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Preparation and Evaluation of Powdered Herbal Shampoo Using Bhirngraj

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Abstract

Hair is an important part of the overall appeal of the human body .Hair is one of the external barometers of internal body conditions. Shampooing is the most common form of hair treatment, Hair cleansers or shampoos are used not only for cleansing purpose but also for imparting gloss to hair and to maintain their manageability and oiliness for hairs, As the time has passed synthetic agents have taken a large share but today people are getting aware of their harmful effects on hairs skin and eyes. These regions attracted to community towards the herbal products, which are less expensive and have negligible side effects, Herbs have long been associated with hair care and are often ingredients of conditioners shampoos and rinses. Hair are the integral part of human body, people are using herbs for cleaning, beautifying and managing hair since the ancient era, , this research is designed to developed herbal power which may be beneficial as compare to chemical shampoo.Herbal power shampoo do not cause side effect as compare to the shampoo which contain chemicals.this herbal shampoo prepared by using bhringraj, amla, shikakai, henna, ritha in different composition of crude drugs its prepared mixing in ascending order by weight, the formulation and no. of evaluation parameters was done to ensure its safety and efficacy.

Key-words: Herbal, shampoo, hair, cleaning, powder

Introduction

Herbal Shampoo

Herbs have long been associated with hair care and are often ingredients of conditioners, shampoos and rinses. The selection of active ingredients for hair care powder is often based on the ability of the ingredient to prevent damage to the skin as well as to improve the quality of the skin by way of cleansing, nourishing and protecting the skin.

Hairs are the integral part of human beauty. People are using herbs for cleaning, beautifying and managing hair since the ancient era. As the time has passed synthetic agents have taken a large share but today people are getting aware of there harmful effects on hairs, skin and eyes. These regions attracted to community towards the herbal products, which are less expensive and have negligible side effects. Hair cleansers or shampoos are used not only for cleansing purpose but also for imparting gloss to hair and to maintain their manageability and oiliness for hairs.

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Shampoos are of various types, like powder shampoo, clear liquid shampoo liquid shampoo, lotion shampoo, solid gel shampoo, medicated shampoo, liquid herbal shampoo etc.

As far as herbal shampoos are concerned in stability criteria. Depending upon the nature of the ingredients they may be simple or plain shampoo, antiseptic or antidandruff shampoo and nutritional shampoo containing vitamin, amino acids proteins hydrolysate[7]

Herbal Dry Shampoo

- Should effectively and completely remove the dust, excessive sebum.
- Should effectively wash hair.
- Should produce a good amount of foam
- The shampoo should be easily removed by rinsing with water.
- Should leave the hair non dry, soft, lustrous with good, manageability.
- Should impart a pleasant fragrance to the hair.
- Should not make the hand rough and chapped.
- Should not have any side effects or cause irritation to skin or eye[8]

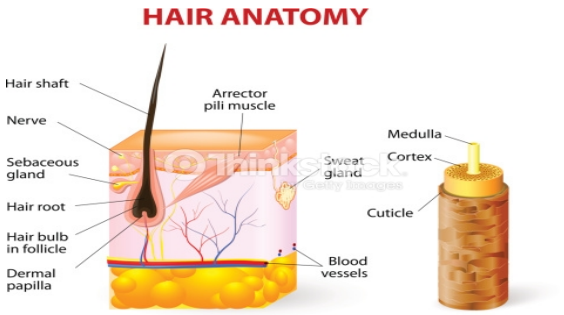

Fig. 1: Cross section of a hair strand shampoo

Material and Methods

Formulation of herbal shampoo

- Selected herbal drugs in dried form were purchased from the authenticated agencies.
- Herbs along with their part used in shampoo and quantity taken are tabulated in Table 1.
- Herbal shampoo was prepared by uniformly powdering and mixing in ascending order by weight with continuous trituration.
- Herbal shampoo formulation were prepared labeled and kept in closed container for further studies.[7]

Formulation of herbal shampoo powder

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 mixer individually.

Mixing: All these fine ingredients were mixed thoroughly by mixer to form a homogenous fine powder.

