

Formulation and Evaluation of Polyherbal Shower Gel: A Natural Skin Care Solution

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Publication Date: 2025/03/12

Abstract: Herbal treatments are becoming more and more popular worldwide for both health and financial reasons because natural therapies are frequently seen to be safer and have less negative effects than manufactured ones. However, questions remain regarding these items efficacy, safety, and quality are found in both industrialized and poor nations. We usually clean ourselves using body wash, a liquid substance, as part of our personal hygiene routine. In order to avoid the many health issues that might result from poor cleanliness, proper hygiene is crucial. Because they can offer several advantages in a single product, herbal body washes that use natural components are said to be more affordable than conventional ones. Herbal body washes are a viable and environmentally responsible substitute for conventional cleaning products because of their natural ingredients.

Keywords: Skin Nourishing, Cleaning Skin, Biodiversity, Fragrance.

How to Cite: Rinky Gupta; Rajashree Nikam; Dr.Pravin. N.Sable. (2025). Formulation and Evaluation of Polyherbal Shower Gel: A Natural Skin Care Solution. *International Journal of Innovative Science and Research Technology*, 10(2), 2026-2031. <https://doi.org/10.5281/zenodo.14987783>

I. INTRODUCTION

The body's outermost layer, the skin, serves as the body's first line of defence against a variety of illnesses and damaging environmental elements. The skin is vulnerable to harm because of its continuous exposure to the environment. Scar tissue frequently forms as a result of serious skin damage, which occasionally have lighter colouring or discoloration. People have been using plants to cure diseases and wounds for millennia. Natural components used to make organic body washes help moisturize, nourish, and cleanse the skin without irritating or drying it out. Because of the mild yet potent nature of these plant-based ingredients, organic body wash is a fantastic option for people with sensitive skin or anyone who would rather stay away from harsh chemicals and artificial aromas in their personal care products.

To clean the body, body wash is frequently used. It is highly useful because it is light, easy to rinse off, and may be applied with a shower puff or loofah. Ayurvedic body washes have been used for generations in India and provide advantages beyond simple washing. These body cleansers assist maintain clear, healthy skin by containing antimicrobial and nourishing components. Nonetheless, natural body cleansers that cleanse and hydrate the skin without the use of extraneous substances that can irritate it are available in India.

➤ Benefit

- **Gentle on the skin:** Compared to synthetic chemicals, natural substances like aloe vera, chamomile, lavender, and tea tree oil, which are frequently used in herbal shower gels, are far kinder to the skin. **Nourishing and Hydrating:** Plant-based oils and extracts included in many herbal shower gels aid in hydrating and nourishing the skin. components such as olive oil and coconut oil.
- **Antioxidant Properties:** Rich in antioxidants, herbal ingredients such as chamomile, aloe vera, and green tea help shield the skin from damage caused by free radicals.
- **Antibacterial and Antifungal:** Tea tree oil, neem, and eucalyptus are a few examples of natural antibacterial and antifungal compounds found in some herbal shower gels. These can aid in complete skin cleansing, body odour prevention, and infection prevention.
- **Natural Fragrance:** Essential oils made from plants, flowers, and herbs are frequently used to scent herbal shower gels. **Free of Harsh Chemicals:** Unlike traditional shower gels, herbal shower gels usually don't include harsh chemicals like parabens, sulphates, or phthalates, as well as artificial colours and smells. They are therefore a more environmentally responsible and safe option.
- **Suitable for All Skin Types:** Due to the natural components used in herbal shower gels, they are typically appropriate for all skin types, including

sensitive, dry, and oily skin. They can offer a mild washing without depleting the skin's natural lipids.

- Soothing and soothing: Herbal shower gels are a wonderful choice for people with sensitive skin or eczema since ingredients like lavender, chamomile, and rose can help soothe inflamed skin, reduce inflammation, and have a soothing effect.

