International Journal of Pharmacy and Pharmaceutical Research (IJPPR)
Volume 30, Issue 10, October 2024 **ijppr.humanjournals.com** ISSN: 2349-7203

A Review on Dry Polyherbal Powder Shampoo

Divya K. Chavan*, Bhagyashri G. Shelar, Shveta R. Bhoye, Sachin B. Chavan

Student, Assistant Professor, Student, Student

PDEA's Shankarrao Ursal College of Pharmaceutical Sciences and research Centre Kharadi, Pune-411014 India.

Received: 2024-10-11 Revised: 2024-10-17 Accepted: 2024-10-22

ABSTRACT

Objective: The main purpose of present study is to evaluate natural ingredients used in polyherbal shampoo for Safety and efficacy. Today, the Shampoo sector is the largest Sector among products. It is one of the Cosmetic formulations used daily as the hair formulation for the beautifying purpose. In a Market different types of Synthetic, Semi-synthetic Shampoos are available which is used to remove grease, dandruff and provide softness and nutrition to hair. The main objective is to study how to eliminate harmful synthetic ingredients from Shampoo formulation & substitute them with safe natural ingredients. Herbal Shampoo was formulated using natural ingredients like Hibiscus Flowers/leaves, Palas flower, Rose flower, beets root, banana root sandalwood powder. The Combination of several ingredients of herbal origin made highly effective Powder Shampoo which reduces many side effects. The present paper significance on composition, types, methods of evaluation of poly herbal Shampoo powder. **Method:** For the study of polyherbal powder shampoo 50 review papers were selected out of which 25 are referred for article. Out of rejected 25 papers: 11 papers don't have relevant information, 5 papers contain outdated content, some mistakes are observed in 3 papers and 6 papers contained advance information. To get appropriate information along with selected 25 papers we referred research gate, Shodhganga, Shodhgangotri like websites and Pharmacopoeia. **Conclusion**: The polyherbal powder shampoo is a safe, effective, and stable natural alternative for hair care, promoting healthy hair growth and scalp health.

Keywords: Poly Herbal shampoo, Types, Herbal ingredients, Method, Evaluation.

INTRODUCTION

Hair is one of the external barometers of internal body conditions. It is an important part of human body. Various synthetic compounds, chemicals, dyes and their derivatives have been proved to cause harmful effects [1]. As the scalp is one of the most absorbent parts of the body, product applied to the scalp goes directly to the blood, without being filtered in any way [2]. Nowadays people are having an awareness of their effects on hair, skin and eyes. Due to these reasons community is getting attracted towards herbal products due to their inexpensive nature and negligible side effects. Nowadays, the usefulness of herbs in the cosmeceutical production has been extensively increased and there is a great demand for the herbal cosmetics. [1]

Hair morphology and Physiology:

Hair structure:

Each hair has a hair shaft and a hair root. The shaft is the visible part of the hair that sticks out of the skin. The hair root is in the skin and extends down to the deeper layers of the skin. It is surrounded by the hair follicle (a sheath of skin and connective tissue), which is also connected to a sebaceous gland.

Each hair follicle is attached to a tiny muscle (arrector pili) that can make the hair stand up. Many nerves end at the hair follicle too. These nerves sense hair movement and are sensitive to even the slightest draft.

At the base of the hair, the hair root widens to a round hair bulb. The hair papilla, which supplies the hair root with blood, is found

inside the bottom of the hair bulb. New hair cells are constantly being made in the hair bulb, close to the papilla [3].

International Journal of Pharmacy and Pharmaceutical Research (IJPPR)
Volume 30, Issue 10, October 2024 ijppr.humanjournals.com ISSN: 2349-7203

