International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Formulation and Evaluation of Herbal Dry Powder Shampoo

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ABSTRACT

In recent years, herbal cosmetics have gained significant popularity over synthetic alternatives due to growing awareness of the harmful effects associated with chemical-based products. Synthetic shampoos, which often contain artificial ingredients, may lead to adverse reactions such as hair damage, scalp irritation, and eye discomfort. In contrast, herbal formulations provide a safer and more natural alternative for hair care. The current study focuses on the development of a herbal dry powdered shampoo formulated using traditional medicinal plants known for their beneficial effects on hair and scalp health. The ingredients selected for this formulation include reetha (*Sapindus mukorossi*), amla (*Emblica officinalis*), aloe vera (*Aloe barbadensis miller*), neem (*Azadirachta indica*), henna (*Lawsonia inermis*), bhringraj (*Eclipta alba*), Ashwagandha (*Withania* somnifera) and shikakai (*Acacia concinna*). These herbs are well documented in Ayurvedic texts for their cleansing, antimicrobial, antifungal, conditioning, and hair strengthening properties. The powdered form of shampoo provides a convenient, waterless alternative for hair cleansing, making it especially useful for travel and areas with limited water access. The formulation process required meticulous drying, grinding, and mixing of the chosen herbal ingredients in the correct proportions. The final product was evaluated for organoleptic properties, pH, foaming ability, cleansing efficiency, and safety through laboratory testing. Results indicated that the herbal dry shampoo is effective in removing excess oil, reducing dandruff, strengthening hair roots, and minimizing hair fall without causing irritation. This herbal dry shampoo represents a promising natural solution for individuals seeking eco-friendly and safe hair care alternatives, combining traditional wisdom with modern formulation techniques.

Keywords: Hair , Herbal dry powder shampoo, Poly herbal shampoo, hair care , anti dandruff, skin irritation, foaming, cleaning, evaluation.

INTRODUCTION

Hair is regarded as a crucial element in defining human beauty and individuality. Having healthy, strong, and lustrous hair not only improves physical appearance but also boosts a person's confidence and self-esteem.[1] In the modern era, where lifestyle, pollution, and stress-related factors significantly impact overall well-being, ensuring healthy hair has become a significant concern for numerous individuals. Hair care is an essential aspect of personal hygiene and grooming, and the market is flooded with various types of hair care products designed to serve different needs such as cleansing, conditioning, nourishing, coloring, and treating scalp issues.[2]

Hair care products can be grouped into various categories, including shampoos, conditioners, serums, oils, masks, and sprays. Among the various products, shampoos hold a significant role as the primary cleansing agent.[3] Shampoos have undergone significant changes over time and are now available in various forms, such as clear liquids, lotions, gels, and powders. However, most of the commercially available shampoos contain synthetic ingredients such as anionic, cationic, and non-ionic surfactants, preservatives, fragrances, and chemical thickeners. While these chemical-based shampoos offer quick cleansing and good foaming, prolonged use can lead to several side effects such as hair fall, scalp irritation, dryness, premature graying, and even damage to the eyes.[4,5]

Types of shampoo[6]

- Powder Shampoo
- Liquid Shampoo
- Lotion Shampoo
- Cream Shampoo
- Jelly Shampoo
- Aerosol Shampoo

Categories of shampoo

- Specialized Shampoo
- Conditioning Shampoo
- Anti-dandruff Shampoo
- Baby Shampoo
- Scalp care Shampoo
- Detox Shampoo

The rising consciousness of these harmful consequences has led to a surge in the demand for natural and herbal remedies. In today's society, individuals are increasingly aware of the substances they use on their skin and scalp, and they are actively searching for safer, chemical-free alternatives. The popularity of herbal cosmetics has skyrocketed as people are drawn to their perceived safety, minimal side effects, and the holistic benefits they provide. Herbal shampoos, in particular, are becoming increasingly popular as they blend traditional wisdom with contemporary convenience.[7]

In light of the changing consumer preferences, our project centers around the development and assessment of a herbal dry powder shampoo. This dry shampoo is developed using a blend of time tested Ayurvedic herbs such as reetha (aritha), amla (Indian gooseberry), aloe vera, neem, henna, bhringraj, and ashwagandha. These herbs are well-known for their healing and beautifying qualities and have been utilized in traditional Indian medicine for centuries to address a range of hair and scalp issues.