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

Packing and labeling: Then it was packed and labeled suitably

Preparation

Quantity taken for 100g of Herbal Powder Shampoo

Table 1: Herbal drugs used in powder shampoo formulation

S/No.	Constituents	Biological source/ family	Uses	Quantity Sample (gm)
1	Amla	Dried ripe fruits of *Embelica officinalis (*Euphorbiaceae)	Hair growth promoter	25.00
2	Shikakai	Dried seeds of *Acacia rugate* (Leguminesue)	Foam base	15.00
3	Henna	Dried leaves of *Lawsonia inermis* (Lythraceae)	Conditioner	5.00
4	Ritha	*Sapindus mukorossi*	Detergent foaming property	10.00
5	Bhringraj leaves	Dried leaves of *E. alba*	Hair darkening Hair growth promoter	20.00

Evaluation

Prepared formulations of shampoos were subjected to following evaluation parameters.

Organoleptic evaluation

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

General powder characteristic

General powder characteristics includes evaluation of those parameters which are going to affect the external prop0erties (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.

Particle size

Particle size is a parameter, which could affect various properties like spreadability, grittiness etc., Particle size was determined by sieving method by using I.P. Standard sieves by mechanical shaking for 10 Min. Angle of repose It is defined as the maximum angle possible in between the surface of pile of powder to the horizontal flow.

Bulk density

Bulk density is the ratio between the given mass of a powder and its bulk volume. Required amount of powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is dropped onto hard wood surface form a height of 1 inch at 2 second interval.

The volume of the powder is measured. Then powder is weighed. This is repeated to get average values. The bulk density is calculated by using the below given formula Bulk density Bulk density is the ratio between the given mass of a powder and its bulk volume. Required amount of powder is dried and filled in a 50 ml measuring cylinder up to 50 ml mark. Then the cylinder is dropped onto hard wood surface form a height of 1 inch at 2 second interval. The volume of the powder is measured. Then powder is weighed. This is repeated to get average values. The bulk density is calculated by using the below given formula.

Tapped density

The tapped density is an increased bulk density attained after mechanical tapping a container containing the powder sample. After observing the initial powder volume or mass, the measuring cylinder or vessel is mechanically tapped for 1 min and volume or mass reading are taken until little further volume or mass change was observed. It was expressed in gram per cubic centimeter (g/cm3).

Physicochemical evaluation

pH :- The pH of 10% shampoo solution in distilled water was determined at room temperature 25o c. the pH was measured by using digital pH meter.

Washability:-Formulation was applied on the skin then ease and extend of washing with water were checked manually.

Solubility:-Solubility is defined as the ability of the substance to soluble in a solvent. 1 gram of the powder is weighed accurately a transferred into a beaker containing 100 ml of water. This was shaken well and warmed to increase the solubility. Then cooled and filter it, the residue obtained is weighed and noted.

Loss of drying: - Loss drying is the loss of mass expressed in percent m/m. two gram of powder was weighed accurately and transferred into a dry Petri dish.

The Petri dish is placed in a desiccator for 2 days over calcium chloride crystals. Then the powder was taken and weighed accurately to find out the weight loss during drying.

Foaming Capacity

One gram of the powder was weighed and accurately and transferred into 250 ml conical flask containing 100 ml of boiling water. Then it is warmed gently for 30 minutes, cooled and filtered and make up the volume to 100 ml in stander volumetric flask. This extract is taken in 10 test tubes in a series of successive portion of 1, 2, 3….10 ml and remaining volume is made up with water to 10 ml. Then the test tubes were shaken in longwise motion for 15 second at speed of 2 frequencies per second. Then the tubes are allowed to stand for 15 minutes. The height of the foam was measured. The Foaming index =1000/a.

Skin /eye irritation test

The eye and skin irritation tests revealed that the herbal shampoo powder shows no harmful effect on 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 this formulation of herbal shampoo powder, the uses of all ingredients are obtained naturally. So it does not produce any harmful effect on skin and eye.

Results and Discussion

Evaluation results of poly-herbal shampoo powder are tabulated as follow.

