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Research Article

## FORMULATION AND EVALUATION OF HERBAL POWDER FACE WASH FOR ACNE TREATMENT

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### Abstract:

*Herbal powder face wash is a natural and chemical-free skincare formulation designed to cleanse, exfoliate, and nourish the skin. This formulation combines herbal ingredients such as neem powder, turmeric powder, tulsi powder, rose petals, rice powder and aloe vera powder to provide deep cleansing, antibacterial protection, and skin rejuvenation. Unlike conventional liquid face washes, this powder-based product is free from synthetic preservatives. The powder, when mixed with water, milk, or rose water, forms a gentle paste that effectively removes impurities, excess oil, and dead skin cells while maintaining the skin's natural moisture balance. The herbal components possess antioxidant, anti-inflammatory, and antibacterial properties, which help in reducing acne, blemishes, and dullness. This study focuses on the formulation, benefits, and effectiveness of herbal powder face wash compared to commercial alternatives. The research also evaluates consumer acceptance and the potential of herbal skincare products in the growing natural cosmetics market*

**KEYWORDS:** Herbal face wash, natural skincare, powder cleanser, neem, turmeric, aloe vera, tulsi, rose petals, anti-acne, chemical free skincare.

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## INTRODUCTION:

The increasing awareness of the harmful effects of synthetic chemicals in skincare products has led to a growing demand for natural and herbal alternatives. Among these, herbal powder face wash has gained popularity as a chemical-free, eco-friendly, and skin-friendly cleansing solution. Unlike conventional liquid face washes that often contain sulfates, parabens, and artificial fragrances, herbal powder cleansers utilize natural ingredients to cleanse, exfoliate, and nourish the skin. In recent years, there has been a significant shift towards natural and herbal skincare products due to concerns over the long-term effects of synthetic chemicals in conventional cosmetics. Consumers are increasingly seeking chemical-free, sustainable, and skin-friendly alternatives that provide effective skincare without causing irritation or damage. Among these alternatives, herbal powder face wash has emerged as a popular and beneficial product, offering a holistic approach to facial cleansing. Unlike liquid-based cleansers, which often contain harsh surfactants, synthetic fragrances, and preservatives, herbal powder face wash is formulated using natural plant powders, clays, and Ayurvedic herbs. These ingredients are carefully selected for their therapeutic properties, which include deep cleansing, exfoliation, antibacterial action, and skin rejuvenation.

### Acne:

Acne is a common skin condition that happens when hair follicles under the skin become clogged. Sebum—oil that helps keep skin from drying out—and dead skin cells plug the pores, which leads to outbreaks of lesions, commonly called pimples or zits.



**Figure 1: Acne**

Acne is an inflammatory disorder of the skin, which has sebaceous (oil) glands that connects to the hair follicle, which contains a fine hair. In healthy skin, the sebaceous glands make sebum that empties onto the skin surface through the pore, which is an

opening in the follicle. Keratinocytes, a type of skin cell, line the follicle. Normally as the body sheds skin cells, the keratinocytes rise to the surface of the skin. When someone has acne, the hair, sebum, and keratinocytes stick together inside the pore. This prevents the keratinocytes from shedding and keeps the sebum from reaching the surface of the skin. The mixture of oil and cells allows bacteria that normally live on the skin to grow in the plugged follicles and cause inflammation—swelling, redness, heat, and pain. When the wall of the plugged follicle breaks down, it spills the bacteria, skin cells, and sebum into nearby skin, creating lesions or pimples.

### Types of Acne:

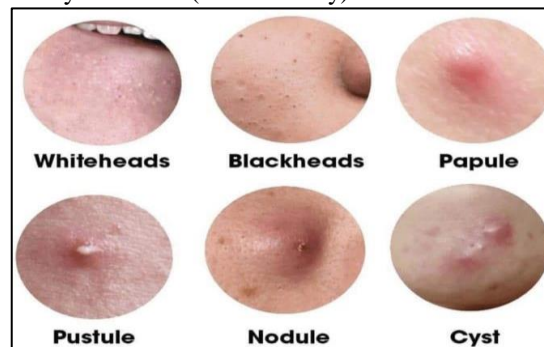
#### 1] Acne Rosacea

A condition that causes redness and often small, red, pus filled bumps on the face. - Rosacea most commonly affects mid-aged women. Rosacea is inclined to develop in certain stages and causes to create inflammation of the skin of the face especially the foreheads, cheeks, nose as well as chin.