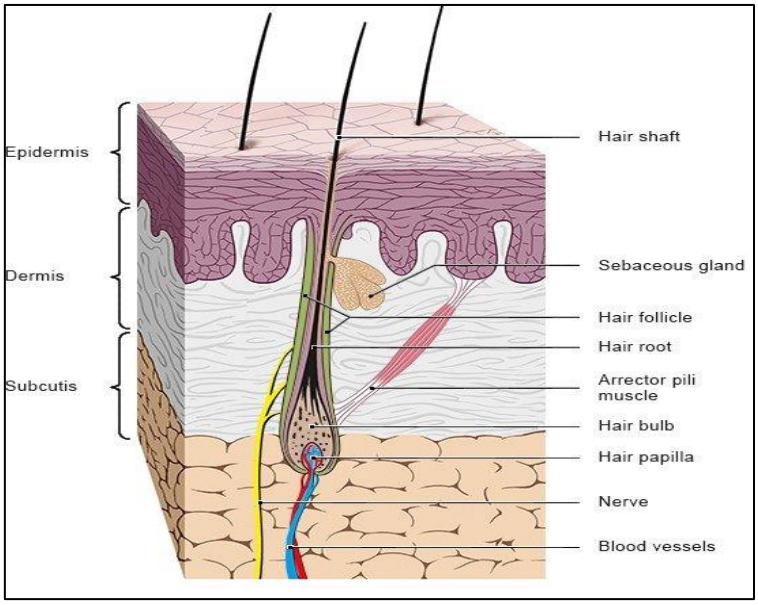

Fig 01: structure of hair

Physiology of hairs:

Hair can be in different stages of growth cycle compared to the adjacent hair. In particular, the hair growth cycle can be divided into three distinct phases-

1) Anagen or growth phase: Most hair is growing at any given time. Each hair spends several years in this phase.

2) Catagen or transitional phase: Over a few weeks, after hair growth shows and the hair follicle shrinks.

3) Telogen or resting phase: Over the months, hair growth stops and the old hair detaches from the hair follicle. A new hair begins the growth phase, pushing the old hair out [4].

Hair problems: [5]

1)Dandruff

The scalpy particles that stick to the root of the hair is dandruff which is caused by poor diet, dry scalp, infection, excess sebum, and sensitivity to certain products. It is harmless and non-inflammatory skin condition that affects the scalp and can lead to hair loss. Cider vinegar is a quick fix to help relieve dandruff.

2) Hair loss

Hair loss occurs due to several factors such as stress, hormonal imbalance and using the wrong products. Prevention is possible by using protein rich food, switching to mild shampoo, massage with hot oil, staying hydrated and regular exercise.

3)Dry hair

It is due to deficiency of protein, sometimes other underlying issues, menopause, birth control pills, pregnancy, hormonal imbalance, anaemia and hyperthyroidism can also cause dry hair. Omega 3 and 6 fatty acid rich food can replenish the hair lustre.

4) Oily scalp

It is due to poor diet, genetic or hormonal changes. Ingredients like lactic acid regulate the production of oil.

5) Hair colour damage

Regular colouring sessions can damage the hair in the long run. The chemicals in the dye can also cause dryness, dandruff, breakage and split ends. Medicated shampoo, extra care, conditioning and nourishing can treat the hair.

6) Split ends

When the oil from the scalp doesn't reach the end of the hair, it tends to dry and split over time. Another reason is heat worsening the ends. Applying oil on the ends can avoid split ends.

7) Dull hair/heat damaged hair

High temperature of heating tools can burn hair, cuticle and cause damage

Shampoo

Hair is an integral part of human beauty. Herbal shampoos are cosmetic preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp, beautifying and managing the hair since the ancient era. Herbal shampoos are used not only for cleansing purposes but also for imparting gloss to hair and maintaining their manageability and oiliness for hair. [5]

Ideal characteristics of shampoo: [6,7,8]

- Should effectively and completely remove the dirt and excessive build-ups between hair and sebum.
- Should improve the softness, lustre with good manageability.
- Should be easily removed by rinsing with water.
- Should impart pleasant fragrance to the hair.
- Should not make the hand rough and chapped.
- Should not have any side effects.
- Should not irritate the skin and eyes.
- Should provide safety and efficacy.
- Should improve the look and feel of hair and scalp.
- Should product a good amount of foam.
- Should leave the hair non dry, soft, lustrous with good manageability.

Types of herbal shampoos: [9,10,11]

- Dry shampoo
- Liquid shampoo
- Aerosol shampoo
- Cream shampoo
- Lotion shampoo
- Gel shampoo

International Journal of Pharmacy and Pharmaceutical Research (IJPPR)
Volume 30, Issue 10, October 2024 ijppr.humanjournals.com ISSN: 2349-7203

Categories of shampoo: [12,13,14]

- Specialized shampoo
- Conditioning shampoo
- Anti-dandruff shampoo
- Baby shampoo
- Two-layer shampoo

Mechanism of Action:[16]

