



Development of Kusum Keshya Lotion by Ethanolic extract of Japakusum (*Hibiscus rosa sinensis L., Flower*).

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Abstract

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Hair loss and alopecia is a common dermatologic disorder. Now-a-days variety of herbal Cosmetics are available in the market and are used as hair tonic, hair growth promoter, hair conditioner, hair-cleansing agent and antidandruff agents etc. these herbal products claim to have with hair growth promoting activity. In Ayurveda many of the herbal and herbo-mineral formulations are mentioned for the management of scalp related disorders and are used in the form of paste which should be applied to the affected part. Even though there is a need to highlight hidden or unexplored herbal formulations by increasing their shelf life and increasing potency by adopting modern pharmaceutical technical aids to achieve well accepted consumer friendly products. The present study intended to develop kusum Keshya lotion by ethanolic extract of Japa kusum (*Hibiscus rosa sinensis L., flower*). *Hibiscus rosa sinensis L., flower* were collected from natural habitat and were dried in shadow. The Ethanolic extract of *Hibiscus rosa* was extracted as per the standards. The kusum Keshya lotion was prepared adopting proper SOP i.e., Extract of *Hibiscus rosa sinensis L* was mixed with lotion base, preservative, glycerine, and fragrance. Preliminary phytochemical study of *Hibiscus rosa sinensis L., flower* and evaluation of kusum Keshya lotion were done. In Preliminary phytochemical study carbonates, sodium, potassium, iron, sulphate and chloride were present. The prepared Kusum Keshya lotion tested for standards parameters like p^H (6.8), viscosity (352-358cpc) and sedimentation (Nil). The lotion showed good consistency and good appearance. So we can develop the classical formulation in convenient dosage form, consumer friendly, highly potent and longer shelf life products, without disturbing basic concepts of Ayurveda.

Keywords: Hair fall, kusum Keshya Lotion, Japa kusum, Shelf-life.

INTRODUCTION

In Ayurveda wide range of formulations are available for management of scalp related disorders especially Dandruff, Hair loss, Alopecia etc. Dandruff (Darunaka) can be described as a condition where there is occurrence of flaking of the scalp. Dandruff causes itching on the scalp and looks dirty on the hair. When it becomes severe, weakens the roots of the hairs and causes baldness. ^[1] People who suffer from dandruff are prone to get acne, pimples and boils on the face and back due to its infection. Herbal products are available in the market as hair tonic, hair growth promoter, hair conditioner, hair-cleansing agent, and anti dandruff agent's etc., these products have been acclaimed to have hair growth promoting activity. Even though the surge is still continuous to find out newer formulations of herbal products with hair growth promoting potential. Herbal medicine, now a days are gaining importance in treating many diseases due to their significant effects and lesser side effects than allopathic medicines.

Most of the Herbal/Herbomineral formulations mentioned in the classics are for external application in the form of kalka(Paste). But their dosage forms are having very shortest shelf life. Thus there is a need to develop newer and convenient dosage forms by which we can increase the shelf life and maintain proper potency of the formulations. Japa kusum (*Hibiscus rosa sinensis. L flower*) flower is indicated as Keshya (hair growth promoter) ^[2]. The ethanolic extract of Japakusum. (*Hibiscus rosa sinensis L., flower*) helps to control dandruff, rashes, itching of scalp and hair fall ^[3].

In this study the ethanolic extract of Japa Kusuma (*Hibiscus rosa sinensis L., flower*) is used to prepare lotion. The prepared lotion was subjected for analysis which revealed that it is slightly acidic pH (6.8).Which is compatible with normal skin physiology, Viscosity was between 352-358 cpc range having good consistency and also it does not show any separation or deterioration, even after six months when kept in general atmosphere. Whole research work was carried on at P.G. Department of Bhaishajya kalpana, K.L.E University Shri B.M.K. Ayurveda Mahavidyalaya, Post-Graduate Studies and Research Centre. Shahapur, Belgaum.

MATERIAL AND METHOD

Pharmaceutical part

Raw material collection

The raw material Japa Kusuma (*Hibiscus rosa sinensis L., flower*) was collected from the natural habitat in and around Belgaum city. Identification and authentication were done by experts. The flowers are dried properly in shadow by adopting proper aseptic conditions and other materials required for the preparation of lotion are collected from authentic sources.

Preparation of extract ^[4]

The Extract of *Hibiscus rosa sinensis* L., flower was prepared by continuous extraction method using soxhlet extraction apparatus. Cleaned and dried sample of *Hibiscus rosa sinensis* L. flower were taken and solvent used was absolute alcohol. The extraction was done for seven hours, then the solvent was cooled and transferred to evaporating dish and was evaporated on water bath and ultimately extract was dried in oven.

Preparation of lotion

As per the standard preparation, lotion was prepared in the following steps. ^[5]

Step -1: 1gm of extract of *Hibiscus rosa sinensis* L flower was added to 0.01gm of methyl paraben sodium which was used as preservative.

Step-2: 85ml of boiling water is added to 10gms Glycerol mono stearate and stirred well till a homogenous solution is formed and then it is cooled down to 40⁰ C.

Step-3: Mixture of 1gm extract of *Hibiscus rosa sinensis* L flower and 0.01gm of methyl paraben sodium (Step-1) is added to warm homogenous solution (Step-2) and stirred well continuously till it turned to homogenous solution.

Step-4: Now 3ml of glycerine is added to it (Step-3 solution) and stirred continuously till it cooled down to room temperature. Fragrance substance is added this time while constant stirring. When its consistency became like lotion it is poured into ready uncapped jar. The quantity of ingredients is shown in the table below.