#### 2] Acne Vulgaris

It's the most common form of acne. Acne vulgaris is a general condition that is characterized by the development of seborrhoea, comedones, nodules, pustules, papules and cysts. Acne symptoms. Generally, acne can be categorized into six major types: -

1. Whiteheads (non-inflammatory)
2. Blackheads (non-inflammatory)
3. Papules (Inflammatory)
4. Pustules (Inflammatory)
5. Nodules (Inflammatory)
6. Cystic lesion (inflammatory)



Acne is caused by the following factors

- Excessive oil production.
- Bacterial infection.
- Unhealthy eating habits or a sedentary lifestyle.
- Changes in hormones.
- Stress.

### Anti-Acne Facewash



Anti-acne face wash is a formulation of essential ingredients primarily used to treat skin problem such as mild to moderate acne. It also helps in reducing the frequency of breakout and treats other face problems such as pimples, bumps on the face and active acne. Anti acne face wash help in cleansing the skin of the face on deeper level which leads to deep purification. The face wash also works on making the skin soft, gentle, and smooth. It helps by reducing the amount of acne causing bacteria in the skin which leads to bacteria free healthy and glowing skin.

### FACE WASH

**Definition:** A cleanser is a facial cleansing product that removes makeup, dead skin cells, oil, grime, and other impurities from the face's skin. This aids in the unclogging of pores and the prevention of skin disorders like acne. A cleanser, together with a toner and moisturizer, can be used as part of a skin care routine.

Face wash product found to be equally good for all skin type. Face wash is very helpful in removing dirt, oil and provide moisture to the dry skin. Both face washes & cleansers are used to rid your face of dirt, oil, pollution etc. A cleanser dissolves away excess oil makeup and grime from your face. These are oil soluble impurities. They can be removed by a face wash too, but that might be not 100% effective. Facial skin is the delicate and ordinary soaps can cause it to lose moisture. A face wash is a mild cleanser that does the vital job of keeping skin clean, germ free smooth and fresh and moisturizes the horny layer without any harshness to the skin. So that skin looks young and energetic. The purpose of face wash may be to impart cleansing, anti-wrinkle effect, anti-acne property moisturizing effect and fairness of skin. Skin whitening agents are believed to act on the production and metabolism of melanin of the skin by inhibiting melanin production in melanocytes, reducing extent of melanin. They are thought to function in at least four different ways,

including restoring normalcy, increasing sebum production into pores to prevent obstruction, eliminating the *Propionibacterium acnes* bacteria, having anti-inflammatory properties, and affecting hormone levels. Because of the numerous negative impacts that using synthetic medications has on one's health, natural materials are increasingly being used in product composition. Although marigold, licorice, and orange peel are among the most potent antioxidants and free radical scavengers, they also have a very favorable effect on acne thanks to their anti-microbial, anti-inflammatory, and anti-oxidant properties. Benzoyl peroxide, antibiotics (topically or orally), retinoids, antiseborrheic drugs, anti-androgen drugs, hormonal therapies, salicylic acid, alpha hydroxyl, azelaic, nicotinamide, and keratolytic soaps are some of the remedies for acne.

### TYPES OF FACE WASH

Generally, a face wash suits all skin types however now a day different products are available in market that are formulated to suits different skin types for example: an oily skin face wash is made for people have oily skin conditions and does not contains oils and leaves a thin oily film on the skin.

These different types of face washes available in the market include.

1. Oily skin face wash
2. Dry skin face wash
3. Normal skin face wash

### FORMS OF FACE WASH

1. Cream based face wash
2. Gel based face wash
3. Liquid based face wash
4. Face wash in powder form

#### 1. Cream based facewash: -

A cream-based facewashes as well as moisturizes your skin. A cream-based facewash is usually thick, creamy, and contains essential moisturizing elements like botanical oils. It will help you in getting rid of any dirt, sweat, makeup, or bacteria. Cream based facewashes creamy cleansers work best for dry skin. They leave the skin void of all impurities without further stripping it of essential natural oils.

#### 2. Gel based face wash

Gel facewash is a water-based facewash with a gel-like texture That are typically made from the extracts of flowers and essential oils. Gel facewash That can help balance your skin's PH. Gel facewash is recommended for sensitive and irritative or itchy skin types.

#### 3. Liquid based facewash

Liquid based face wash have been widely used in

pharmaceutics due to their high dosing flexibility, ease of swallowing, and quick onset of action. Typically, they are categorized as monophasic and biphasic formulations. Within these two broad categories lies a wide range of dosage forms.

#### 4. Face wash in powder form

Powder face washes are dry formulations that activate with water to create a cleansing paste or foam. They often contain gentle exfoliants like rice bran or enzymes to remove dead skin cells, dirt, and oil without harsh abrasives. They're popular for their travel-friendly format and customizable consistency.