Shampoo cleans by stripping sebum from the hair. Sebum is an oil secreted by hair follicles that is readily absorbed by the strands of hair, and forms a protective layer. Sebum protects the protein structure of hair from damage, but this protection comesat a cost. It tends to collect dirt, styling products and scalp flakes. Surfactants strip the sebum from the hair shafts and thereby removes the dirt attached to it. While both soaps and shampoos contain surfactants, soap bonds to oils with such affinity that it removes too much if used on hair. Shampoo uses a different class of surfactants balanced to avoid removing too much oil from the hair. Fig.01 indicates the action of shampoo. The chemical mechanisms that underlie hair cleansing are similar to that of traditional soap. Undamaged hair has a hydrophobic surface to which skin lipids such as sebum stick, but water is initially repelled. The lipids donor comes off easily when the hair is rinsed with plain water. The anionic surfactants substantially reduce the interfacial surface tension and allow for the removal of the sebum from the hair shaft. The non-polar oily materials on the hair shaft are solubilized into the surfactant micelle structures of the shampoo and are removed during rinsing. There is also considerable removal through a surfactant and oil "roll up" effect.

Fig 02: Action of shampoo

Herbal dry shampoo:

Dry shampoo otherwise known as hybrid shampoo is a type of shampoo which reduces hair greasiness without the need for water. It is in powder form and is typically administered from an aerosol can. Dry shampoo is often based on corn starch or rice starch. In addition to cleansing hair, it can also be used as a tool for hair-styling as it can create volume, help tease hair, keep bobby pins in place, and be used in place of mousse in wet hair. Dry shampoo proponents attest that daily wash-and-rinse with detergent shampoo can strip away natural oils from hair. However, others attest that spraying dry shampoo every day will lead to a build-up of product that can dull hair colour and irritate the scalp, arguing that the scalp needs regular cleansing and exfoliating to get rid of bacteria, remove dead skin cells, and stay healthy.

The powders within dry shampoo are meant to absorb the sebum in hair, which is excreted from sebaceous gland and can give hair a greasy appearance when the oil is overproduced. By absorbing the oils, the greasy appearance of the hair is improved; however,

the absorbed oils and powders remain in the scalp, so the hair may appear clean but feel unclean to the user. The user may need to wash their hair with traditional shampoos to actually remove the oils and dry shampoo powder in order for the scalp and hair to feel and appear clean.

Table no 1: Difference between herbal liquid shampoo and herbal dry shampoo:[5]

Sr. No	Herbal liquid shampoo	Herbal dry shampoo
1	Liquid form more prone to contamination	Powder form are less prone to contamination
2	Shelf life is less	Shelf life is more
3	Moisture content is high so preservative need to be added	Moisture content is less so no use of preservatives
4	May cause irritation and uneasiness	Easy to use
5	The chance of incompatibility is more	Chance of incompatibility are less
6	Less stable	More stable
7	Transportation is difficult as it may leak	Transportation is easy

Ingredients:[20]

Table no 2: Herbal ingredients used in herbal dry shampoo

SR	INGREDIENTS	BIOLOGICAL SOURCE	USES
1	Onion dry	It is derived from the plant allium ascalonicum (Alliaceae)	Antiallergic, antimicrobial, expectorant
2	Rose petal	A rose is woodly perennial flowering plant of the genus rosa (Rosaceace)	Fragrance, ease your pain, soothe and nourish your pain
3	Linseed or flaxseed	Obtained from dried ripen seeds of linum uslitatissimum (linaceae)	Demulcent, poultice
4	Hirda (myrobalan)	Dried ripe fruits of terminalia chebula (combretaceae)	Hair growth promoter
5	Lemon grass	Obtained from the fresh aerial parts of Cymbopogon flexosus (poaceae)	Cleanses the scalp
6	Bahera	Dried ripe fruit terminalia balerice (combretaceae)	Provides nutrition to growing hair
7	Amla	Dried ripe fruit of ambelica officinalis (euphorbiaceae)	Hair growth promoter
8	Neem	Dried leaves of azadriachta indica (miliaceae)	Antiseptic, antibacterial
9	Tulsi	Dried leaves of ocimum santum (labiateal)	Antibacterial
10	Shikakai	Dried seeds of acacia rugate (leguminesue)	Foam base
11	Henna	Dried leaves of lawsonia inermis (lythraceae)	conditioner
12	Brahmi	Dried leaves of sentlla asiatica (umbelliferae)	Support health of hair
13	Reetha	Dried fruits of sapindus mukorossi (sapindaceae)	Foaming agent
14	Aloe vera dry	Dried leaves of barbadensis miller(asphodelaceae)	Condition and moisturizing effect
15	Methi dry or fennugreeak	Dried seed of rtigonella foenum-graecum (Leguminosae)	Conditioning and nourishment effect
16	Ashwagandha	Ashwagandha is a short woodi shrub belonging to the solanaceae family	Controls hair fall, prevents premature greying, promotes hair health
17	Black tea	It is obtained from camelli sinensis(theacea)	Decreases shedding
18	Bhringraj	It is obtained from entire herb ecilipta-alba(Asteraceae)	Promote hair growth, enhances blood circulation, treat dandruff and dry scalp and prevent hair fall

