

Preparation and Evaluation of Herbal Shampoo Powder

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ABSTRACT

Two preparations of herbal shampoo powder were formulated using some common traditional drugs used by folk and traditional people of Bundelkhand region (M.P) India, for hair care. The preparations were formulated using bahera, amla, neem tulsi, shikakai henna & brahmi evaluated for organoleptic, powder characteristics, foam test and physical evaluation. As the selected drugs being used since long time as single drug or in combination, present investigations will further help to establish a standard formulation and evaluation parameters, which will certainly help in the standardization for quality and purity of such type of herbal powder shampoos.

KEY WORDS: Herbal Shampoo, Evaluation, Standardization.

INTRODUCTION

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 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. 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 hairs¹.

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, aminoacids proteins hydrolysate.²

MATERIALS AND METHODS

PREPARATION-Selected herbal drugs in dried form were purchased from the authenticated agencies. Herbs along with their part used, their use in shampoo and quantity taken are tabulated in table 1. Two shampoos (SN₁ & SN₂) were prepared by the uniformly powdering and mixing in ascending order by weight with continuous trituration^{5, 6}. Six batches of each formulations were prepared labeled and kept in closed container for further studies.

EVALUATION

Prepared formulations of shampoos were subjected to following evaluation parameters.

(I) Organoleptic evaluation^{7, 8.} 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.

(II) General powder characteristics,^{9, 10.} General powder characteristics includes 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 evaluation were taken at three different level i.e. from top, middle and lower level.

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 affects the flow properties of a powder. It was determined by glass funnel method. A distance of 6.5 cm is maintained between the graph paper and the bottom of a powder. It was determined by glass funnel. Flowing is continued till the top of the heap touches the bottom of funnel¹¹.

Bulk density is an important property for the packaging of product. Bulk density depends on particle size, particle size distribution and cohesiveness of particle. For measuring bulk density a weighted amount of powder was introduced in 100ml graduated cylinder. The cylinder is fixed on bulk density apparatus and bulk density was calculated.

(III) Physical Evaluation^{12, 13:} Physical evaluation includes determination of extractive values, Ash value, moisture content and ph. Extractive values were calculated for solvents, like petroleum ether, acetone, benzene, chloroform and methanol. 5Gm of powder shampoo was macerated with different solvents and kept for 24hr, filtered and solvent was evaporated dried extracts were weighted to calculate extractive value % w/w.

Ash value is calculated to determine the inorganic contents which is characteristic for a herb. About 2 Gm of powder drug was taken in silicon dish previously ignited and weighed. Temperature was increased by gradually increasing the heat not exceeding to red colour. After complete burning, ash is cooled and weighed.

Acid insoluble ash was calculated by boiling above obtained ash with 25ml dil. HCl for 5min, insoluble matter was collected in gooch crucible, washed with hot water, ignited and weighed.

Moisture content in the formulation is very important as it contains herbs which are liable to be attacked by weather. 2gm of powder was taken and kept in an oven and dried up to two constant reading and % moisture content was calculates as w/w. ph affect the pharmaceutical consideration as well as it affect the effect of shampoo on hairs. 1 Gm of powder shampoo was taken and 9ml of distilled water was added to it. pH of the resulting solution was calculated using pH meter at 37°C.

Foaming Capacity- Foaming capacity of the test herbal powder shampoos (SN1 & SN2) were calculated using foam stability test with 2 grams of powder with 50 ml water in a graduated cylinder for different time interval.

Results and Discussion

Two formulations SN1 and SN2 of herbal powder were prepared using Harad, Bahera, Amla, Shikakai, Neem, Tulsi, Henna and Bramhi in different composition (Table-1) of crude drugs. These formulations were prepared using mixing in ascending order by weight and with continuous trituration. Both preparation (SN1 and SN2) were evaluated organoleptically observing colour, odour, taste and texture. Results shows a slight change in colour only (Table – 2). General powder characteristics of both formulations was found nearly same. The extractive values (% w/w) in organic solvents like petroleum ether, chloroform benzene, acetone and methanol was calculated shown in table-2. Moisture content was found to be 2.0% w/w respectively for SN1 and SN2 formulations. The pH was found to be 6-7 for both the formulations (Table 2). Observations of foam test shows percent foaming capacity for SN1, 151.80 and for SN2, 216.74.

Results shows the SN2 powder having better foaming capacity (Table -3), it may be due to higher percentage of Shikakai and Bahera in formulation.

Globalization is the need of today and the world market will open for all by 2005. 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 ethnopharmacological 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 powder.

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Table 1 – Herbal drugs used in powder shampoo formulation SN1 & SN 2

Constituents	Biological source/family	Uses	Quantity Sample SN1	Quantity Sample SN2
Harda (Myrobalan)	Dried ripe fruits of <i>Terminalia chebula</i> (Combreaceae)	Hair Growth Promotor	20%	25%
Bahera	Dried ripe fruits <i>Terminalia balerica</i> (Combreaceae)	Provides nutrition to growing hair	25%	30%
Amla	Dried ripe fruits of <i>Embelica officinalis</i> (Euphorbiaceae)	Hair growth promoter	30%	10%
Neem	Dried leaves of <i>Azadirachta indica</i> (Miliaceae)	Antiseptic antibacterial	10%	5%
Tulsi	Dried leaves of <i>Ocimum santum</i> (Labiatal)	Antibacterial	1%	2%
Shikakai	Dried seeds of <i>Acacia rugate</i> (Leguminesue)	Foam base	12%	22%
Henna	Dried leaves of <i>Lawsonia inermis</i> (Lythraceae)	Conditioner	1%	5%
Brahmi	Dried leaves of <i>centlla asiatica</i> (umbelliferae)	Support Health of Hair	1%	1%

Table 2- Evaluation of Herbal Powder Shampoo SN1 & SN2

S.No	Evaluation Parameter	Analysis	Sample – SN1	Sample – SN2
1.	Organoleptic Character	Colour Odour Taste Texture	Pale cream Slight Characteristic Fine smooth	Dark cream Slight pleasant Characteristics Fine smooth
2.	Powder Characteristic	Particle size Angle of repose Bulk density	25-20 micrometer 20.550 5/g/cc	25-20 micrometer 24.770 4/g/cc
3.	Physical Evaluation	Extract Value Pet ether Chloroform Benzene Acetone Methanol Total Ash Acid insoluble Acid soluble Moisture Content pH value	3.80 % w/w 3.93 % w/w 6.83 % w/w 8.50 % w/w 4.55 % w/w 4.45 % w/w 2.35 % w/w 1.42 % w/w 2.00 % w/w 6.5	5.84 % w/w 2.35 % w/w 5.61 % w/w 5.90 % w/w 4.94 % w/w 6.05 % w/w 3.32 % w/w 2.45 % w/w 2.50 % w/w 6.7

Table 3- Foaming capacity of herbal shampoo powder Sn1 & SN2

S.No	Time interval	Sample SN1			Sample SN1		
		Liquid	Foam	% FOAMING* CAPACITY	Liquid	Foam	% FOAMING* CAPACITY
1.	0 Min	47.5 ml	90 ml	187.5	46 ml	120 ml	292.68
2.	5 Min	48.5 ml	80 ml	160.0	47.5ml	100 ml	212.7
3.	30 Min	49.5 ml	70 ml	140.0	48 ml	90 ml	191.4
4.	60 Min	50 ml	60 ml	120.0	49.5 ml	80 ml	191.2
5.	Average foaming capacity %	151.8			Average foaming capacity %		216.74