II. OBJECTIVE

The goal of A herbal shower gel is to use plant-based components to cleanse the skin in a gentle, efficient, and natural way while also providing extra skincare benefits.

- The following are the primary goals of using A herbal shower gel:

- ✓ Mild cleaner
- ✓ Hydrating and nourishing
- ✓ Protecting the skin
- ✓ Promoting Skin Health
- ✓ Calming and soothing
- ✓ Devoid of harsh chemicals
- ✓ Sustainable and Eco-friendly
- ✓ Improving the Shower Experience
- ✓ Harmonizing the PH

III. SKIN OVERVIEW

➤ Skin

The largest organ in the body, the skin accounts for about 15% of an adult's total body weight. It protects the body from the physical, chemical, and environmental elements, keeps the body from losing too much water, and regulates body temperature, among other things.

- Skin components include:

- ✓ The epidermis
- ✓ The dermis
- ✓ Appendages of skin
- ✓ Fat beneath the skin

- Epidermis: In ascending order of layering, the epidermis consists of four layers: the stratum corneum, stratum spinosum, stratum granulosum, and basal cell. starting on the outside of the stratum corneum and going all the way to the dermal junction with the basal cell layer. It acts as a barrier to prevent microbial penetration.
- Basal Cell Layer: The undifferentiated, proliferating cells are referred to as basal cells. Skin stem cells are located in the basal layer of the interfollicular epidermis and give rise to keratinocytes. In order to preserve skin homeostasis, daughter cells from the basal cell layer normally migrate upward and begin the differentiation process.
- Spinosum Stratum: The stratum spinosum, which sits above the basal layer, is composed of keratinocytes that develop from the basal cells underneath them. Keratin,

a fibrous protein made by keratinocytes, is the primary constituent of the horny stratum corneum.

- Granulosum Stratum: These cells are found in a thin layer of the epidermis. Granular cells, which are keratinocytes, move from the stratum spinosum underneath. These contain protein structures and keratohyalin granules that promote hydration and keratin cross-linking.
- The Stratum Corneum: Keratin is abundant in the large, flat, polyhedral, plate-like cells that comprise the stratum corneum. The thickness of the vertical layers that form them varies; on most body surfaces, there are 15 to 25 layers, but on the palms and soles, there may be up to 100 layers. It is the function of the stratum corneum to form a barrier that protects the underlying tissue from harm, dehydration, pollutants, and mechanical strain.

➤ Dermis

The dermis is a strong yet pliable layer of support that contains blood vessels, nerves, and cutaneous appendages. It is physiologically active and preserves structural integrity by interacting with and managing cell processes.

- *The Dermis's Structural Elements include:*

- ✓ Collagen
- ✓ Elastic fibres
- ✓ he matrix of extrafibrillar

The dermis ranges in thickness from 1 to 4 mm. The bulk of the dermal matrix is composed of ground material, collagen fibers, and elastic fibers produced by dermal fibroblasts. Collagen makes about 70% of the dry weight of the skin. The strong yet pliable skeletal matrix is made up of elastic fibers and collagen, two fibrous proteins.

➤ Skin Appendages

These are structures that are attached to the skin and serve specialized functions such heat loss, lubrication, contractility, and sensation. Among the most common skin appendages in humans are hairs, sebaceous glands, nails, and arrector cilia.

- *The following are Examples of Skin Appendages:*

- ✓ Hair Follicle
- ✓ Sebaceous Glands
- ✓ Eccrine Sweat Glands
- ✓ Apocrine Sweat Glands
- ✓ Nails

➤ Fat Subcutaneous

A layer of subcutaneous fat lies between the dermis and the underlying fascia. It shields the body from the cold, acts as a cushion against blunt injury, and gives the body a store of energy.

➤ *Functions of Skin*

- **Protective function:** The body's first line of defence is the skin. It protects our body from harmful UV radiation, pollutants, and illnesses.

The skin is a sensory organ that helps with the experience of touch, heat, cold, and discomfort. These sensations can cause either voluntary movement or regurgitation.

