



## PREPARATION AND EVALUATION OF HERBAL CREAM

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### ABSTRACT

A herbal fairness cream was formulated using herbal extracts which have potential antioxidant activity. Creams were basically formulated using the hydro alcoholic extracts of *Glycyrrhiza glabra* (root and Stolons), *Camellia sinensis* (leaf), *Pleurotus ostreatus* (mushroom plant). The prepared formulation were subjected to different evaluation like spreadability, pH, appearance, viscosity, drug content, irritability and antioxidant properties. The prepared formulation was found stable and effective. Among the several combination Liquorice & Green Tea based preparation shows better results. From the results it was concluded that it is possible to develop creams containing herbal extracts having potent antioxidant and fairness property and can be used as the provision of a barrier to protect skin.

**Keyword:** - Mushroom, Anti ageing, Herbal formulation

### INTRODUCTION

Fairness cream has emerged in the last 50 years to improve complexion and attractiveness. Melanin is one of the reasons for dark complexion. Melanin is primary determinant of “melanocytes” that are located in the epidermis. The increased production of melanin in human skin is called “melanogenesis”. Fairness cream blocks damages occurs due sun rays and to some extent also reduce secretion of melanin, which is major cause behind dark color of skin. The basic idea of skin care cosmetic lies deep in the Rigveda, Yajurveda, Ayurveda, Unani and Homeopathic system of medicine<sup>[2]</sup>. Herbal cosmetics are the products in which herbs are used in crude or extract form<sup>[1]</sup>. In this modern era, the knowledge and experience of usage of herbs are being blend with advanced cosmetic technology to develop a safe and elegant beauty product, which has wider range of people acceptability. Basically it is beauty invented by nature and perfected through technology. Herbs have the advantage of having no or least adverse effect and have a wide spectrum of consumer compliance. Indians are witnessing a paradigm shift from traditional methods of using home products. The concept of preferring the people with "fair-skin" has long been recognized socially and it has been the psychological and social impact on women to be fair. But in the recent years, men to have started

giving importance on personal grooming, beginning with fair skin. The herbal cosmetic market has a share of almost Rs 200 crores out of an estimated Rs 2000 crores of total cosmetic industry in the country. The total cosmetic market is growing at the rate of 20-25% per annum. Out of this growth about 60% that of herbal cosmetic segment<sup>[1]</sup>. Hence with consideration of the above fact development of herbal cosmetic formulation in the form of a face cream is the ultimate objective of the study.

### MATERIAL AND METHODS

The green tea (*camellia sinensis*) were purchased from the vendors of local market of Raipur, Mushroom (*pleurotus ostreatus*) and liquorice (*Glycyrrhiza glabra*) were collected from the medicinal plant garden and Institutional mushroom house of Columbia institute of Pharmacy C.G. Cetyl alcohol (Samar chem.), stearic acid (Samar chem.), olive oil (Samar chem.), SLS(Lobachemie).

### Extraction method

The collected plant materials were dried in shade and grinded to form coarse particle by mechanical means. Green tea, liquorices' and mushroom were extracted respectively using hydro alcoholic solvent (cold maceration process) at the ratio (70:30). The extracts

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were dried properly and stored in a well closed container.

#### Preparation of herbal cream

Specific quantity of cetyl alcohol, sodium lauryl sulfate and stearic acid were warmed up to 70<sup>0</sup>C. Then add few drops of olive oil and homogeneously mixed it. After that add few drops of water with continuous stirring until it gets cool and proper consistency was achieved. Mean while, weigh active ingredients and add small amount of methanol to form its paste. Combine the above cream with the paste of active constituents to form formulation. The different proportion of extract was mixed in base material to prepare herbal Fairness cream.

#### Evaluation of herbal cream

##### Determination of pH

The pH of the prepared formulations was evaluated by using digital pH meter. Formulations were introduced to the tip of previously calibrated pH meter and the results were noted.<sup>2</sup>

##### Determination of viscosity & rheology study

The viscosity of cream was determined by using Brookfield viscometer. The cream was placed in the sample holder and the suitable spindle selected was lowered perpendicularly into the sample. The spindle was attached to viscometer and then it was allowed to rotate at a constant optimum speed at room temperature. The readings were measured after few minutes.<sup>3</sup>