#### POWDER FORM FACE WASH

Powder face washes are dry formulations that activate with water to create a cleansing paste or foam. They often contain gentle exfoliants like rice bran or enzymes to remove dead skin cells, dirt, and oil without harsh abrasives. They're popular for their travel-friendly format and customizable consistency. Powder face washes typically come in finely milled powder form and are activated by mixing with water to form a cleansing Paste or foam. They are usually formulated with gentle exfoliating ingredients such as Rice bran, baking soda, or enzymes derived from fruits like papaya or pineapple. These exfoliants help to remove dead skin cells, unclog pores, and leave the skin feeling smooth and refreshed. powder face washes are often favored by those with sensitive or acne-prone skin because they offer customizable exfoliation intensity. Users can adjust the amount of water added to control the texture and strength of the exfoliation. They have following benefits

- 1. Customizable Exfoliation:** Powder face washes allow you to control the intensity of exfoliation by adjusting the amount of water used. This versatility makes them suitable for various skin types and preferences.
- 2. Gentle on Skin:** Many powder face washes contain finely milled particles that provide gentle exfoliation without causing irritation or damage to the skin. This makes them suitable

for sensitive or delicate skin.

- 3. Deep Cleansing:** The powdery texture of these cleansers can effectively lift away dirt, oil, and impurities from the skin's surface and pores, leaving the skin feeling clean and refreshed.
- 4. Travel-Friendly:** Powder face washes are lightweight, compact, and don't spill easily making them ideal for travel or on-the-go use. They also eliminate the risk of leakage that can occur with liquid cleansers.
- 5. Long Shelf Life:** Since powder face washes are dry formulations, they have a longer shelf life compared to liquid cleansers. This means they can last longer without the risk of expiration or degradation of efficacy.
- 6. Environmentally Friendly:** Some powder face washes come in eco-friendly packaging, reducing the use of plastic and minimizing environmental impact compared to traditional liquid cleansers.
- 7. Versatility:** Powder face washes can be customized by mixing them with various liquids such as water, milk, yogurt, or honey to cater to different skin needs or preferences. This versatility allows for a personalized cleansing experience.
- 8. Targeted Formulas:** Many powder face washes contain additional beneficial ingredients such as vitamins, antioxidants, or botanical extracts tailored to specific skin concerns, such as hydration, brightening, or acne-fighting property.

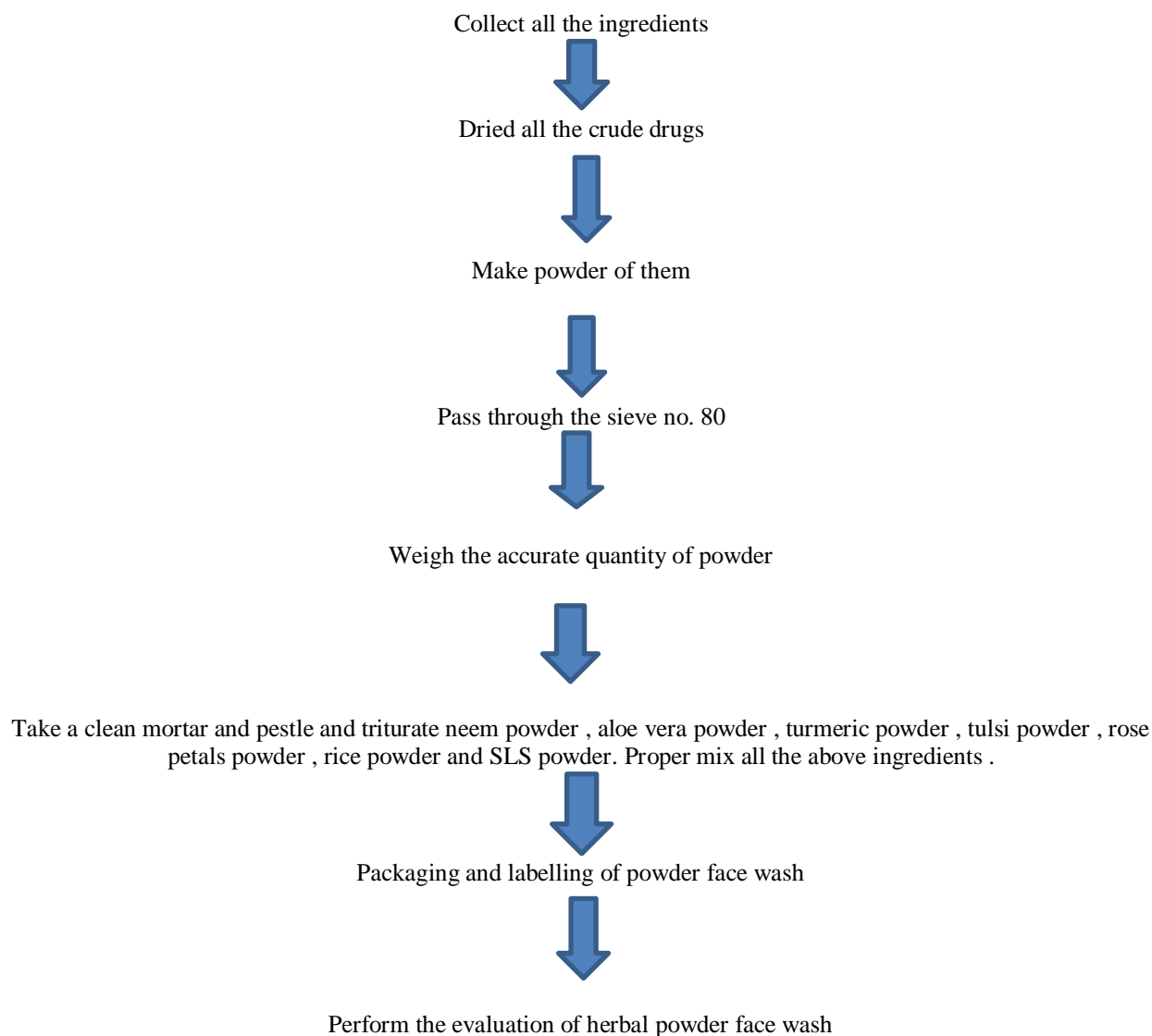
#### INGREDIENTS USED IN FORMULATION NEEM (*Azadirachta Indica*)