- **Secretory function:** Sweat helps regulate body temperature, while sebum smoothes skin. The function of heat regulation The regulation of body temperature is aided by cutaneous blood flow and perspiration.
- **Excretory function:** The secretory gland expels urea, salt, water, and fatty substances. **Synthetic function:** Vitamin D is naturally produced by the skin using sunlight. The pigment that the skin produces is called melanin.
- **Water balance:** One method the skin regulates the body's water balance is by sweating. **Blood supply:** Eight to ten percent of the blood is stored there.

➤ *Excipient Profile*

- **Neem Powder:**

- ✓ **Biological name:** Azadirachta indica
- ✓ **Particle size and texture:** fine to coarse powder
- ✓ **Colour:** greenish to brown
- ✓ **Structure and shape:** fibrous or fragmented
- ✓ **Moisture content:** low, containing 5–10%
- ✓ **Chemical composition:** quercetin, azadirachtin, nimbi, and nimbi din
- ✓ **Solubility and dispersibility:** sparingly soluble in water

➤ *Applicability:*

- **Skincare Items:** Emulsification and exfoliation
- **Delivery of Active Ingredients**

➤ *Powdered Turmeric*

- **Biological name:** Curcuma longa
- **Particle size:** ranges from tiny to coarse.
- **Surface texture:** Unevenly curved
- **Colour:** orange to golden yellow
- **Strong, spicy, and earthy scent**
- **Chemical makeup:** turmerones, vitamins, and minerals, curcumin
- **moisture content:** low and includes
- **Chemical activity:** anti-inflammatory, antioxidant, and antibacterial and antifungal effects; solubility: mildly soluble in water

➤ *Honey*

- **Biological name:** Mel, Madhu, and Madh

Biological origin Many bee species, including *Apis mellifera*, *Apis dorsa*, *Apis florum*, *Apis indica*, and other *Apis* species belonging to the family *Apidae* (Order: *Hymenoptera*), store honey, a viscid and sweet secretion, in their honey combs.

- **Chemical components:** Levulose (fructose) 30–47%, Dextrose 23–36%, and Moisture 14–24% Dextrin and gums 0–7%, sucrose 0.4–6%, and ash 0.1–0.8%.

- **Use:**
- Honey Lightens Hyperpigmentation and Scars
- Honey Fights Acne and Breakouts
- Honey Reduces the Signs of Early Aging

➤ *Glycerine:*

Because it functions as a humectant a chemical that aids in the skin's ability to retain moisture glycerine is good for the skin. It can relieve dryness, increase skin moisture, and revitalize the skin's surface. Additionally, it softens the skin because it is an emollient.

- **Glycerine benefits include:** Hydrating the skin's outer layer, Relieving dry skin, Protecting the skin barrier, Exfoliating, Anti-aging, Smoothing the skin, Calming the skin Improving complexion.

➤ *Rose Powder:*

- **Biological name:** *Rosa centifolia*
- **Source:** dried rose petals

➤ *Rose Water:*

Moisturizes and hydrates, soothes irritated or swollen skin, Natural Toner, Diminishes Pimples and Acne, Evens and Brightens Skin Tone, Diminishes Dark Circles and Puffiness, Protects Against Antioxidants

➤ *Aloe Vera Gel:*

Several benefits, including being calming, moisturizing, anti-inflammatory, antibacterial, and antifungal.

➤ *Benzoate of Sodium:*

- **Chemical Characteristics:**
- **Molecular Weight:** 144.11 g/mol
- **Solubility:** It dissolves in alcohol and water (about 1 g/1 mL at 20°C).
- **PH:** In an acidic environment (pH 7 or lower), sodium benzoate works well as a preservative.
- **Stability:** It is stable in typical storage circumstances, but when exposed to high temperatures and ascorbic acid (vitamin C), it can decompose into benzene, which is problematic for food goods.
- **Look:** A granular solid or white, crystalline powder.
- **Odor:** Sodium benzoate has a subtle, pleasant smell that is characteristic of benzoic acid.