19	jathamamsi	It consists of dried rhizomes of nardostachys jathmamsi (valerianaceae)	Antidandruff agent, prevent scalp infection
20	Ginger root	It is obtained from zingiber officinale(zingiberaxeae)	Anti dandruff, hair growth promoter
21	Shatavari	It consist of dried roots and leaves of plant asparagus racemosus(Liliaceae)	Strengthen the roots of hair and help maintain colour and luster
22	Wala	It it obtained from vetiveria zizanoides (Votiver/khas khas grass)	Stimulant and tonic
23	Bavachi	These are the dried ripe fruits of the plant psoralea corylifolia linn (Leguminosae)	Anti-inflammatory agent
24	Nirgundi dry	It is obtained from vitex negundo linn (Verbenaceae)	Anti-inflammatory, treat skin diseases
25	Hibiscus flower	It contains fresh flower and leaves of hibiscus rosa-sinensis (malvaceae)	Promote hair regrowth
26	Indian gooseberry	Dried ripe fruit of embilica officinalis (euphorbiaceae)	Tret hair loss
27	Nagarmotha	Dried ripe fruits of syperus-rotundus (Syperaceae)	Treat scalp disorder
28	Cinnamon	Dried inner bark of the shoots coppiced trees of Cinnamomum zeylanicum (lauraceae)	Antibacterial and stimulating property
29	Green tea leaves	It is obtained from evergreen shrub od small tea leaves and leaf buds of plant known as camellia sinesis (Theaceae)	Anti-inflammatory, antibacterial, soothing property
30	Curry leaves	Leaves of the curry tree, Murraya koenigii or Bergera koenigii, (Rutaceae)	Ritch in nutrients, antioxidant property, support hair health,
31	Vetiver	Dried roots of Zizanioides damascene	Psoriasis and dandruff
32	Soapnut	It is obtained from the fruits pulp of the plant sapindus sapondria (Sapindaceae)	Nourishes dry and Rough Hair
33	Cassia	It is obtained from dried roots steam bark of Cinnamomum (lauraceae)	Antifungal, hair shine, eliminates dandruff, improve hair growth, a natural conditioner, hair repair, healthy scalp, natural remedy for lice, strengthen hair.
34	Kalonji	It is obtained from fruit and seeds of Centratherun anthelninticum (Asteraceae)	Promote hair growth, prevent premature greying, reverses hair damage, restricts haie fall, improves scalp health, moisturises dry hair.
35	Ziziphus	Genus of spiny shrubs and small trees in the buckthorn (Rhamanaceae)	Natural shining agent
36	Soy Protein	It is globular protein isolated from a plant G. max (Leguminosae)	Soften the hairs
37	Lavender	Its oil is extracted from the flowers of lavandula officinalis (labiatae)	Conditioner, An Aromatic and soothing agent
38	Kapur kachri	Obtained from roots and rhizomes of hedychium spicatum (zingirberaceae)	Heals the scalp, repairs and strengthens hair, reduce hair loss, Conditioner, improves hair health.
39	Burdock roots	Arctium is a genus of biennial plants (Asteraceae)	Supporting healthy follicular activity, cleans scalp
40	Forskolin	It is a diterpens obtained from dried roots of coleus forskohlii (labiatae)	Hair growth promoter

Advantages of dry shampoos:

• They can lengthen the time between regular shampoos. This is beneficial, since washing your hair too often can dry it out.

• By washing your hair less often, you also reduce the use of heating implements (e.g. hairdryer, curling or straightening iron) that can damage your hair.

• Dry shampoos often have a volumizing effect, which can help keep your hair styled longer.

• Wetting and shampooing hair makes coloured hair fade faster.

• They are useful when travelling or during a hospital stay.

Disadvantages of dry shampoo:

• Using dry shampoos too abundantly or frequently can lead to an accumulation of residue that can give your hair a coarse texture.

• Overuse can also dry the hair by preventing natural oils from hydrating the hair, which can make it more brittle.

•Dry shampoo residue can block the pores of the scalp, which can cause inflammation or breakouts.

• The residue can also become a perfect breeding ground for the formation of dandruff.

