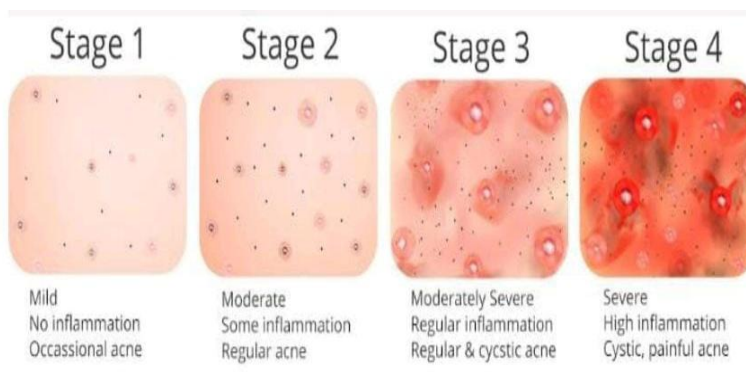
- Whiteheads (Closed Comedones): Clogged pores that remain closed under the skin, forming small white bumps.
- Papules: Small, red, tender bumps caused by inflammation, without pus.
- Pustules: Red bumps with a white or yellow center filled with pus (classic pimples).
- Severe Acne symptom.
- Nodules: Large, painful, solid lumps deep within the skin, caused by severe inflammation
- Cysts: Deep, painful, pus-filled lumps that form under the skin and can cause significant scarring.

- Few inflammatory papules
- Minimal risk of scarring
- 1) Stage 2 – Moderate Acne
 - Increased number of papules and pustules
 - Both comedonal and inflammatory lesions present
 - Some post-inflammatory hyperpigmentation may occurs.
- 3) Stage 3 – Moderately Severe Acne
 - Numerous papules, pustules, and occasional nodules
 - Visible inflammation over larger facial areas
 - Higher chance of scarring if untreated
- 4) Stage4 – Severe Acne
 - Nodulocystic lesions, deep cysts, and conglobate acne ,Extensive inflammation with high scarring potential

1.4 STAGES OF ACNE

Stage 1 – Mild Acne

- Mostly comedonal (whiteheads and blackheads)



2. Ingredients used in anti-acne herbal cream:

1. GOTU KOLA

Centella asiatica (Gotu Kola) is an important medicinal herb widely used in anti-acne herbal creams due to its healing and soothing properties. It contains active compounds such as asiaticoside, madecassoside, and asiatic acid, which help stimulate collagen production. In acne conditions, the skin often becomes inflamed and damaged, especially after pimples rupture. Gotu kola supports faster skin repair by promoting collagen synthesis, which helps reduce acne scars and improves overall skin texture. Gotu kola also has

strong anti-inflammatory properties that help reduce redness, swelling, and irritation associated with acne. Since acne-affected skin is usually sensitive, soothing ingredients are essential. Gotu kola calms the skin and minimizes discomfort or burning sensations. Additionally, it possesses mild antimicrobial activity, which helps control the growth of acne-causing bacteria. Another important benefit of Gotu kola is its wound-healing ability. It accelerates the regeneration of damaged skin cells and supports the formation of healthy new tissue. With regular use in an anti-

acne herbal cream, it can help fade acne marks gradually and enhance skin smoothness.

Therefore, Gotu Kola is considered a valuable natural ingredient in anti-acne herbal formulations because it reduces inflammation, promotes healing, minimizes scarring, and improves overall skin health safely and effectively.

Benefits of Gotu Kola for skin:

- Reduces inflammation and redness
- Promotes collagen production
- Speeds up skin healing
- Improves skin texture
- Calms irritated and sensitive skin
- Supports skin repair and regeneration



2. ALOEVERA

Aloevera is a widely used natural ingredient in anti-acne herbal creams due to its excellent soothing, healing, and moisturizing properties. It is rich in vitamins, minerals, enzymes, and polysaccharides that help maintain healthy skin. In anti-acne formulations, aloevera gel acts as a natural base that provides hydration without making the skin oily or greasy. Aloevera helps reduce inflammation, redness, and irritation commonly associated with acne. Its cooling effect calms sensitive and inflamed skin, making it especially suitable for acne-prone and irritated skin. It also supports faster healing of pimples by promoting skin cell regeneration and repair of damaged tissues. Additionally, aloe vera has mild antibacterial and antimicrobial properties, which

help control the growth of acne-causing bacteria and prevent further breakouts.

Because aloevera moisturizes the skin without clogging pores, it helps maintain the natural moisture balance of the skin. Regular use of anti-acne herbal cream containing aloevera can make the skin softer, smoother, and healthier while reducing acne marks and preventing dryness caused by other active ingredients.

Benefits of Aloevera for Skin:

- Reduces inflammation
- Soothes skin
- Moisturizes without oiliness.
- Promotes healing
- Mild Antibacterial effect



3. TURMERIC

Curcuma longa (Turmeric) is a well-known medicinal herb commonly used in anti-acne herbal creams because of its powerful anti-inflammatory and antibacterial properties. The main active compound in turmeric is curcumin, which plays an important role in reducing skin inflammation and controlling acne.