➤ *Formulation Table*

The process of formulating a 50 ml herbal shower gel include choosing the right components to offer skin

benefits, cleansing, and moisturizing while preserving the ideal texture and stability

Table 1 Formulation Table

INGREDIENT	FUNCTION	QUANTITY
Neem Powder	Antioxidant, Anti Inflammatory	3gm
Turmeric Powder	Reduce irritation and promoting skin	3gm
Honey	Lighting hyperpigmentation, smoothing skin	2ml
Rose water	Skin smoothing, Hydration fragrance	3ml
Glycerine	Humectant, moisturizer	2ml
Cocamidopropyl betaine	Surfactant, foaming agent, mild cleanser	5ml
Xanthan gum	Thickener, stabilize	0.5g
Rose powder	Skin smoothing, hydration	3g
Aloe vera gel	Reduces inflammation, and dark circle	0.5g
Water	Solvent, bae for formulation	Up to 50ml

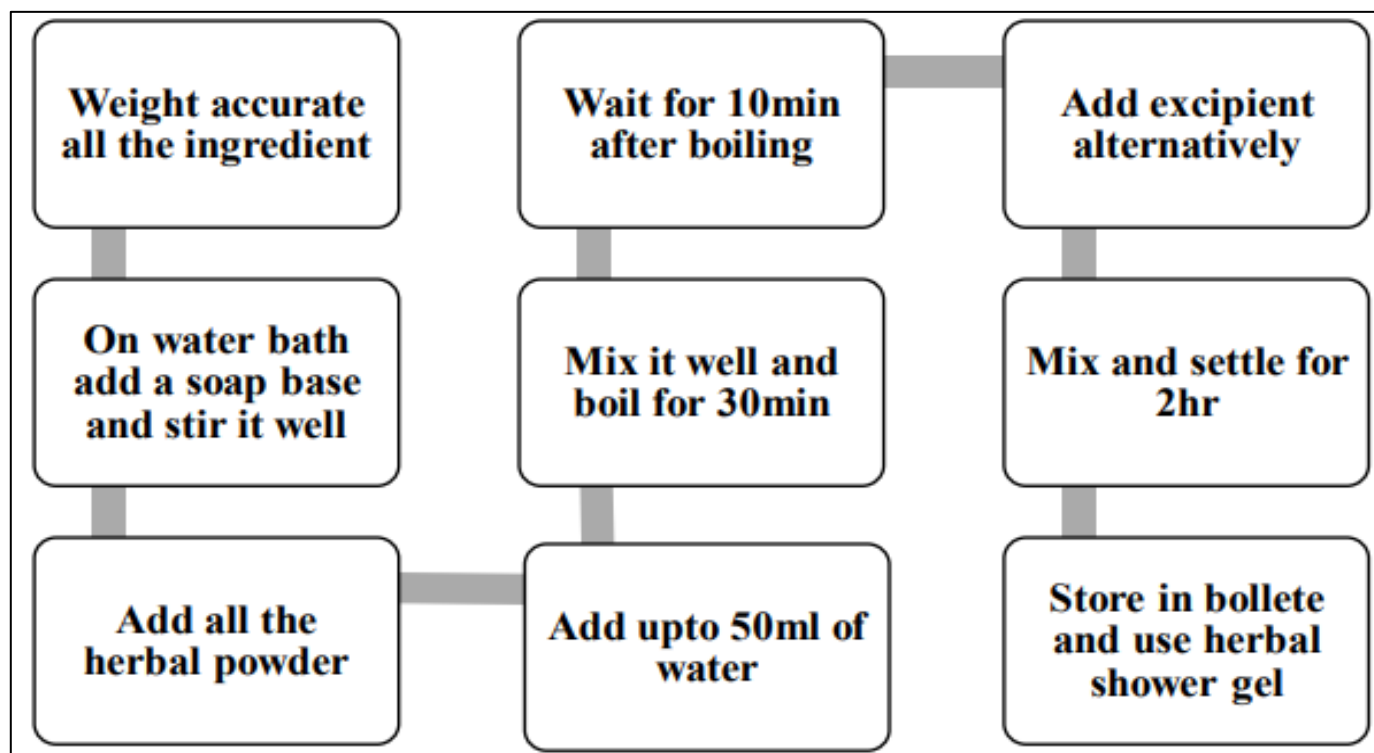
➤ *Method of Preparation*

Fig 1 Method of Preparation

➤ *Evaluation Test:*

- **Skin Sensitivity Teat (Patch Test):** Apply a small amount of soap on a patch of skin (preferable on the inner elbow or wrist) and leave if 24hr. If there is no irritation, redness, or itching, the soap is safe for general use.
- **Determination of Clarity:** colour, and odour were determined by comparing them to a white backdrop with the naked eye. Odor was determined by sniffing.
- **PH level Test:** Use pH test strips or a digital pH meter to measure the soaps ph. A pH level between 4.5 to 6 is ideal for herbal shower gel. If the soap pH is too high or low, it may irritate the skin.
- **Moisturization Test:** Wash your hand or skin with the herbal shower gel and check your skin feel moisturized

pr dry after use. Herbal shower gel should provide moisture and not strip the skin of natural oil. Id the skin feels tight or dry, the herbal shower gel may need more moisturizing ingredients.

- **Herbal Efficacy Test:** After regular use (1-2 weeks), check for improvement in skin condition such as acne, dryness, or irritation, depending on the herbal used Te herbal shower gel should show visible benefits based on its herbal ingredient. If the soap does not show improvement in the skin condition, its efficacy may need to be reassessed.
- **Foam Height Test:** A 0.5 ml bodywash sample was dissolved in 25 millilitres of purified water. After that, it was put into a 100 ml measuring cylinder, and water was added to bring the volume up to 50 ml. After twenty-five