- **Kingdom :** Plantae
- **Division:** Magnoliophyta
- **Class:** Magnoliophyta
- **Order:** Spindale
- **Family:** Meliaceae
- **Genus:** Azadirachta
- **Species:** A.Indica
- **Chemical constituents:** Nimbinn, Nimbidin, Quercetin.
- **Uses:** Skin toner, lightens skin blemishes, remove blackheads.



**TURMERIC (*Curcuma Longa*)****Kingdom:** Plantae**• Division:** magnoliophyta**• Class:** Liliopsida**• Order:** Zingiberales**• Family:** Zingiberaceae**• Genus :**Curcuma**• Species:** C. Longa**• Chemical constituents:** Curcumin, Curcuminoids**• Uses :** Reduce acne, Glowing skin, Lightens skin.**Chemical constituent:** Aloinosides A and B, Anthraquinones**Uses:** Treats acne and scars, reduce wrinkle**Honey( *Apis mellifera*)****Kingdom:** Animalia **Class:** Insecta **Order:** Hymenoptera **Family:** Apidae **Genus:** Apis**Species:** A. mellifera**Chemical constituent:** Protein, carbohydrates, lipid, vitamins etc**Uses:** help with acne, soothe irritated skin, and hydrate dry skin.**Aloe vera (*aloe perfolita* var)****Kingdom:** : Plantae **Division:** Spermatophyte **Class:** liliopsida**Order:** liliales**Family:** Aloaceae**Genus:** Aloe L**Species:** Aloe barbadensis mill**PREPARATION OF FACE WASH****Apparatus:** weighing balance, mortar and pestle, sieve no.80 **Formulation Table**

Sr. no	Ingredients	F1	F2	F3
1	Neem powder	3gm	3gm	2.5gm
2	Aloe vera powder	2.5gm	2gm	1.5gm
3	Turmeric powder	0.2gm	0.2gm	0.3gm
4	Honey powder	1.5gm	1.45gm	2gm
5	Sodium lauryl sulphate	0.8gm	0.5gm	1gm
6	Rice powder	1gm	2gm	1.5gm
7	Rose petals	1gm	0.8gm	1.2gm

**Procedure****Evaluation Parameter : Organoleptic evaluation**

Types of evaluation	Parameter	Observation
Organoleptic properties	Colour	Yellowish green
	Odour	Characteristics
	Consistency	Powder like
	Homogeneity	Uniform

**Physicochemical assessment-**

Types of evaluation	Parameter	Observation
Physicochemical evaluation	pH	5

**Evaluation of performance –**

Types of evaluation	Parameter	Observation
Performance evaluation	Washability	Washable
	Foamability	Foam appears
	Spredability	Pass

**Irritation test on skin**

Types of evaluation	Parameter	Observation
Skin irritation	Irritation	No
	Itching	No
	Redness	No
	Pain	No

**CONCLUSION:**

The herbal powder facewash is one of the most well demanded products for daily facial care. It can definitely provide all the essential nutrients required for healthy skin functioning. Desired formulation of facewash was prepared and evaluated for their various parameters like organoleptic parameter, Physicochemical evaluation, Performance evaluation, Skin irritation test, Microbial evaluation and Stability studies. Three batches are formulated amongst which batch F1 show compatible results. So, from the above studies it was concluded that the prepared formulation can be effectively used for facial care.

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