In anti-acne formulations, turmeric is added to help reduce redness, swelling, and pain associated with pimples. Acne is often caused by bacterial growth and excess oil production. Turmeric helps inhibit the growth of acne-causing bacteria and supports cleaner, healthier skin. Its anti-inflammatory action calms irritated skin and prevents the worsening of breakouts.

Turmeric also has strong antioxidant properties, which protect the skin

Benefits of Turmeric for skin:

- Reduces inflammation, redness and antioxidant protection
- Controls acne causing bacteria
- Promotes faster healing of pimples
- Helps lighten dark spots and acne scars
- Improves overall skin tone and texture



4. HONEY

Honey is a natural ingredient widely used in anti-acne herbal creams because of its healing, moisturizing, and protective properties. It contains natural sugars, enzymes, amino acids, vitamins, and antioxidants that support overall skin health. In herbal formulations, honey acts as a humectant, which means it attracts moisture from the environment and helps retain it in the skin. This keeps acne-prone skin hydrated without making it oily. In acne conditions, the skin often becomes dry and irritated due to inflammation or use of strong treatments. Honey helps soothe irritated skin and reduce redness and discomfort. It also has natural antibacterial properties, which help control the growth of acne-causing bacteria and prevent further breakouts. This makes it a gentle yet effective ingredient for managing pimples.

Another important role of honey in anti-acne cream is its wound-healing ability. It supports faster healing of popped or damaged pimples by promoting tissue repair and reducing the risk of infection. Regular use can help in gradually reducing acne marks and improving skin texture. Honey also provides a soft, smooth feel to the

cream, improving its consistency and making it suitable for daily application.

Benefits of Honey for skin:

- Provides deep yet non-greasy hydration
- Helps to control acne causing bacteria
- Reduces redness and irritation
- Promotes faster healing of pimples
- Helps fade acne scars gradually
- Improves skin softness and smoothness



5. NEEM

Neem in Anti-Acne Herbal Cream *Azadirachta indica* (Neem) is one of the most important medicinal plants used in herbal skin care formulations. It has been traditionally used for treating various skin problems because of its strong antibacterial, antifungal, anti-inflammatory, and purifying properties. In anti-acne herbal cream, neem plays a major role in controlling acne by targeting its root causes such as bacterial growth, excess oil production, and skin inflammation. The leaves, oil, or extracts of neem are commonly incorporated into creams to enhance their therapeutic effectiveness. Acne is mainly caused by the overgrowth of bacteria, clogged pores, and excessive sebum (oil) production. Neem contains active compounds such as nimbidin, azadirachtin, and nimbolide, which have powerful antimicrobial properties. These compounds help inhibit the growth of acne-causing bacteria on the skin surface, thereby reducing the formation of new pimples. By controlling microbial growth, neem helps prevent

infection in existing acne lesions and promotes cleaner, healthier skin. This makes neem a highly suitable ingredient for acne-prone and oily skin types.

Another important function of neem in anti-acne herbal cream is its anti-inflammatory action. Acne lesions often appear red, swollen, and painful due to inflammation. Neem helps calm irritated skin and reduce redness and swelling. Its soothing effects makes the cream gentle enough for regular use while still being effective.

By reducing inflammation, neem is not only improves the appearance of acne but also minimizes discomfort associated to acne.

Benefits of Neem for skin:

- Controls bacterial growth
- Reduces pimples and breakouts
- Helps to manage excess sebum (Oil)
- Reduces redness and inflammation
- Purifies and detoxifies the skin



6. ROSE WATER

Rose Water in Anti-Acne Herbal Cream *Rosa damascena* (Rose water is commonly prepared from this plant) is a gentle and refreshing ingredient widely used in anti-acne herbal creams. It is known for its soothing, hydrating, and skin-balancing properties. In acne-prone skin, irritation and redness are common problems, and rose water helps calm the skin while providing a cooling effect.

One of the main roles of rose water in anti-acne cream is to maintain the natural pH balance of the

skin. When the skin's pH is balanced, it becomes less prone to bacterial growth and excessive oil production. Rose water also works as a mild natural toner that helps tighten enlarged pores and reduce the chances of clogged pores, which are a major cause of acne formation.

Rose water also contains mild anti-inflammatory and antibacterial properties, which help reduce redness, swelling, and discomfort caused by pimples. It supports gentle cleansing of the skin and helps remove impurities without causing dryness. This makes the cream suitable even for sensitive or irritated skin.

In addition, rose water provides light hydration without making the skin greasy. It improves skin freshness, softness, and overall appearance. Regular use of anti-acne herbal cream containing rose water can help achieve clearer, smoother, and healthier-looking skin while preventing further breakouts.