Each component has been chosen for its particular advantages:[8,9]

- Reetha functions as a natural purifier and lathering agent.
- Amla fortifies hair roots and stimulates hair development.
- Aloe vera calms the skin and hydrates.
- Neem offers protection against fungal and bacterial infections.
- Henna treatments condition the hair and intensify its natural hue.
- Bhringraj rejuvenates the scalp and averts premature graying.

- Ashwagandha aids in the reduction of stress-induced hair loss.

The formulation provides a hassle-free cleansing alternative that is particularly beneficial for individuals who are constantly on the move, people residing in areas with limited water supply, or patients who are recommended against frequent wet hair washing. It efficiently eliminates excess oil, dirt, dandruff, and pollutants from the scalp while providing nourishment to the hair and preserving its natural shine and strength.[10]

This article explores into the process of creating, assessing, and highlighting the advantages of our herbal dry powder shampoo, presenting a sustainable, environmentally friendly, and health-conscious substitute for conventional hair care products care.

Herbal dry shampoo available in market

The many herbal dry powder shampoos are readily available in the market, because of the increasing demand for natural and waterless hair care options. Brands such as forest essentials and kama Ayurveda provide traditional ayurvedic hair care products that utilize ingredients like reetha, amla, and shikakai to cleanse and fortify hair naturally. Juicy chemistry offers a natural alternative with arrowroot and cocoa powder, perfect for absorbing oil and refreshing the scalp. Earth rhythm and mamaearth prioritize plant-based, scalp-friendly powders that are ideal for oily hair, while rustic art provides a zero-waste, eco-friendly alternative made from soapnut, neem, and hibiscus. These products emphasize a move towards environmentally-friendly and chemical-free hair care routines.[11]

MATERIAL AND METHODS

Collection of plants

The dried plants were obtained from the local markets , Bhavnagar. These plants are then made into powdered form and stored in air tight containers until it is further used in the formulation.

Preparation of Herbal Shampoo Powder[12]

Drying

All the powder are in dry form and grinded.

Weighing

All the required herbal powders for shampoo preparation were weighed individually.

Size reduction

The crude ingredients were collected and these ingredients were size reduced using hand driven mixture individually.

Sieving

Then this fine powder was passed through sieve no.: 80 to get the sufficient quality of fine powder.

Mixing

All these fine ingredients were mixed throughly by mixture to form a homogenous fine poeder.

LITERATURE REVIEW OF HERBS

1. Reetha

Synonym: Soapnut, Washnut, Aritha

Biological Source: Reetha consists of dried fruits of *Sapindus mukorossi*, belonginging to the family Sapindaceae.

Organoleptic Properties:

Colour: Dark brown to black
Odour: Characteristic
Taste: Bitter
Chemical Constituents: The main constituent of Reetha is saponins. Other constituents include: Sopinic acid, Oleanolic acid, Sapindoside A & B, Mukoroziosides, Trifolioside.
Uses:
Reetha is a primary ingredient in soaps and shampoo, promoting hair health.
It helps in removing lice due to its mild insecticidal properties.
Acts as a natural cleanser and surfactant.
Used in the treatment of eczema, psoriasis and freckles.
Known for its antimicrobial properties.[13,14,15]