Proper use of dry shampoos:

- Separate the hair into sections and apply a small amount of dry shampoo to the roots.
- If you are using an aerosol form, hold the container 30 cm away from your scalp when spraying.
- Massage the scalp to spread the product to all the roots.
- Wait a few minutes for the product to take effect, then brush or comb your hair.

Frequency of use:

It may seem tempting to use dry shampoos every day, thinking that it's better for your hair than regular shampoos, but that isn't the case. Dermatologists generally recommend not using dry shampoos more than two days in a row. Our hair and scalp need to be washed with a mild shampoo regularly.

Preparation methods:[5]

The Following steps are followed sequentially for the formulation of polyherbal shampoo powder-

1) Drying: All the powder are in dry form and grinded.

2) Weighing: All the required herbal powders for shampoo preparation are weighed individually.

3) Size reduction: Crude ingredients are size reduced using a hand-driven mixer individually.

4) Mixing: All these fine ingredients are mixed thoroughly by the mixer to form a homogenous fine powder.

5) Sieving: Then this fine powder is passed through sieve no.80 to get a sufficient quantity of fine powder.

6) Packing and labelling: Then it is packed and labelled suitably.

Evaluation of dry shampoo:

A) Organoleptic evaluation [5]

Organoleptic evaluation on the parameters like colour, odour taste, and texture should be carried out. Colour and texture are evaluated by vision and touch sensation respectively. For taste and odour evaluation, a team of five taste and odour sensitive people is formed and random sampling is performed.

International Journal of Pharmacy and Pharmaceutical Research (IJPPR)
Volume 30, Issue 10, October 2024 **ijppr.humanjournals.com** ISSN: 2349-7203

B) General powder characteristic [5]

General powder characteristics include evaluation of those parameters which are going to affect the external properties (like flow properties, appearance, packaging criteria, etc.) of the preparation. Characteristics evaluated under this section are powder form, particle size, angle of repose, and bulk density. Sample for all these evaluations are taken at three different levels i.e. from the top, middle and lower levels.

1. Particle size

Particle size is a parameter, which could affect various properties like spread ability, grittiness, etc. Particle size is determined by the sieving method by using I.P. Standard sieves by mechanical shaking for 10 Min.

2.Angle of repose

It is defined as the maximum angle possible in between the surface of the pile of powder to the horizontal flow.

Funnel method

Required quality of dried powder is taken in a funnel placed at a height of 6 cm from a horizontal base. The powder was allowed to flow to form a heap over the paper on the horizontal plane. The height and radius of the powder was noted and recorded the angle of repose (θ) can be calculated by using the formula.

$$\theta = \tan^{-1}(h / r)$$

Where θ – Angle of repose, h – Height of the heap, r – Radius of the base of the heap

Open - ended cylinder method

Required amount of dried powder is placed in a cylindrical tube open at both ends is placed on a horizontal surface. Then the funnel should be raised to form a heap. The height and radius of the heap is noted and recorded.

$$\theta = \tan^{-1}(h / r)$$

Where, θ – Angle of repose, h – Height of the heap, r – Radius of the base of the heap

3. Bulk density

Bulk density is the ratio between the given mass of a powder and its bulk volume. Take the required amount of dried powder and fill it in a 50 ml measuring cylinder up to 50 ml mark. Then drop the cylinder onto a hardwood surface from a height of 1 inch at a 2-second interval. Measure the volume of the powder. Then weigh the powder. This is repeated to get average values. The bulk density is calculated by using the below-given formula.

$$\text{Bulk density} = \frac{\text{Mass of the polyherbal powder shampoo}}{\text{Volume of the polyherbal powder shampoo}}$$

4.Tapped density

The tapped density is an increased bulk density attained after mechanical tapping a container containing the powder. Observe the initial powder volume or mass, tap the measuring cylinder or vessel mechanically for 1 min and take volume or mass readings until little further volume or mass change was observed. It was expressed in gram per cubic centimetre (g/cm3).

$$\text{Tapped density} = \frac{\text{Weight of powder}}{\text{Tapped volume of powder}}$$

C) Physicochemical evaluation [5.17,19]

1. pH:

Measure the pH of 10 % shampoo solution in distilled water at room temperature 25o C. the pH is measured by using a digital pH meter.

2. Washability:

Apply the formulation on the skin then check the ease and extend of washing with water manually.

3. Solubility:

Solubility is defined as the ability of the substance to soluble in a solvent. Weigh 1 gram of the powder accurately and transfer into a beaker containing 100 ml of water. Shake well and warm to increase the solubility. Then cool and filter, and weigh the residue obtained.