**Spreadability-** The parallel plate method is the most widely used method for determining and quantifying the spread ability of cream preparations. The spreadability can be determine by using formula

$$S = M.L/T$$

Where,

M = weight tied to upper slide,

L = Length of glass slide

T = Time taken to separate the slide

Constituents	Quantity in gm (w/v)		
	F1	F2	F3
<i>Camellia sinensis</i> extract	0.1	0.2	0.3
<i>Glycerrhyza glabra</i> extract	0.3	0.1	0.2
<i>Pleurotus ostreatus</i> extract	0.2	0.3	0.1
Cetyl alcohol	5	5	5
Stearic acid	10	10	10
Olive oil	10	10	10
Sodium lauryl sulfate	5	5	5
Water	70	70	70

##### Homogeneity

The formulations were tested for homogeneity centrifugation techniques. The formulations were subjected to centrifuge machine and processes of centrifugation was performed at a suitable speed. After the processes rate of phase separation were observed by visual appearance.<sup>4</sup>

##### Drug content

The study was performed by taking 1gm of prepared gel and transfer into 25 ml of distilled water. The content was kept for 24 hrs at continuous agnation by rotary shaker. The percentage drug content were evaluated by means of UV analysis.<sup>6</sup>

**Physical stability-** The ability of cream to maintain its consistency was determined by keeping it at 25<sup>0</sup>C for 30 days and at higher temperature around 70<sup>0</sup>C for 15 day.

Formulation	pH	Spreadability (cm <sup>2</sup> )	Viscosity (centipoises)	%Drug content
F1	6.4	7.2	12500	97.3
F2	6.1	6.8	10500	94.2
F3	6.6	9.6	13500	96.4

Table 1: Table shows values for, pH, spreadability and viscosity of the various formulation.

Days	Temperature	Formulation	Parameters						
			pH	X1	X2	X3	X4	X5	X6
0	Room temp.	F1	6.7	**	NCC	**	E	NG	ES
	Room temp.	F2	6.6	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C+1 <sup>0</sup> C	F3	6.5	**	NCC	**	E	NG	ES
5	Room temp.	F1	6.6	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C +1 <sup>0</sup> C	F2	6.4	**	NCC	**	E	NG	ES
		F3	6.3	**	NCC	**	E	NG	ES
10	Room temp.	F1	6.6	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C +1 <sup>0</sup> C	F2	6.4	**	NCC	**	E	NG	ES
		F3	6.3	**	NCC	**	E	NG	ES
15	Room temp.	F1	6.6	**	NCC	**	E	NG	ES
		F2	6.5	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C +1 <sup>0</sup> C	F3	6.4	**	NCC	**	E	NG	ES
20	Room temp.	F1	6.6	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C +1 <sup>0</sup> C	F2	6.4	**	NCC	**	E	NG	ES
		F3	6.3	**	NCC	**	E	NG	ES
25	Room temp.	F1	6.7	**	NCC	**	E	NG	ES
	40 <sup>0</sup> C +1 <sup>0</sup> C	F2	6.4	**	NCC	**	E	NG	ES
		F3	6.3	**	NCC	**	E	NG	ES

Table no. -02. Physical parameter of F1 and F2,F3 cream on room and accelerated temperature Where, X1-Homogeneity, X2-Appearance, X3-Spreadability, X4-After feel, X5-Type of smear, X6-Removal, \*\*:

Good, \*: Satisfactory, E: Emollient, NG: Non-greasy, ES: Easy, NCC: Not change in colour.

## DISCUSSION

The prepared formulations were found to be stable and uniform as per the visual observation. The Ph of all the formulations were ranges in between 6-6.5, it is considered as suitable for topical application. The formulation shows good Spreadability which was found to be within the range 6.8- 9. Viscosity of all the prepared gels was measured by means of brook fill

viscometer. The result shows that concentration of polymer influence the viscosity parameter of the formulation which might have some influence on spreading property of formulation. The prepared formulations were found stable in different temperature condition hence it might be state that the prepared formulations were stable. The formulations were not shows any skin irritation.

**CONCLUSION**

Based on the resultant data obtained from the different evaluation parameters it can be concluded that the prepared formulations were stable and safe to use. Extracts of camellia sinensis, and Glycerrhyzagliabra, *Pleurotusostreatus* in different ratio may serve the purpose of imparting beautification and preventive effect on skin. Further studies are required to establish

the fact and produce herbal better formulations that can be utilize for the benefit of mankind.

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