Fig.1 : Reetha

2. Amla
Synonym: Awla, Indian gooseberry, Embelic
Biological source: Amla is the dried or fresh fruit of *Emblica Officinalis* belonging to the family Phyllanthaceae
Organoleptic Properties:
Colour: Greenish-yellow
Taste: Astringent, sour, slightly sweetofter taste
Shape: Globular or Round
Chemical Constituents: Primary active constituent Vitamin C (ascorbic acid), Tannins (Emblicanin A and B, Galic acid, Ellagic acid, Chebulagic acid), Flavonoids (Quercetin, Kaempferol, Luteolin), Alkaloids, phyllantidine, phyllantin, polyphenols, catechins, ratin, Carotenoids (Beta-carotene, Pectin, minerals.
Uses:
Strengthens hair follicles and stimulates growth by improving blood circulation to the scalp
The anti-oxidants in amla help reduce oxidative stress, which weakness hair.
Amla maintain natural hair colour by reducing melanin loss, anti-bacterial, anti-fungal, it help clear dandruff and sooth the itchy scalp.[16,17]

Fig.2 : Amla

3. Aloe vera

Synonym: Ghrit kumari, Kuvarpathu, Kumari, Lily of the desert

Biological source: Aloe vera consists of the fresh or dried leaves and gel obtained from the plant *Aloe barbadensis miller* belonging to the family Asphadeloceae (formerly liliaceae)

Organoleptic properties:

Odour: Mild, Slightly herbal, Earthy

Taste: Bitter and slightly astringent

Texture: Gel like slightly mucilaginous

Colour: Outer leaf (green), Inner gel (Transparent or slightly milky white), Aloe latex (yellow to yellowish brown)

Chemical constituents: Aloin (barbaloin), Aloi emodin, Acemannam, Emodin, Bela sitosterol, Anthraquinones, Saponins, Vitamins (A, C, E, B12), enzyme (amylase, lipase, cellulose) Minerals.

Use:

Burns and sunburn, eczema, psoriasis, fungal infection, dry skin, cracked skin, relives itching, anti inflammatory agent, cure stomach & intestinal problems, promotes hair growth, reduce dandruff, natural conditioner, keeping hair hydrated, soft shiny prevent hair fall.[18,19]

Fig.3 : Aloe vera

4. Neem

Synonym: nimtree, Indian lilac

Biological source: Neem consist of the fresh or dried leaves and seed oil of *Azadirachta indica*.

Organoleptic properties:

Colour: yellowish brown (oil), green (leaves), brownish (bark)

Taste: Extremely bitter

Smell: strong, pungent, slightly garlic like.

Chemical constituent: Azadirectin, Nimbin, Nimbidin, Salannin and other chemical constituent; Flavanoids, Glycoside, Fatty acid, Tannins.

Uses:

Anti fungal, anti bacterial, anti malarial to treat skin infection.

Acne, wounds healing, anti pyretic, anti inflammatory-arthritis, joint pain, analgesic,

Anti diabetic-regulate blood sugar levels.

Anti dermatophyte, treat dandruff and scalp infection, promote hair growth.[20,21]

Fig.4 : Neem

5. Henna

Synonym: Egyptian Privet, Lawsonia Alba

Biological Source: Henna consists of the fresh or dried leaves of *Lawsonia inermis*, belonging to the family Lythraceae.

Organoleptic Properties:

Colour: Greenish brown

Odour: Characteristic

Taste: Bitter

Chemical Constituents: Lawsone, Gallic Acid, White resin, Sugars, Tannins, Xanthene, Pinens, Glycosides: Hemoside (A, B & C)

Uses:

Promote Hair Growth- The natural compounds in henna nourish the scalp and stimulate hair growth.

Reduce Hair Fall- When used in hair dye or shampoo, it strengthens hair follicles and reduces hair fall.

Deep Conditioner- Henna acts as a natural conditioner, leaving hair soft and healthy.

Prevents Dandruff- Regular use helps eliminate dandruff and prevents its recurrence.

Repairs Split Ends- Henna deeply conditions dry and damaged hair, reducing split ends and improving hair texture.[22,23]

Fig.5 : Henna

6. Bhringraj

Synonym: Bhangra, Maka, Markava.