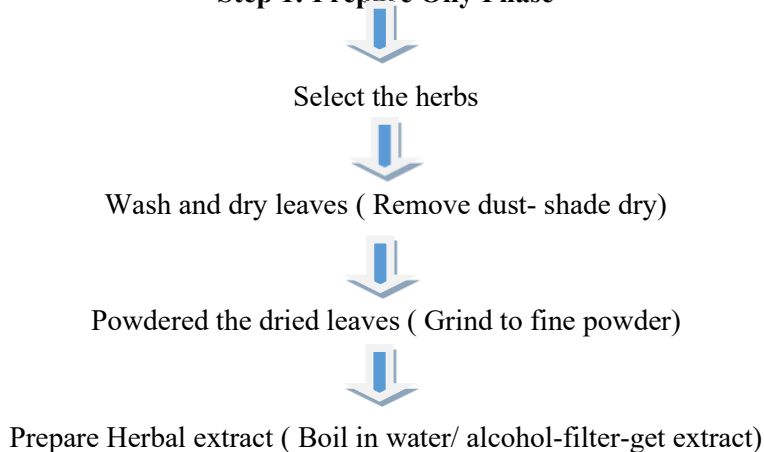
Benefits Of Rose water for skin:

- Soothes irritated and inflamed skin
- Helps tighten pores
- Maintains skin PH balance
- Provides mild Antibacterial effect
- Gives a refreshing and calming effect
- Promotes natural glow

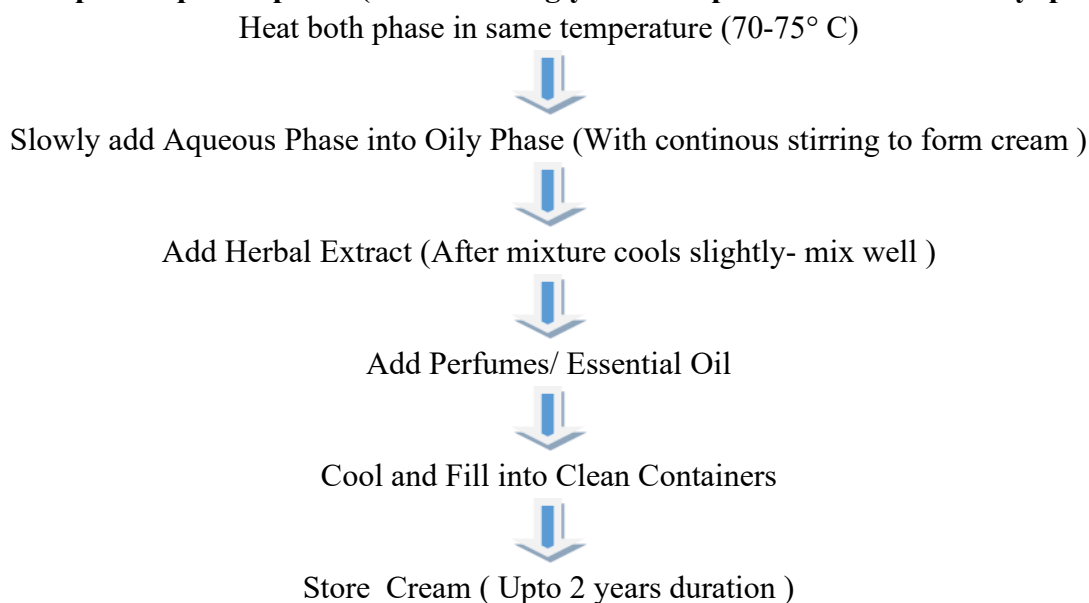


Preparation Process

Step 1: Prepare Oily Phase



Step 2: Prepare Aqueous phase (Mix water + glycerine + preservative like methyl paraben)



Applications

- ❖ Wash face with mild cleanser
- ❖ Pat skin dry
- ❖ Take small amount of cream
- ❖ Apply thin layer on affected area
- ❖ Spread gently
- ❖ Do not wash immediately
- ❖ Use twice daily (morning & night)

Precautions

- ❖ Avoid contact with eyes and mouth
- ❖ Do patch test before first use
- ❖ Use clean hands during application
- ❖ Store in cool, dry place

CONCLUSION

The Anti-Acne Herbal Cream formulated with natural ingredients such as Gotu Kola, Neem, Aloe vera, Turmeric, Honey, and Rose water demonstrates promising potential in the management of acne and related skin problems. The combination of these herbal components provides multiple benefits including antibacterial, anti-inflammatory, wound-healing, soothing, and moisturizing effects. Unlike many synthetic anti-acne products, this herbal formulation is comparatively gentle on the skin and reduces the chances of irritation and dryness. The synergistic

action of plant-based ingredients helps in controlling excess oil production, preventing bacterial growth, reducing redness, and promoting faster healing of pimples and acne scars. Additionally, the presence of natural antioxidants supports overall skin health and improves texture. Overall, the developed herbal cream can be considered a safe, cost-effective, and skin-friendly alternative for acne management. With proper formulation, stability testing, and regular use, it may serve as an effective option for maintaining clear and healthy skin. Further clinical evaluation can enhance its credibility and commercial potential.

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