4. Loss of drying:

Loss of drying is the loss of mass expressed in percent m/m. Weigh Two gram of powder and transfer into a dry Petri dish. Place the Petri dish in a desiccator for 2 days over calcium chloride crystals. Then take the powder and weigh accurately to find out the weight loss during drying.

5. Skin /eye irritation test:

The eye and skin irritation tests reveals that the herbal shampoo powder shows no harmful effect on the skin and eye. This is due to the absence of synthetic surfactants. Most of the synthetic surfactants produce inflammation of the eyelid and corneal irritation. But in formulation of herbal shampoo powder, all the ingredients used are obtained naturally. So, it does not produce any harmful effects on the skin and eyes.

Skin irritation test:

Perform skin irritation test by using the open patch method. With many cosmetic products, whether commercial or homemade, it is recommended to do a patch test on skin before use. This is to ensure that no allergic reaction is seen for the product and if so, it will only be confined to a small area of skin and thus treatable with ease.

Step 1 - Pour or squeeze out a little of the cosmetic preparation to your wrist.

Step 2 - Dab a small amount of the preparation on the pulse of your wrist or the crook of your elbow.

Step 3 - Leave the preparation unwashed for 15-20 min.

Step 4 - Watch for signs of an allergic reaction. Typical signs will include redness, a rash, any form of breakouts on the skin, itchiness, pain, flaking, etc. Some people may also experience nausea or respiratory reactions. If any of these signs present themselves, cease use immediately.

Step 5 - Continue to use the product if you do not react. If you do not have any allergic reaction symptoms, the preparation is likely all right for your skin type

Eye irritation test

Collect animals (albino rats) from the animal house. Dip about 1 % of shampoo solutions into the eyes of albino rats with their eyes held open with clips at the lid. Record the progressive damage to the rat's eyes at specific intervals over an average period of 4 seconds. Reactions to the irritants can include swelling of the eyelid, inflammation of the iris, ulceration, hemorrhaging (bleeding), and blindness.

6. Ash value

The residue remaining left after incineration (complete burn) of the crude drug is considered as ash. The residue obtained generally represents the inorganic salts naturally occurring in the drug and adhering to it. It varies with in definite limits according to the soils. It may also include inorganic matter intentionally added for the purpose of adulteration. Hence, an ash value determination furnishes the basis for deciding the identity and cleanliness of any drug and gives information relative to its adulteration/contamination with inorganic matter, thus ash values are helpful in concluding the quality and purity of drug. The total ash of a crude drug shows the care taken in its preparation. The acid insoluble ash is a part of the total ash that is insoluble in dilute hydrochloric acid. A high value of acid- insoluble ash denotes high presence of silica and calcium oxalate content in the drug.

Total ash value

Accurately weigh about 3 grams of air dried drug powder in a tarred silica crucible. Note the weight of empty silica crucible and place it along with weighed quantity of drug in to muffle furnace for incineration. Gradually increase the temperature of muffle furnace up to 450-500° C and keep this crucible in muffle furnace until all the carbon burnt off. Cool and weigh you drug after complete incineration, repeat weighing until we get constant value. Then the percentage of total ash is calculated with reference to the air-dried drug.

Acid insoluble ash value

The ash obtain as from the procedure of total ash is boil with 25 ml of dil hydrochloric acid for 5 minutes. After boiling filter this material using ash less filter paper. The insoluble matter remains on an ash less filter paper, wash it with hot water. Dry the filter paper, incinerate it. Then remove it from incinerator and cool it in desiccators take its weigh. Then calculate the percentage of acid insoluble ash with reference to the air-dried drug.

Water soluble ash value

The total ash obtained was boiled with 25 ml of water for 5 minutes. The insoluble matter was collected on an ash less filter paper, washed with hot water and ignited for 15 minutes at a temperature not exceeding 450° C. The weight of insoluble matter was subtracted from the weight of total ash. The difference in weight represents the water-soluble ash. The percentage of water-soluble ash was calculated with reference to the air-dried drug.

Sulphated ash value

7. dirt dispersion:

Two drops of 1% of each shampoo powders are added to a large test tube containing 10 ml of distilled water. Add 1 drop of India ink; stopper the test tube and shake for 10 times. The amount of ink in the foam is estimated as None, Light, Moderate, or Heavy.

8. Moisture content determination:

Weigh 10 g of herbal shampoo powder in a tare evaporating dish and kept it in a hot air oven at 105^0C. Repeat the drying until the constant weight loss is observed after 30 minutes.