Biological Source: Shikakai consists of the dried fruits of *Acaciaconcinna*, belonging to the Fabaceae family.
Organoleptic Properties:
Colour: Dark brown
Odour: Characteristic
Chemical Constituents: Stigma sterol, Acacia acid, Lactone, Glucose, Arabinose
Uses:
Promotes Healthy Hair- Shikakai enhances hair health, making it strong, beautiful and bouncy.
Nutrient Rich- Contains Vitamin D, E, K and antioxidants essential for hair growth.
Strengthening & Conditioning- Used in shampoo and hair treatments for its natural hair strengthening and conditioning properties.[24,25,26]

Fig.6 : Bhringraj

7. Ashwagandha
Synonym: Indian ginseng, winter cherry, poison gooseberry, ajagandha
Biological source: Ashwagandha consist of the dried mature roots of *Withania somnifera* belonging to family solanaceae.
Organoleptic properties:
Odour: Characteristic, strong, earthy
Taste: Bitter and slightly pungent taste.
Colour: Light brown to pale yellowish
Chemical constituent: Withaferin A, Withanolide A, B, D, G, Withanone, other chemical constituents Alkaloids, Saponins, Flavonoids and Phenolic compounds
Use:
Ashwagandha helps reduce hair fall caused by stress and hormonal imbalance by lovering cortisol.
It boosts blood circulation to the scalp and strengthens hair follicles, leading to thicker and healthier hair.
It nutrients help reinforce hair strength making it less prone to breakage and split ends.
Anti-inflammatory and anti microbial property help sooth scalp irritation, control dandruff and prevent scalp infection.[27,28]

Fig.7 : Ashwagandha

8. Shikakai

Synonym: Saptala, Virala, Tatphala.

Biological source: Dried fruits of *Acacia concinna* belonging to family Fabaceae.

Organoleptic properties:

Odour: Characteristic

Colour: Dark brownFig.8 Shikakai Chemical constituent: The

Chemical constituent : of shikakai are, Spinosterol, Acacia acid, Lactone, Glucose, Arabinose.

Use:

Shikakai gives healthy, beautiful and bouncy hair causes you to look beautiful.

It is rich in antiophthalmic factor, D, E and K and other antioxidants which very essential for healthy and quick growth of hair naturally.

Shikakai is employed in many shampoos and hair medicines for its hair strengthening and conditioning properties.[29,30]

Fig.8 : Shikakai

Table no.1 : Formulation

Sr. No	Ingredient	F1	F2	F3
1.	Reetha	1.5 gm	1 gm	2 gm
2.	Amla	2 gm	2 gm	1.5 gm
3.	Aloevera	1.5 gm	2 gm	1.5 gm
4.	Neem	1 gm	1.5 gm	1.5 gm
5.	Henna	1.5 gm	1.5 gm	1 gm
6.	Bhringraj	1.5 gm	1.5 gm	1.5 gm
7.	Ashwagandha	1.5 gm	1.5 gm	1 gm
8.	Shikakai	1.5 gm	1 gm	2 gm

EVALUATION PARAMETER:

Organoleptic evaluation:

Organoleptic evaluation at the parameters like shade, Odour, flavor and texture become achieved. Shade and texture turned into evaluated through vision and touch sensation respectively. For taste and odour evaluation a team of 5 taste and odour sensitive individuals turned into formed and random sampling turned into executed.[31]

General powder characteristic:

The evaluation of general powder characteristics is essential as the directly impacts external properties such as flow behavior, appearance and packaging suitability. Key parameters assessed under this category

include powder form, particle size, angle of repose and bulk density. These characteristics influence the handling and processing of the powder, ensuring consistency and quality in the final product.

For a comprehensive evaluation, samples are collected from three different sections-top, middle, and bottom- to account for any variations in properties throught the bulk material.

