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Formulation and Evaluation of Face Serum Containing Plant Extract

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Abstract:

Face serum is an extremely concentrated enhancing product. Serum has a property of quick absorption and aptitude to penetrate into deeper layer of the skin. A good skin serum may provide your skin a firmer, smoother texture, make pores appear smaller and increase moisture levels. Serum has a very high concentration of active ingredients and also has a non-oily finish and quick absorption. In the current study a face serum has to be prepared with the herbal extract of plant *Daucus carota*.

Keywords: Face serum, Skin, Plant Extract

INTRODUCTION

People have been using cosmetic products consisting of synthetic ingredient or herbs to look fascinating and young. Ingredients present in herbal cosmetic products impact biological functions of skin, and it also provides required nutrition for the healthy skin. The application of herbal skin care products has been proliferated to many folds in personal-care practice and over, there is a noteworthy demand for the herbal cosmetics. At present personal care industry is more focused on herb based cosmetics. The market research shows upward trend in the herbal trade with the herbal cosmetic industry playing a major role in fueling this worldwide demand for herbals. Herbal cosmetic product is cost-effective and less expensive than the cosmetic products made from a synthetic ingredient [1] Accordingly, there is a continued need to develop new herbal cosmetic products containing antioxidants that can be more effectively delivered so as to

increase the aesthetic and protective benefits offered by this class of compounds. Searching for novel skin-care cosmetics from natural resources has become a great source of interest as they can produce multipurpose effect against aging, hyperpigmentation and sunburn. Serums is a skin care product containing a gel or light weight lotion or moisturizing consistency and have ability to penetrates deeper to deliver active ingredients into the skin . A good skin serum may provide your skin a firmer, smoother texture, make pores appear smaller and increase moisture levels. Serum has a very high concentration of active ingredients and also has a non-oily finish and quick absorption [2]. In the current study, a face serum has to be prepared with the herbal extract of plant *Daucus carota*.

Experimental Work

Collection and preparation of plant drug

The proposed plant drug *Daucus carota* leaves were collected from the local area of Bhopal and authenticated in department of pharmacognosy, RKDF College of Pharmacy, Bhopal. The collected plant drug was converted into moderately coarse powder for further extraction process.

Preparation of Extract

Powdered plant drug was first defatted with solvent like petroleum ether and extracted out with ethanol. The Percentage yield was calculated.

Preparation of polyherbal face serum

The (o/w) emulsion based serum was formulated. The oily component consisting of olive oil, sandalwood oil, tween 20 and coconut oil is mixed together for 15 minutes to obtain a uniform solution. At the same time the water phase was prepared by mixing the extracts, glycerin and a small amount of distilled water uniformly. The oil phase is added to the liquid phase drop wise under mechanical vibration at 2500 rpm to obtain o/w based on biphasic emulsion. [3,4]

Table: 1.1: Composition of face serum with herbal extract

Ingredients	Standard formula (100 ml)	Working formula (40 ml)
Plant Extract	50%	10 ml
Olive Oil	8%	1.8 ml
Sandalwood Oil	0.1%	0.02 ml
Coconut oil	3%	0.4 ml
Glycerin	25%	5 ml
Tween 20	1%	0.2 ml
Distilled Water	QS to 100 ml	QS to 40 ml

Evaluation of Face Serum [5]

Physical Evaluation

The formulations were characterized for organoleptic properties such as colour, odour. The formulations are visually inspected for its clarity and presence of any foreign particles.

Homogeneity

The formulation was tested for the homogeneity by visual inspection and touch

pH Value

A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of the face serum was properly weighed and dissolve in 50 ml of distilled water and finally its pH was calculated. The skin has an acidic range and the pH of the skin serum should be in the range of 4.1-6.7.

Determination of spread ability 2gm of serum sample was placed on the surface. A slide was attached to a pan to which 20 gram weight was added. The time (s) required to separate the upper slide from surface was taken as a measure of spread ability.

Stability studies

The stability study is conducted by keeping the drug substance in their proposed pack or prototype container in the case of bulk drugs, in sufficient number in room temperature away from light.

Results and Discussion

Physical Evaluation

The formulated face serum was evaluated in terms of colour, odour, taste and texture. The findings were reported in table 1.2

Table 1.2 Physical Evaluation of Formulated Face Serum

Colour	Light green
Odour	Characteristic
Taste	Tasteless
Texture	Smooth homogenous

Homogeneity

The formulated face serum was evaluated in terms of Homogeneity. Result states that homogeneity of the formulated serum was judged by visual appearance and touch. The appearance and touch of the serum was good.

pH Value

The pH of formulation was found to be 6.4. As the skin having an acidic pH around 4.1-6.7, this range of formulation is suitable for skin.

Determination of spreadability

The spreadability of liquid formulation is capacity of the face serum to spread over the skin and play imperative role in administration of standard dose of medicament formulation on skin. Spread ability of face serum was found to be 5 to 6 cm.

Stability studies

The formulation was undertaken stability studies for physical and chemical changes. No considerable variations in properties of the formulation were observed. The findings were reported in table 1.3

Table 1.3 Stability studies of formulated serum

Visual Appearance	Light green
Phase Separation	NIL
Homogeneity	Good

Conclusion

The aim of the study was to formulate plant extract into a serum for moisturizing and glowing activity on skin. Formulated herbal face serum was evaluated for physical evaluation, pH, homogeneity, spreadability and stability studies. The findings of all evaluation parameters were found in limit. So, this serum can be used treat skin related problem.

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