

A RESEARCH ON FORMULATION AND EVALUATION OF POLY HERBAL ANTI ACNE CREAM

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ABSTRACT

Expression and evaluation of a polyherbalanti-acne cream exercising Neem and Green tea greasepaint. The expression process involves scrupulous optimization of the cream's physicochemical parameters, including pH and density, to insure stability and efficacy. The cream's antimicrobial exertion is strictly estimated against acne-causing bacteria, while its stability is assessed under different conditions, including temperature and moisture oscillations. The results demonstrate the cream's eventuality as a natural and effective treatment option for acne vulgaris, offering a promising volition to conventional treatments. Neem tree (*Azadirachta indica*) excerpts from colorful corridor have a long history of use in traditional medical practices due to their pharmacological or remedial rates. The pharmacological characteristics of factory corridor could be delved further in order to produce new herbal phrasings and medicinal substances. The well-known tree neem (*Azadirachta indica*) is a part of the Meliaceae family. The Conventional Restorative Framework employments dinghy, clears out, blossoms, seeds, oil painting, and other corridor for a multifariousness of purposes. Neem's pharmacological operations have been the subject of colorful egregious operations. A total illustration of pharmacognosy, phytochemistry, and pharmacological exertion as depicted in this way distant is given in this composition. Catchphrases phytochemistry, pharmacognosy, neem, *Azadirachta indica*, pharmacological action, check Dermatophytosis is a contagious fungal complaint among beast communities. The major enterprises of dermatophytosis are cost of treatment, difficulty of control, and the public health consequences. The ideal of the present study was to compare the clinical efficacy of Sumaq and Neem excerpt cream with that of traditional treatments.

INTRODUCTION

Skin is one of the largest organs of the body. Skin functions as a defensive wrapper, keeping everything beneath it safe from diurnal pitfalls similar as the harsh goods of sun, wind and pollution, origin filled smut. Skin is also a sensitive organ, which indicates the health of an individual Skin care is veritably important to make it bealthy and fresh there are so numerous request medications for skin care Skin care is at the interface of cosmetics and dermatology but skin care differs from dermatology, it does n't bear any medical professional every time Cosmeceuticals are the unborn generations of skin care. The term ornamental deduced from Greek word" Kosmetikos" which mean pertaining to cosmetics or beautifying substance of medication. The word' cosmesis'(Gr. Kosmesia) used for two effects. the preservation restoration or bestowing of body beauty, the surgical correction of disfigured physical effect. Cosmetics are defined as the products used for the purposes of sanctification, beautifying. promoting attractiveness or interspersing the appearance.



Fig. No 1. Cosmetic Product.

In a world where skincare aisles overflow with pledges of indefectible skin and mark-free faces, the hunt for an effective result frequently feels like a daunting trip. Acne, a common skin condition affecting millions worldwide, knows no boundaries of age, gender, or race. From teenagers battling hormonal changes to grown-ups scuffling with stress- convinced flights, the hunt for a remedy remains grim. Amidst this pursuit, herbal acne creams crop as a lamp of stopgap, employing the

ancient wisdom of botanicals to offer a holistic approach to skincare.

Herbal acne creams represent a departure from conventional skincare phrasings laden with synthetic chemicals. rather, they draw alleviation from nature's drugstore, incorporating a rich shade of sauces famed for them. remedial parcels. From smoothing calendula to antibacterial tea tree oil painting, these botanical abettors work synergistically to combat acne at its root while nurturing the skin with gentle care.

A Journey Through Nature's Garden Step into the realm of herbal acne creams, and you will embark on a sensitive trip through nature's theater. Lavender's delicate scent transports you to sun kissed meadows, while the cooling sensation of peppermint invigorates the senses. With each operation, you will witness the transformative power of factory- grounded skincare, as botanical excerpts inoculate your skin with vitality and radiance. The Promise of Radiant Skin In the hunt for radiant skin, herbal acne creams crop as loyal abettors, bridging the gap between nature and wisdom with wisdom passed down through generations. With their gentle yet important phrasings, they offer a lamp of stopgap to those navigating the tumultuous swell of skincare. So, embrace the mending touch of nature and embark on a trip towards clearer, healthier skin with herbal acne creams as your trusted companions.



Fig. No. 2: Anti acne cream.