Particle size:

The particle size of poly herbal shampoo powder was determined by using microscopic method. Place the stage micrometer on the stage of the microscope and initially focus on lower power by positioning the object to the center of the object.

Focus the object, measure the size of each particle in terms of eyepiece division. Select two points one on left side other on right side. Calculation can be done by using calibration factor.[32]

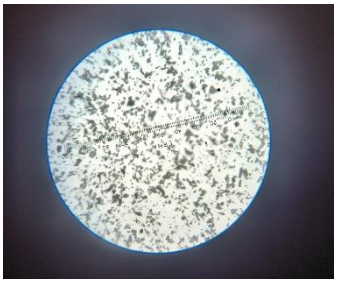

Fig.9 : Particle size determination

Angle of Repose:

The angle of repose is the maximum angle formed between the surface of a powder heap and the horizontal plane. It is a crucial parameter that helps determine the flow properties of the powder.

Funnel method, In this method, a specified quantity of dried powder is placed in a funnel positioned 6 cm above a flat surface. The powder is allowed to flow freely, forming a conical heap on the horizontal base. The height (h) and radius of the formed heap are measured.

Alternatively, the dried powder can be placed in a cylindrical tube open at both ends and positioned on a flat surface. The funnel is then lifted to allow the powder to form a heap, after which the height and radius of the heap are recorded.

For both methods, the angle of repose (theta) is determined using the following formula:

Theta = tan-1(h/r)

Where, Theta = Angle of repose, h = Height of the heap, r = Radius of the base [33]

Bulk density:

Bulk density refers to the ratio of a given mass of powder to its bulk volume. It is an important parameter that influences packaging, storage, and flow properties.

A specific quantity of dried powder is placed into a 50 ml measuring cylinder, filling it up to the 50 ml mark. The cylinder is then tapped on a hard wooden surface from a height of 1 inch at 2 second intervals. After tapping, the final volume of the powder is recorded, and the powder is weighed. This process is repeated multiple times to obtain an average value.

The bulk density is determined using the following formula:

Bulk density = Mass of powder (g) / Bulk volume (ml) [34]

Tapped density:

Tapped density refers to the increased bulk density achieved after mechanically tapping a container holding the powder sample. This parameter helps assess the powder's compressibility and packing ability.

Initially, the volume or mass of the powder sample is recorded in a measuring cylinder. The container is then tapped mechanically for one minute, and subsequent readings are taken until minimal change in volume or mass is observed.

Tapped density is expressed in grams per cubic centimeter (g/cm3) and provides insight into powders ability to settle and pack efficiency.[34]

Carr's Index: carr's index measure of powder's compressibility, indicating its ability to flow and pack efficiently. It's calculated using the following formula:

Carr's Index= (Tapped Density-Bulk Density / Tapped Density) * 100

this index helps evaluate the powder's cohesiveness, where lower values indicate better flow property, while higher values suggest poor flowability and higher compressibility.[35]

Hausner's ratio:

Hausner's ratio is an indicator of powder flowability , calculated as the ratio of tapped density to bulk density. It is determined using the formula:

Hausner's ratio = Tapped Density / Bulk Density

A lower Hausner's Ratio indicates better flow properties, whereas a higher value suggests increased cohesiveness and poor flowability.[35]

Moisture Content:

Moisture content is a crucial factor in formulations, especially for herbal products, as excess moisture can lead to degradation due to environmental exposure.

A 2 g sample of the powder is placed in an oven and dried until two consecutive weight reading remain constant. The percentage of moisture content is than calculated on a weight-by-weight (w/w) basis.[35]

PHYSICOCHEMICAL EVALUATION:

1. pH Measurement

The pH of a formulation is an essential parameter that influences both its pharmaceutical properties and its effect on hair when used in shampoos.