Table 2: Organoleptic evaluation

S. No	Organoleptic evaluation	Result
1.	Color	Yellowish brown
2.	Odor	Slightly pleasant
3.	Taste	Slightly bitter
4.	Texture	Fine smooth

Table 3: General powder characteristics

S. No	General powder characteristic	Result
1.	Particle size	30-25µm
2.	Angle of repose	33º 7
3.	Bulk density	0.654
4.	Tapped density	0.55

Physiochemical Evaluation

Table 4: Physicochemical property

S. No.	Physicochemical evaluation	Results
1.	PH	5.7
2.	Wash ability	Easily washable
3.	Skin / eye irritation	No harmful
4.	Foaming capacity	Good Foam
5.	Solubility	Slightly soluble

Medicinal or Traditional plants used in the formulation of herbal shampoo were found as rich

source of novel drugs. These plants were Henna, Reetha, Tulsi, Neem, Amla, Shikakai, China rose, Lemon, Aloe, Peppermint had been reported for hair growth and conditioning.formulations SN1 of herbal powder were prepared using, Amla, Shikakai, Henna , reetha and Bringraj in different composition (Table-1) of crude drugs. These formulations were prepared using mixing in ascending order by weight and with continuous trituration. preparation (SN1 were evaluation organoleptically observing colour, odour, taste and texture. . The result obtained on present study shows that the active ingredients of these drugs when incorporated in shampoo gives more stable products with good aesthetic appeal. The pH of the shampoo has been shown to be important for improving and enhancing the qualities of hair, minimizing the irritation to the eyes and stabilizing the ecological balance of the scalp. The world market is also moving towards herbal medicines for health care, health foods and for cosmetic purposes including hair preparations. India is rich heritage for cultivation and production of herbal medicines due to its diversified climatic conditions. Indian traditional literature and ethanopharmacological studies presents a number of plants/ formulations with proven efficacy as hair formulations. Present investigations were carried out to formulate preparations based upon traditional knowledge and to develop few parameters for quality and purity of herbal powder shampoo. Although these studies are preliminary but presented evaluation parameter will be useful for the standardization of herbal shampoo powderThough the product is in dry form inspite has wonderful wetting capacity and being dry is very good for the storage.

Conclusion

This study presents a number of plant drugs with proven efficacy as in hair care preparations. In present investigations was carried out to formulate the herbal shampoo powder preparations based upon traditional knowledge and to develop few parameters for quality and purity of herbal powder shampoo. A survey of global hair care market trends indicates that consumer use of herbal products has significant increased over the past years. The factors like UV radiations, use of harsh chemical products have direct and indirect impact on the hair. To overcome this problems the present study has the best undertaken to design an herbal shampoo which will not only give hair protection but also conditioning effect, shine and manageability. The present work focuses on the potential of herbal extracts from cosmetic purposes. Hence we conclude that the formulation of polyherbal shampoo powder is effective in reducing dandruff without irritation, less adverse effect and better conditioning effect. In the present scenario, it seems improbable that herbal shampoo, although better in performance and safer than the synthetic ones, will be popular with the consumers. Formulation (F1) of herbal shampoo powder was found to be in compliance with all the properties of powders and exhibited satisfactory results. The evaluation studies showed good cleaning action, better foaming capacity, and quick wetting time than other formulation batches. From the given study, it can be concluded that formulations of herbal shampoo powders prepared were good and had all the properties.

References

1. Vlavi, S.M., Patil, A.D., Yeowle, H.M., Jain, V.H. and Pawar, S.P., Formulation and Evaluation of Herbal ShampooPowder.
2. Patil, S.S., Mane, Y.J. and Mohite, S.K., 2015. Formulation and evaluations of herbal shampoo powder. Int J Adv Res, 3,pp.939-4
3. Aghel, N., Moghimipour, E. and Raies Dana, A., 2010. Formulation of a herbal shampoo using total saponins of Acanthophyllum squarrosum. Iranian Journal of Pharmaceutical Research, pp.167-172Birthwistle, D.H., Chesebrough-Pond's Inc, 1993. Shampoo composition. U.S. Patent5,246,694.
4. Birthwistle, D.H., Chesebrough-Pond's Inc, 1993. Shampoo composition. U.S. Patent 5,246,694.
5. Carretero, M.I. and Pozo, M., 2010. Clay and non-clay minerals in the pharmaceutical and cosmetic industries Part II. Active ingredients. Applied Clay Science, 47(3-4),pp.171-181.]
6. https://www.glamour.com/story/shampoo-ingredients-what-are-parabens-sulfates.
7. Gardner Stephanie S. 2017.dandruff treatment WebMD LLC. All rights reserved.
8. Halith, S.M., Abirami, A., Jayaprakash, S., Karthikeyini, C., Pillai, K.K. and Firthouse, P.M., 2009. Effect of Ocimum sanctum and Azadiracta indica on the formulation of antidandruff herbal shampoo powder. Der Pharmacia Lettre, 1(2), pp.68-76.
9. Shinde, P.R., Tatiya, A.U. and Surana, S.J., 2013. Formulation development and evaluation of herbal antidandruff shampoo.