Skin Cream

Creams are those mixes, which are moreover oil painting- in- water or water- in- oil painting type. Depending upon the main constituents and purpose of this expression, skin creams can be astronomically classified as follows

Types of skin creams

1. Make- up creams (o/ w mixes)
 - Evaporating creams
 - Foundation creams
2. Sanctifying creams (w/ o mixes)
3. Creams for downtime(w/ o mixes) Cold creams
4. Creams for dry skin Moisturizing creams
5. All Purpose creams
6. Night creams
7. Skin defensive and hand cream

Ideal parcels of cream

1. Non-toxic
2. retain small
3. Non prickly
4. High shelf life
5. It should be physically and chemically stable

Advantage of polyherbal cream-

- After operation cream, skin come soft clean and glow.
- Remove dead skin cells
- Provides smoother skin
- Improves the texture of skin

Bracket of anti-acne cream

Anti-acne creams can be classified grounded on their

1. Active constituents

- Topical retinoids- derivations of vitamin A (e.g., adapalene, tretinoin)
- Benzoyl peroxide- Kills bacteria and reduces inflammation
- Salicylic acid- Exfoliates skin and unclogs pores
- Sulfur- Reduces sebum product and kills bacteria
- Natural constituents- Herbal excerpts, essential canvases (e.g., tea tree oil painting, neem excerpt)

2. Medium of action

- Antimicrobial- Kills bacteria that beget acne (e.g., benzoyl peroxide, sulfur)
- Anti-inflammatory- Reduces greenishness and swelling (e.g., salicylic acid, herbal excerpts)
- Comedolytic- Unclogs pores and prevents downfalls' (e.g., salicylic acid, retinoids)

3. Inflexibility of acne

- Mild acne creams Over-the-counter(OTC) products for mild acne
- Moderate acne creams tradition products for moderate acne
- Severe acne creams- May bear combination remedy or oral specifics

Ideal parcels of Anti-Acne Cream

1. An ideal anti-acne cream should retain the following parcels-
2. Antimicrobial exertion-Effective against acne-causing bacteria
3. Anti-inflammatory exertion- Reduces greenishness and swelling
4. Comedolytic exertion- Unclogs pores and prevents downfalls.
5. Non-comedogenic- Does n't clog pores.
6. Moisturizing- Hydrates the skin without aggravating acne.
7. Stable and safe-Long shelf life, non-toxic, and hypoallergenic
8. Easy to apply and absorb-Smooth, non-greasy texture
9. Cost-effective-Affordable and accessible.

Fresh parcels for herbal formulation

1. Natural constituents- Utilizes herbal excerpts, essential canvases.
2. minimum side goods Gentle on skin, reducing vexation threat
3. Sustainable- Environmentally friendly packaging and sourcing.

Advantages of herbal anti-acne cream

1. Natural constituents- Utilizes factory- grounded constituents, reducing the threat of harsh chemical side goods.
2. Smaller Side goods- Gentle on skin, minimizing vexation, and antipathetic responses.
3. Multifaceted Approach- Herbal excerpts can target multiple aspects of acne, similar as. inflammation, bacterial growth, and skin health.
4. Cost-Effective- Potentially more affordable than conventional treatments, especially for long- term use.
5. Sustainable Environmentally friendly, promotingeco-conscious skincare practices.
6. Holistic Benefits Some sauces may offer fresh skin benefits, similar as antioxidant and moisturizing parcels.
7. Customizable- Can be formulated to address specific skin types and enterprises.
8. Implicit for Long- Term result- By addressing underpinning skin health, herbal creams may give sustained benefits

Ingredient of anti – acne cream**Table No: 1**

Sr. No	Ingredients	Activity
1	Neem Extract	Anti- Acne
2	Green Tea Oil	Anti- Inflammatory
3	Coconut Oil	Moisturizing
4	Wool Fat	Protective
5	Bees Wax	Thickening Agents
6	Vitamin E Oil	Anti-Oxidant
7	Tea Tree Oil	Anti-Bacterial
8	Glycerin	Smoothing Agent
9	Distilled Water	Solvent

Drug profile**1. Neem powder**

Exhibits antimicrobial, anti-inflammatory and antifungal properties.