A 1 g sample of powdered shampoo is mixed with 9 ml of distilled water. The pH of the resulting solution is measured using a pH meter at 37*C to ensure accurate assessment under physiological conditions.[36]

2. Solubility:

Solubility refers to a substance's ability to dissolve in a solvent. To evaluate this, 1 g of the powdered sample is accurately weighed and transferred into a beaker containing 100 mL of water. The mixture is stirred throughly and gently heated to enhance solubility. After cooling, it is filtered, and the remaining residue is weighed to determine the undissolved portion.[37]

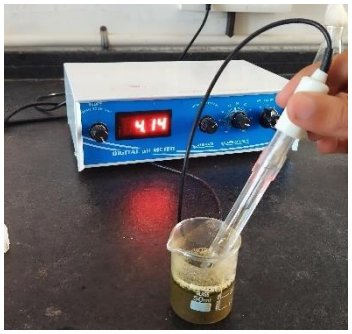

Fig.10 : pH measurement

3. Washability

The formulation is applied to the skin, and its ease of removal with water is assessed manually. This test helps determine how effectively the product can be rinsed off after application.[38]

4. Skin irritation test

This test assesses whether the herbal formulation causes any adverse reactions on the skin. The absence of synthetic surfactants in herbal formulations generally reduces the risk of irritation, which is often seen with chemical based products. Unlike synthetic surfactants, which can cause inflammation or corneal irritation, herbal ingredients are typically well-tolerated by the skin.[38]

5. Ash value

The ash value test determines the inorganic content present in the herbal formulation, which is a characteristic parameter for herbal materials. About 2 gm of the powdered sample is placed in a pre-weighed silica dish that has been previously ignited. The sample is then gradually heated without exceeding a red-hot temperature. Ones complete combustion occurs, the ash is cooled and weighed to determine the total ash content.[39]

6. Acid Insoluble Ash

Acid insoluble ash is determined to measure the presence of inorganic contaminants such as silica and other earthy materials. The total ash obtained from the previous test is boiled with 25 ml of diluted HCL for 5 minutes. The insoluble residue is collected in a Gooch crucible, washed with hot water, ignited, and weighed to determine the acid-insoluble fraction.[39]

7. Stability Study

The stability of the formulation is assessed by monitoring its organoleptic properties, such as odour and colour, over a defined storage period. The results indicate whether the product remains chemically and physically stable under storage condition.[40]

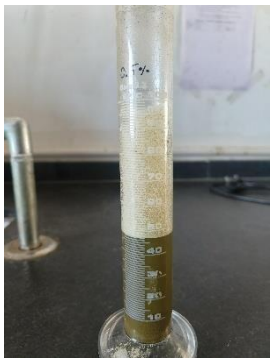

Fig.11 Stability Study

8. Hair condition after wash

The effect of the formulation on hair quality is evaluated through volunteer feedback. Participants report changes in hair texture, softness, and manageability after washing with the product.[41]

9. Foaming Ability and Foam Stability

The foaming properties of the formulation are assessed using a modified cylinder shake method:
A 1% shampoo solution (50ml) is placed in a 100 ml measuring cylinder and covered with a hand.
The cylinder is shaken for 1 min. , and the total foam volume is recorded.
The foam volume is observed over 5 minutes to assess its stability.

This test helps determine the formulation's ability to generate and retain foam, which is important for user experience and cleansing efficiency.[42]

Fig.12 Foaming ability and Foam Stability

10. Antimicrobial activity

The antimicrobial activity of the plant extracts was evaluated using the agar well diffusion method and compared with the optimized herbal shampoo powder formulation against the following staphylococcus(gram-positive bacteria)microorganisms: streptococcus.(gram-negative bacteria).The antimicrobial activity was performed using a culture grown at 37°c for 24hour. Fifteen milliliters of nutrient agar were poured into sterile petri dishes and allowed to solidify. Two hundred microliters of the suspensions were evenly distributed on the agar plates using a sterile glass spreader. Our sample was dissolved in 1 ml of di methyl sulfoxide (DMSO) and then, 100 µl to 400µl of sample was added to the appropriate wells in the petri dishes separately. The wells were then incubated at 37°C for 24 hours. The experiment was conducted, and the average zone of inhibition was calculated.[43]