9. Wetting time

Cut the canvas into 1-inch diameter discs having an average weight of 0.44 g. Let the disc float on the surface of a shampoo solution of 1 % w/v and then start stopwatch. The time required for the disc to begin to sink is measured accurately and noted as the wetting time.

10. Stability Study

The stability and acceptability of organoleptic properties (odor and color) of formulations during the storage period indicate that they are chemically and physically stable.

11. Nature of hair after washes

Nature of hair after wash should be done by collecting the responses of volunteers.

12. Foaming index Weigh one gram of the powder and transfer into a 250 ml conical flask containing 100 ml of boiling water. Then warm gently for 30 minutes, cool and filter, and make up the volume to 100 ml in a standard volumetric flask. Take this extract in 10 test tubes in a series of successive portions of 1, 2, 3….10 ml, and make up the remaining volume with water to 10 ml. Then shake the test tubes in longwise motion for 15 seconds at speed of 2 frequencies/second. Then allow to stand for 15 minutes. The height of the foam is measured. Foaming index =1000/a a = height of the foam

13. Extractive values

Determination of alcohol-soluble extractive

Weigh 5 g of each air-dried herbal shampoo powder was and macerate with 100 ml of Alcohol of the specified strength in a closed flask for twenty-four hours, shake frequently for six hours, and allow to stand for eighteen hours. Filter, by taking precautions against loss of solvent, 25 ml of the filtrate is evaporated to dryness in a tare flat bottomed shallow dish, and dry at 105 0C, to constant weight and weigh. The percentage of alcohol-soluble extractive concerning the air-dried drug is calculated.

Determination of water-soluble extractive

Proceeded as directed for the determination of alcohol-soluble extractive, using chloroform water instead of ethanol. The percentage of water-soluble extractive was calculated for each sample.

14. Determination of the viscosity

The viscosity was determined using a Brookfield viscometer where the spindle speeds were adjusted between 0.3 and 10 rpm3. Spindle T95 was used to measure the viscosity of each shampoo. Both the sample container's size and temperature were kept constant throughout the investigation.

15. Surface tension measurement

A stalagmometer was used to measure the surface tension of 10% w/v shampoo in distilled water at room temperature.

16. Stability studies

Formulations were placed in glass tubes and kept in a humidity chamber with a temperature of 45°C and a relative humidity of 75% to study their thermal stability. For three months, at one-month intervals, their physical stability and appearance were examined.

CONCLUSION:

Many people suffer from hair disorders such as dandruff, alopecia, and dermatitis. Shampooing is the best treatment for these types of disorders. The awareness and need for cosmetics with the herb on the rise, as it is strongly believed that these products are safe and free from side effect. It is seen that many products natural claims are still based extensively on synthetic functional ingredients. The present review focus on the use of the herbal ingredient in place of synthetic ingredient instead of using cationic conditioners we can use shikakai, hibiscus, and other plant extracts to provide a conditioning effect. Herbal based powder shampoos are more effective in terms of safety and ease of manufacturing and from an economic point of view.

REFERENCES:

1) Akula Nikhil, Preparation and evaluation of shampoo dry containing herbal ingredients. 2015; 8 (1): 1-5.
2)Valvi Surupsing, Patil Akash, Yeowle Harishchandra, Jain Vipul, Pawar sp. Formulation and Evaluation of Herbal Shampoo Dry .2017; 3(3): 1-7.
3)National library of Medicine, 2023.
4) S. P. Vaishnav*1, V. A. Bairagi, Preparation and evaluation of novel polyherbal shampoo dry. 2022; 10(11): 1-17.
5) P Naga Haritha*1, Pabba Supraja2, Shaista Samreen2, Hrudayanjali2, Munawar Qureshi2, P. sandya2, T. swetha2, A Review on Polyherbal Shampoo Dry. 2021; 21(2): 1-18.
6) Arora. P, Nanda. A, and Karan. M. 2011. Shampoos based on synthetic ingredients vis-à-vis shampoos based on herbal ingredients: A review. International Journal of Pharmaceutical Sciences Review and Research. 2011; 7(1): 42-46.
7) Patil, SS; Mane, YJ and Mohite, SK, Formulation and evaluation of herbal shampoo dry, International Journal of Advanced Research. 2015; 3(3): 939-9.