strokes, the aqueous volume was left to stand. measured up to 50 millilitres, and measurements were made of the foam height above the aqueous volume.

- Viscosity testing: A Brookfield viscometer was used to test the formulation's viscosity.

IV. RESULT

➤ *The herbal shower gel composition successfully cleanses the skin while adding advantages to ensure skin health and performance.*

- **Appearance:** The herbal shower gel exhibited a Brown colour, which is attributed to the mixture of Ayurvedic herbs. It had a smooth and even texture, with slight yellowness
- **Texture:** The herbal shower gel had a smooth and nourishing texture, with gentle exfoliating properties.
- **Fragrance:** A mild floral, and earthy scent was observed due to the essential oil and herbal powders, making it pleasant for regular use.
- **Cleansing Properties:** The herbal shower gel effectively cleansed the skin, removing dirt, oil, and impurities without stripping away natural moisture.
- **Lather Formation:** A rich and creamy lather was formed during use, ensuring effective cleansing and user satisfaction.
- **pH level:** The pH of gel was found to be 5 which is skin friendly and measure compatibility with most skin types.
- **Moisturization:** after use, the skin felt hydrated and soft, with no signs of dryness or lightness. This can be attributed to the presence of almond oil, glycerine, and vitamin E oil.

V. CONCLUSION

In contrast to conventional shower gels that contain numerous synthetic components that could damage the skin's natural tone, the project's goal was to develop and test a herbal shower gel. Along with other essential elements, natural substances such as neem powder, turmeric powder, aloe vera, and rose powder were used to create the new shower gel. The gel's appearance, colour, viscosity, pH level, odour, consistency, greasiness, and skin-spreading ability were all evaluated. The shower gel passed every test and demonstrated good cleaning results comparable to those of commercial goods. These findings suggest that this herbal shower gel can be a suitable substitute for body washes that contain chemicals, and it ought to be further standardized for use

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