**Fig. No. 3. Neem Powder.****Family: Meliaceae**

Biological source: Azadirachta indica

Chemical constituents: Azadirachtin, Nimbin, Nimbodin

Use: Antimicrobial, anti-inflammatory agent in cosmetics and pharmaceutical.

2. Green tea powder

Protects skin from damage, reduces inflammation, and exhibits antioxidant properties.

**Fig. No. 4: Green tea powde.****Family: -Theaceae**

Biological source: Camellia sinensis

Chemical constituents: Catechins (e.g., EGCG), Polyphenols

Use: Antioxidant, anti-inflammatory agent in cosmetics and pharmaceuticals

3. Coconut Oil

Hydrates skin, reduces inflammation, and exhibits antimicrobial properties.

**Fig. No. 5: Coconut Oil.****Family: Arecaceae**

Biological source: *Cocos nucifera*

Chemical constituents: Fatty acids (e.g., lauric acid), Triglycerides

Use: Moisturizer, emollient, antimicrobial agent in cosmetic.

4. Wool Fat (Lanolin)

Hydrates skin, protects skin barrier, and soothes dry skin.



Fig. No. 6: Wool Fat.

Family: Bovidae**Biological source:** Ovis aries (Sheep wool)**Chemical constituents:** Waxes, Sterols**Use:** Emollient, moisturizer, skin protectant in cosmetic**5. Vitamin E Oil**

Protects skin from damage, reduces inflammation, and promotes skin health.



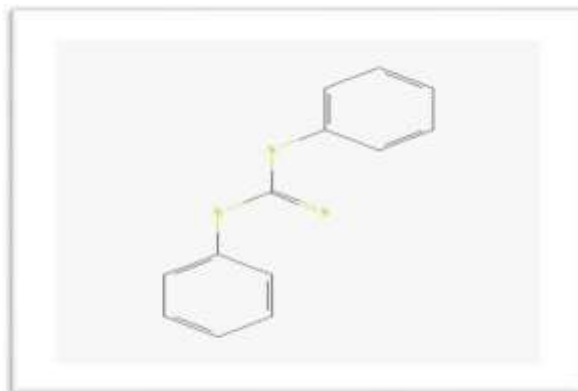
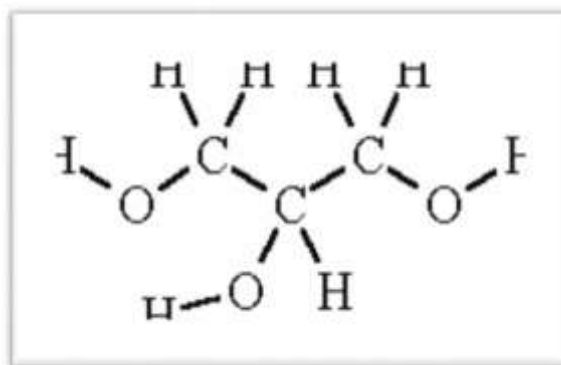
Fig. No 7: Vitamin E Oil.

Family: Varies**Chemical structure of vitamin e oil:****Biological source:** Various plant sources (e.g., sunflower oil, soybean oil)**Chemical constituents:** Tocopherols**6. Tea Tree Oil**

Soothes skin irritations, reduces inflammation, and exhibits antimicrobial properties.



Fig. No. 8. Tea Tree Oil.

Family: Myrtaceae**Biological source:** Melaleuca alternifolia**Chemical constituents:** Cineole, Terpinen-4-ol**Use:** Antimicrobial, anti-inflammatory, antifungal agent in cosmetics and pharmaceuticals.**Excipients profile****1. Beeswax****Chemical structure****Structure: Beeswax****Structure:** Mainly composed of myricyl palmitate, cerotic acid, and long-chain hydrocarbons.**IUPAC Name:** Not applicable (complex mixture).**Molecular Weight:** Varies (typically around 500-600 g/mol).**Physical Properties:****Color:** Yellowish to brownish.**Odor:** Mild, honey-like.**Test:** Not typically characterized by a specific taste.**Functionality:** Thickening Agents**Emollient:** Softens and protects skin and hair.**Moisturizer:** Helps retain moisture.**Thickening agent:** Adds texture and stability to product. Beeswax is commonly used in cosmetics, skincare, and candle-making applications.**2. Glycerin****Chemical structure****Structure: Glycerine****IUPAC name:** 1, 2, 3- Propanetriol or 1, 2, 3- Trihydroxy propane.**Molecular weight:** 92.09 g/mol**Physical properties:****Color:** Colorless

Oduor: Odorless

Test: Sweet test

Functionality: Humectant

Retain moisture: Attracts and retains moisture in the hair and scalp.