Table I: Showing the proportion of ingredients in per 100ml lotion

Sl No.	Ingredients	Quantity	Quantity (%)
1.	Ethanolic extraction <i>Hibiscus rosa sinensis</i> L.,flower	1 gm	1%
2.	Methyl paraban sodium	0.01gm	0.01%
3.	Water	85ml	85%
4.	GlycerOl mono stearate	10gm	10%
5.	Glycerin	3 ml	3%

Analytical part

Raw material Analysis

The Preliminary phyto chemical screening of Japa Kusuma (*Hibiscus rosa sinensis* L., flower) was carried out to evaluate inorganic and organic matters by applying standard analytical procedures. ^[6]

Table II: Showing results of Inorganic elements of japakusum (*Hibiscus rosa sinensis* L., flower)

Sr no.	Tests	Results
1	Carbonate	+
2	Iron	+
3	Phosphate	+
4	Chloride	+
5	Sodium	+
6	Potassium	+
7	Sulphate	+

Table III: Showing results of organic elements of japa kusum (*Hibiscus rosa sinensis* L., flower)

Sr. No.	Chemical constituents	Ethanolic extract	Aqueous extract
1.	Alkaloids	+	+
2.	Proteins	-	-
3.	Tannins	+	+
4.	Amino acid	+	+
5.	Glycosides	+	+
6.	Mucilage	+	+
7.	Flavonoids	+	+
8.	Reducing sugar	+	+
9.	Saponin	-	+
10.	Hexose sugar	+	+
11.	Steroid	+	+

Analysis of Lotion

Physical evaluation

Physical parameters such as colour, appearance and consistency were checked visually

Table IV: Physical parameters (Organoleptic character) of lotion

Sl no.	TEST	RESULT
1.	Color	Creamy brown
2.	Appearance	Good
3.	Consistency	Good

pH

The test solution was prepared by adding 100ml of distilled water to 5 ml of prepared lotion; it was stirred using a thin glass stirring rod. Next the pH meter is standardized by means of the standard solution provided at room temperature. The electrode of pH meter is immersed into the test solution and beaker is turned slightly to obtained good contact between the test solution and electrode. The meter has auto read system and it automatically signal when stabilised. The pH was recorded.^[7]

Viscosity

Viscosity of lotion was measured with the Ostwald Viscometer and calculated by standard formula,^[8]

$$\eta_1 = P_1 t_1 / P_2 t_2 \times \eta_2$$

Where P_1 = density of the lotion, kg/ m³

P_2 = density of the known liquid (water), kg/ m³

t_1 = time of flow of the lotion, s

t_2 = time of flow of the known liquid (water).s

η_2 = viscosity of the known liquid (water),Pa .s

Homogeneity

The developed lotion was tested for homogeneity by visual inspection, after the lotion has been set in the container, spread on the glass slide for the appearance, tested for the presence of any lumps, flocculates or aggregates.

Sedimentation^[9]

Lotion was allowed to stand for 24 hrs and Sedimentation ratio was calculated by standard formula as below

Sedimentation volume (F)

$$F = V_u / V_o \text{ ----- (A)}$$

Where, V_u = final or ultimate volume of sediment

V_o = original volume of lotion before settling.

Sedimentation volume is a ratio of the final or ultimate volume of sediment (V_u) to the original volume of sediment (V_o) before settling.

Sedimentation volume can have values ranging from less than 1 to greater than 1; F is normally less than 1.

F=1, such product is said to be in flocculation equilibrium, and show no clear supernatant on standing.

Table V-Showing results of Analysis of lotion.

Sl no.	Test	Result
1.	p ^H	6.8
2.	Viscosity	352-358cpc
3.	Sedimentation rate	No separation
4.	Homogeneity	No lump/no aggregation

RESULTS AND DISCUSSION

The Japakusuma (*Hibiscus rosa sinensis L flower*) should be collected especially in the morning time and care should be taken while drying it in shadow to avoid contamination with foreign bodies and fungus.

Result of Preliminary phytochemical study of the Japa kusum (*Hibiscus rosa sinensis L.flower*) revealed that inorganic components like Carbonates, Sodium, Potassium, Iron, Sulphate & Chloride were present and organic components like Alkaloids, Proteins, Tannins, Amino acid, Glycosides, Mucilage, Flavonoids, Reducing sugar, Saponin, Hexose sugar and Steroid were present in both the water and alcoholic extract except Saponin which was present only in water extract.

Lotion was developed using 1% ethanolic extract of japa kusum & glycerol mono stearate as a lotion base. Physical parameters like color, appearance and consistency were checked visually. P^H was found to be 6.8 which is acceptable for application over scalp without irritation. Viscosity was found in the range of 352-358 cpc which indicates proper consistency of the prepared product. Sedimentation rate of developed lotion was tested for homogeneity by visual inspection after setting lotion in the container for the presence of any separation or aggregation. It found no separation or aggregation.

CONCLUSION

Lotion developed from ethenolic extract of japa kusuma (*Hibiscus rosa sinensis L.,flower*) passed all the parameters applicable to lotion. So, many of the herbal formulations, mentioned in the classics in the form of kalka(paste), lepa(cream) etc. can be modified or developed in to well acceptable and agreeable forms by using modern pharmaceutical technology without disturbing the basic concepts of Ayurveda even it also increases their stability and shelf life.

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Image – 1: Dried flower of Japakusum. (Raw material)



Image – 2: Prepared Keshya lotion.