Int J Cosmet Sci, 3(2), pp.25-33…10. Barve, K. and Dighe, A., 2016. Hair Shampoo. In The Chemistry and Applications of Sustainable Natural Hair Products (pp. 25-35). Springer, Cham. [10

10. Barve, K. and Dighe, A., 2016. Hair Shampoo. In The Chemistry and Applications of Sustainable Natural Hair Products (pp. 25-35). Springer,Cham.
11. Lascaratos, J., Tsiamis, C., Lascaratos, G. and Stavrianeas, N.G., 2004. The roots of cosmetic medicine: hair cosmetics in Byzantine times (AD 324–1453). International journal of dermatology, 43(5), pp.397-401.
12. Dubey, S., Nema, N. and Nayak, S., 2004. Preparation and evaluation of herbal shampoo powder. Ancient science of life, 24(1), p.38.7
13. Jaya Preethi, P., Padmini, K., Srikanth, J., Lohita, M., Swetha, K. and Vengal Rao, P., 2013. A review on herbal shampoo and its evaluation. Asian J Pharm Ana, 3(4),pp.153-6.
14. Manisha, S., Swati, D., Manisha, C. and Sonia, S., 2013. Preparation and evaluation of polyherbal shampoo powder. International Journal of Pharmacy and Biological sciences, 392, pp.151-159.
15. Deedrick, D.W. and Koch, S.L., 2004. Microscopy of hair part 1: a practical guide and manual for human hairs. Forensic Science Communications,6(1).
16. Swift, J.A., 1991. Fine details on the surface of human hair. International journal of cosmetic science, 13(3), pp.143-159.
17. Manisha, S., Swati, D., Manisha, C. and Sonia, S., 2013. Preparation and evaluation of polyherbal shampoo powder. International Journal of Pharmacy and Biological sciences, 392, pp.151-159
18. Jaya Preethi, P., Padmini, K., Srikanth, J., Lohita, M., Swetha, K. and Vengal Rao, P., 2013. A review on herbal shampoo and its evaluation. Asian J Pharm Ana, 3(4),pp.153-6
19. 18https://www.leaf.tv/articles/what-is-the-function-of-human-hair/.
20. Nogueira, A.C.S., Dicelio, L.E. and Joekes, I., 2006. About photo-damage of human hair. Photochemical & Photobiological Sciences, 5(2), pp.165-169.
21. Harrison, S. and Sinclair, R., 2003. Hair colouring, permanent styling and hair structure. Journal of Cosmetic Dermatology, 2(3-4), pp.180-185.
22. Harkey, M.R., 1993. Anatomy and physiology of hair. Forensic science international, 63(1- 3),pp.9-18
23. Lauter, F.R., Ninnemann, O., Bucher, M., Riesmeier, J.W. and Frommer, W.B., 1996. Preferential expression of an ammonium transporter and of two putative nitrate transporters in root hairs of tomato. Proceedings of the National Academy of Sciences, 93(15), pp.8139- 8144.
24. Olsen, E.A. and Olsen, E.A., 2003. Disorders of hair growth. McGraw-Hill Professional Publishing.
25. Gomes, M.J., Martins, S., Ferreira, D., Segundo, M.A. and Reis, S., 2014. Lipid nanoparticlesfortopicalandtransdermalapplication foralopeciatreatment: development,
26. Chase, H.B., 1954. Growth of the hair. Physiological reviews, 34(1), pp.113-126.
27. Ludwig, E., 1977. Classification of the types of androgenetic alopecia (common baldness) occurring in the female sex. British Journal of Dermatology, 97(3), pp.247-254.

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