Soften hair: Adds shine and softness to hair.

Reduce dryness: Helps to alleviate dryness and irritation on the scalp

MATERIAL AND METHODS

1. Neem Greasepaint
2. Green tea greasepaint

1. Collection of factory material-
 1. Neem greasepaint- Has Helps reduce acne- causing bacteria. Reduces greenishness and lump. Helps help skin damage associated as acne junking
 - Natural Source it's attained from neem azadirachta indica
 - Family Meliaceae
 - Chemical ingredients- Azadirachtin 0.2- 0.4, Nimbodin 0.1- 0.3, Nimbinin 0.05- 0.1,
 2. Green tea- herbage tea has anti-inflammatory, antioxidant, and antimicrobial parcels that help reduce acne and soothe the skin.
 - Biological Source Green tea is attained from the leaves of Camellia sinensis.
 - Family Theaceae
 - Chemical ingredients Catechins(30- 40), Epigallocatechin(EGCG)(10- 20)

2. Birth of herbal medicine

A) birth Process of Neem-

1. Harvesting- Neem(*Azadirachta indica*) is a tree native to the Indian key and is extensively cultivated for its medicinal and agrarian uses. Harvesting neem involves collecting its leaves, seeds, and other factory corridor for uses in colorful operation.
2. Washing- Neem leaves is an essential step in preparing them for use in colorful operation, including medicinal, agrarian and ornamental use. The washing process helps remove dirt, debris, and other contaminations from the leaves.
3. Drying- Drying neem leaves is an essential step in conserving their quality and energy. Drying helps remove redundant humidity from the leaves, precluding corruption and extending their shelf life.
4. Crushing- Crushing neem leaves is a process use to release their bioactive composites, similar as azadirachtin, which is natural germicide. Crushing can be done using colorful styles, including homemade and mechanical ways.
5. Sieving- Sieving is a process used to separate persecuted neem greasepaint into different flyspeck sizes. This is an important step in icing the quality and thickness of the final product.
6. Boiling- Boiling neem greasepaint is a process used to prize its bioactive composites, similar as azadirachtin, which is a natural germicide. Boiling can be done using colorful system.



Fig. No. 09: Boiling process of neem birth.

1. Filtration Filtration a introductory system used to separate solid patches from a liquid or gas. It's a common fashion used in colorful diligence,

including water treatment, medicinals, and food processing.



Fig. No. 10: Filtration of neem excerpt.

Extraction of green tea

1. Green Tea Harvesting- Green tea harvesting involves plucking youthful tea leaves from *Camellia sinensis* plants
2. Green Tea Washing- herbage tea washing, also known as irrigating or dulling, involves compactly exposing tea leaves to hot water.
3. Green Tea Drying- Green tea drying involves removing redundant humidity from tea leaves to save quality.
4. Green Tea Crushing- Green tea crushing or rolling involves breaking or shaping tea leaves to
5. Green Tea Sifting Sieving- Green tea sifting or sieving involves separating tea leaves by raising no 85.
6. Green Tea Brewing- Green tea is generally brewed, not boiled. Boiling can damage the delicate tea leaves and affect in a bitter taste.



Fig No. 11: Green tea brewing.

7. Filtration of Green Tea-Simple filtration of green tea involves passing the brewed tea through a sludge



Fig. No. 12: Filtration of green tea.

Procedure**Formulation & procedure of Anti-Acne cream**

- Preparation of oil painting phase Heat Coconut oil painting, hair Fat, Bees Wax, and Vitamin E oil painting in one teacup until melted (around 65 – 70 °C).
- Preparation water phase In another teacup, blend Distilled Water, Glycerin, Neem Excerpt, and Green Tea Extract. Heat to the same temperature (65 – 70 °C).
- Combine both phases sluggishly pour the water

admixture into the oil painting admixture while stirring continuously.