8) Joan vijetha Fathima Grace, x, and Chanmundeeshwari (2013) preparation and evaluation of polyherbal shampoo dry. International journal of research in pharmaceutical sciences. 2013; 3: 3066.
9) Kengar, Manohar D., Ganesh B. Vambhurkar, Akshata S. Gavade, Asha M. Jagtap, and Indrayani D. Raut. "Formulation and Evaluation of Polyherbal Shampoo." Research Journal of Topical and Cosmetic Sciences 9, no. 1 (2018): 1.
10) Miao, Yong, Yabin Sun, Wenjun Wang, Benjun Du, Shun e. Xiao, Yijue Hu, and Zhiqi Hu. "6-Gingerol Inhibits Hair Shaft Growth in Cultured Human Hair Follicles and Modulates Hair Growth in Mice." PLoS ONE 8, no. 2 (2013): 6–11.
11) Namita, and Nimisha. "Formulation and Evaluation of Herbal Shampoo Having Antimicrobial Potential." International Journal of Pharmacy and Pharmaceutical Sciences 5, no. SUPPL, 3 (2013): 708–12.
12) Kengar, Manohar D., Ganesh B. Vambhurkar, Akshata S. Gavade, Asha M. Jagtap, and Indrayani D. Raut. "Formulation and Evaluation of Polyherbal Shampoo." Research Journal of Topical and Cosmetic Sciences 9, no. 1 (2018): 1.
13) Pamhidzai Dzomba. "Formulation and Evaluation of a Herbal Shampoo Using Flavonoid Glycosides from Dicerocaryum Senecioides." East African Journal of Science, Technology and Innovation 3, no. February (2022): 1–12.
14) S. Mohanty. "Evaluation of Genetic Fidelity of in Vitro Propagated Shampoo Ginger (Zingiber Zerumbet (L.) Smith) Using DNA Based Markers." Journal of Medicinal Plants Research 6, no. 16 (2012): 3143–47.
15) Soonwera, M. "Pediculicidal Activities of Herbal Shampoos from Zingiber Officinale Roscoe and Camellia Sinensis (L.) Kuntze against Head Louse (Pediculus Humanus Capitis De Geer: Phthiraptera)". Journal of Agricultural Technology 11, no. 7 (2015): 1493–1502.
16) Ankita Bhujbal, 2Amol Jadhav, 3Pratiksha Bhakre 4Mohini Mane, 5 Rajesh Oswal, A review article on dry polyherbal powder shampoo, 2022; 9(11): 1-15.
17) Mr. Prajwal R. Bhujbal1, Mr. Vishal P. Kopnar2, Miss. Kalyanee V. Gavande, Dr. Amol N. Khedkar 4, Mr. Pratik R. Khandagale5, A Review on Herbal Shampoo and Its Evaluation, 2023; 5(6): 1-13.
18) Y Madhusudan rao, Shayeda and p Sujatha, formulation and evaluation of commonly used natural hair colorants, 2006; 7(1), 1-4.
19) T. Satyanarayana, D. Nirmala kumari, Ch. Sai roshini, K. Dileep, K. Sai kiran, M. Akshitha, V. Sucharitha, M. Sagarika, Formulation and Evaluation of Poly Herbal Shampoo Powder, 2022; 24(3), 1-19.
20) Sajid A. Mulani1, Nitin Mali2, Firoj A. Tamboli3, Yogesh S Kolekar1, Anagha S Ajagekar1, Shubham J Kamble4, Srushti S Dhanal4, Anilkumar J Shinde4, Manish Wani5, Formulation and evaluation of dry herbal powder shampoo, 2021; 8(3): 1-6.
21) Kaustubh Ravindra Donde*1, Sneha K. Sonawane*2, A review on anti-dandruff herbal shampoo, 2024; 6(3): 1-9.
22) Simanchal Panda*, Formulation and evaluation of herbal powdered shampoo, 2018; 5(4): 1-6.
23) Sachin Dubey*, Neelesh Nema* and S. Nayak*, Preparation and Evaluation of Herbal Shampoo Powder, 2004; 25(1): 1-6.
24) Sachin Gholve1 *, Sachin Nadarge1, Sunil Hindole1, Omprakash Bhusnure1, Pratap Bhosale2 and Sanjay Thonte1, formulation and evaluation of polyherbal antidandruff powder shampoo, 2015; 4(10): 1-19.
25) 1R.M. Hanwate, 2Geetanjali Tambe, 3Bhosale K.P, 4Bhosale P.T, formulation and evaluation of herbal shampoo, 2023; 8(6): 1-7.

How to cite this article:
Divya k. Chavan et al. Ijppr.Human, 2024; Vol. 30 (10): 280-291.

Conflict of Interest Statement: All authors have nothing else to disclose.