Fig.13 : Antimicrobial activity

Table no.2 : Organoleptic/ Visual appearance

Sr. No	Test	Observation
1.	Colour	Olive green
2.	Odour	Vanilla sweet
3.	Texture	Fine and Smooth

Table no.3 : General powder characteristics

Sr.no	Test	Result
1.	Particle Size	2.12 micrometer
2.	Angle of Repose	$40^o46''$
3.	Bulk Density	$0.631gm/cm^3$
4.	Tapped Density	$0.67\ gm/cm^3$
5.	Carr's Index	6.3

Table no.4 : Physiochemical evaluation

Sr. No	Test	Result
1.	pH	4.14
2.	Washability	Easily washable
3.	Solubility	Insoluble in water
4.	Skin irritation test	No irritation
5.	Ash Value Acid insoluble Total ash Count	0.43%W/W 7.8%W/W 11.9%W/W
6.	Stability Study	Stable
7.	Moisture Content	5.4%W/W
8.	Nature of hair after washes	Soft Manageable
9.	% Foaming capacity	90%
10.	Antimicrobial activity	Antimicrobial (ZOI is 2.2 to 2.3 mm)

.

RESULTS AND DISCUSSION

The herbal dry powder shampoo was prepare by using fine powder of Reetha, Amla, Aloevera, Neem, Henna, Bhringraj, Ashwagandha and Shikakai in different concentration or amount. The all formulation were given in table no.1. These formulations were prepared by using mixing in ascending order by weight and with continuous trituration. This all preparations was evaluated organoleptic which is shown in table no. 2. The results shows a olive green colour. The normal powder characteristics of formulation was evaluated and show in table no. 3. The ash values in (%W/W). Moisture content was calculated. The pH was found to be 4.14 which is show in table no. 4.

Market advantage's

Our herbal dry powder shampoo possesses several market advantages over current herbal dry powder shampoos. Unlike most conventional products that solely concentrate on cleansing, our dry powder shampoo is designed to address both scalp health and cosmetic appeal, providing oil absorption, dandruff control, and natural hair conditioning in a single formulation. While brands like forest essentials and kama ayurveda focus on heritage and luxury, our dry powder shampoo offers an affordable, versatile solution for everyday use. In contrast to the vibrant chemistry and earth rhythm, our dry powder shampoo shines with a distinct herbal blend tailored to the needs of Indian hair and weather conditions. Moreover, its environment-friendly and travel-friendly design caters to the increasing demand for sustainable and

convenient hair care, making it a practical choice for individuals with busy schedules and regions facing water scarcity.

CONCLUSION

Herbs or medicinal plants used in the formulation of herbal dry powder shampoo were found as rich source of hair nutrients and hair care property. The preparations were formulated by using reetha, amla, Aloevera, neem, henna, bhringraj, ashwagandha, and shikakai has been reported for hair growth, as a oil remover(not natural), anti dandruff and conditioning. The various types of evaluation and quality control parameters were assessed. All the parameters showed positive outcomes for dry powder shampoo. The result obtained on present study shows that the active ingredient of these herbs were incorporated in herbal dry powder shampoo gives more stable products with aesthetic appeal with quality and attractiveness. The pH of the dry powder shampoo has been shown to be important for improving and enhancing the qualities of hair with minimizing the scalp or eye irritation and stabilizing the ecological balance of the scalp natural oil like sebum, oleic acid and omega 3 fatty acid, etc. The current trend to promote dry powder shampoo of lower pH is one of the minimizing damage to the hair scalp. Despite being in a dry form, the product has an excellent wetting capacity and is ideal for storage. The all evaluation parameters like organoleptic property evaluation, powder characteristics, physiochemical evaluation, foaming, nature of hair after wash was carried out and was found to be within the standard range.

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