- Mix well Keep stirring for 10 – 15 twinkles until it becomes a smooth cream
- Cool it down Let the admixture cool to about 40 °C
- Add Tea Tree Oil Stir in Tea Tree Oil formerly cooled and mix completely.
- Pack Pour the cream into clean jars or holders.

Formulation of anti-acne cream (30gm)**Formulation Table 1 = FAIL**

Sr. No	Ingredient	Quantity
1.	Neem extract	5gm
2.	Green Tea extract	4gm
3.	Wool Fat	2gm
4.	Bees wax	3gm
5.	VIT E oil	2gm
6.	Tea tree oil	2gm
7.	Coconut oil	3gm
8.	Glycerin	Q.S
9.	Distilled water	Q. S

Table no: 2

Reason= They does not have the cream like consistency.

Formulation Table 2 = FAIL

Sr. No	Ingredient	Quantity
1.	Neem extract	5gm
2.	Green Tea extract	4gm
3.	Wool Fat	3.5gm
4.	Bees wax	2gm
5.	VIT E oil	2gm
6.	Tea tree oil	2gm
7.	Coconut oil	5gm
8.	Glycerin	Q.S
9.	Distilled water	Q. S

Table no: - 3

Reason= This formula show cream like consistency but they do not show smoothing effect.

Formulation Table 3 = PASS

Sr. No	Ingredient	Quantity
1.	Neem extract	5gm
2.	Green Tea extract	4gm
3.	Wool Fat	3.5gm
4.	Bees wax	2gm
5.	VIT E oil	2gm
6.	Tea tree oil	2gm
7.	Coconut oil	5gm
8.	Distilled water	Q.S
9.	Glycerin	Q. S

Table no: - 4

Reason = This formula show cream like consistency and provide smoothing effect because we select this formulation.

Evaluation table

Sr. No	Test	Result
1	Colour	Pale Yellow
2	Odour	pleasant smell
3	Texture/Apperance	Semi-Solid
4	Nature	Semi-Solid
5	Consistency	Smooth
6	Irritabilitys	Non –Irritancy
7	Spreadability	5.5cm/s
8	pH	6
9	Washability	Easily Washability
10	Greasiness	Midly Greasy
11	Cleaning effect	Good

Evaluation parameters of anti-acne cream

Following are the evaluation parameters were performed to ensure superiority of prepared polyherbal cream.

Colour: Pale Yellow

Odour: pleasant smell

Texture/Appearance: Semi-Solid

Nature: Smooth

Consistency: Smooth

pH: The common range of pH is (6-7) Result pH = 6

Procedure for the pH test

1. Apply the cream solution to pH paper
2. Compare the colour change
3. Measure the pH



Fig. No. 13: pH Test.

Washability: Easily Washability**Fig. No. 14: Washability test.****Nature of skin after wash:** Smooth**Irritability:** Non –Irritancy

It was evaluated by patch test. It is not verified test but as per mentioned on marketed preparations label, had performed this test also. Little quantity of the cream was applied on the surface of skin and kept it as it is for few minutes.

**Fig. No. 15: Irritability test.****Spreadability test**

Procedure for spreadability test:

1. Take a small amount of cream spread on the skin or glass plate
2. Measure the spread area
3. Calculate the spreadability

Formula

Spreadability = Area under the curve /time taken

= 11 /2

= 5.5 cm/s

Greasiness test

Procedure of greasiness test:

1. Apply the cream to the skin
2. Check the greasiness of the cream Result = the cream is the mildly greasy

RESULT

The formulation herbal cream was evaluated at different parameters. All the organoleptic properties were checked visually such as colour, odour, consistency, and texture. As a result, the colour observed was Caramel colour, no bad smell occurred from and the consistency of the formulation was found suitable as required to apply on the skin.

Washability and cleansing properties of Neem was found to be good, and it is easily removed by washing with normal water. It left a smooth feel on the skin after washing and no dryness was observed. No redness, no irritation or any dermatological effects were observed on skin during irritancy testing.

CONCLUSION

The polyherbal anti-acne cream formulated with green tea and neem extracts demonstrated promising results in terms of physicochemical parameters, antimicrobial activity, and stability. The cream's effectiveness against acne-causing bacteria and lack of irritancy suggest its potential as a natural and effective treatment option for acne vulgaris. Further studies, including clinical trials, would be necessary to confirm these findings and support the cream's use in various applications.

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