

Formulation and Evaluation of Anti-Wrinkle Herbal Cream Containing Daucus Carota

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Abstract: -Creams are considered an important part of cosmetic product as topical preparations from time immemorial due to their ease of application to the skin and also their ease of application to the skin and also their removal. From cosmetic purposes, pharmaceutical creams have a variety of applications such as cleansing .beautifying, altering appearance, moisturizing. To the skin protection against bacteria, fungal infection .Skin aging can be described as irregular pigmentation, increased wrinkle, loss of elasticity, dryness and roughness. the fruits contain large quantity of mangiferin which possess medicinal benefits including antioxidant anti-inflammatory .The largest part of human body is skin, which is also the outermost organ; it acts as a first line of defense of our body .after ascertain period of time. The present study is to formulate and evaluate the herbal cream containing extract of natural products such as the *Dacus Carota*, and *Cucumis Sativus*. Different type of oil in water (o/w) herbal cream are preparing by changing concentrations of ingredients. Were formulated and evaluate ant wrinkle cream containing *Dacus Carota* as active ingredients. *Cucumis sativus* extract is used to skin problems, wrinkle, and sunburn and as an antioxidant. The evaluations of all formulations were done on not show any adverse effects. The formulation shows no redness, oedema, inflammation and irritation during irritancy studies. The formulations are safe to use for skin. These studies suggest that the composition of extract and base of cream are more stable and safe, it may produce synergistic action. **Keywords:** *Herbal Cream, pH, synergistic action, Cucumis Sativus, Dacus Carota.*

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I. INTRODUCTION

Definition of the cream: Creams are defined as semisolid "semisolid dosage form containing one or more drug substances dissolved dispersed in a suitable base."Creams are the topical preparations which can be applied on the skin. Creams are defined as "viscous liquid or semi-solid emulsions of either the oil-in-water or water-in-oil type" dosage forms which consistency varies by oil and water. Creams are used for cosmetic purposes such as cleansing, beautifying, improving appearances, protective or for therapeutic function. These topical formulations are used for the localized effect for the delivery of the drug into the underlying layer of the skin or the mucous membrane. These products are designed to be used topically for the better site specific delivery of the drug into the skin for skin disorders. Creams are considered as a pharmaceutical product as they are prepared based on techniques developed in the pharmaceutical industry; unmediated and medicated creams are highly used for the treatment of various skin conditions or dermatitis. Creams can be Ayurvedic, herbal or allopathic which are used by people according to their needs for their skin conditions.

Types of the cream:

1. Oil in Water (O/W)
2. Water in Oil (W/O)

They are divided into two types:

1. Oil-in-Water (O/W): Creams which are composed of small droplets of oil dispersed in a continuous phase, and are emulsion. In which the oil is dispersed as droplets throughout the aqueous phase is termed an oil in water (o/w) Emulsion.[r dispersed in a suitable base.
2. Water-in-Oil (W/O): Creams which are composed of small droplets of water dispersed in continuous oily phase when water is the dispersed phase and oil the dispersion medium, the emulsion is of the water-in- Oil (w/o) type.

Advantages of the cream: They give prolong contact in their site of application than any other pharmaceutical semisolid dosage forms. 2. Injured area can be dried quickly by cream than other semisolid preparations. 3. Non- irritating when applied to the skin. 4. Easily water washable. 5. Easy to wipe away. 6. Less greasy compared to ointment. 7. Easy to spread on the skin's surface (i.e. easy to apply). Disadvantage: They are less

hydrophobic than other semisolid preparation, so risk of contamination is high than the other. 2. Stability is not as good as ointment. 3. May cause staining. 4. They are bulky to handle. 5. Application with a finger may cause contamination. 6. Physico-chemical is less stable than solid dosage form.

Classification of the cream: All the skin creams can be classified on different basis: 1. According to function, e.g. cleansing, foundation, massage, etc 2. According to characteristics properties, e.g. cold creams, vanishing creams, etc. 3. According to the nature or type of emulsion. Types of creams according to function, characteristic

Properties and type of cream: Make-up cream a. Vanishing creams. b. Foundation creams. 2. Cleansing cream a. Cleansing milk b. Cleansing lotion (w/o emulsion) 3. Winter cream (w/o emulsion): 4. Cold cream or moisturizing creams. 5. All-purpose cream and general creams. 6. Night cream and massage creams. 7. Skin protective cream. 8. Hand and body creams. 1. Make-up cream these are mainly o/w type of emulsion. It is cream-based product which leaves a smooth hydrate finish (either stain matte or luminous) on the skin. It nourishes skin and is basically sweat-resistant and creates a dewy sheen. 2. Vanishing creams: They are called vanishing creams because they seem to disappear when rubbed onto the skin. These formulations are based on stearic acid. After application, the cream leaves a dry but tack residual film which also has a drying effect on the skin. Foundation creams: These cream serve as a foundation base for make-up. It acts as an adherent base for application of make-up powders. They provide emollient action and a protective action against environment to the skin which is neither too greasy nor too dry. It is multi-colored make up applied on the face to create an even, uniform colour similar to the complexion, to cover flaws and to change the skin tones. 2. Winter creams: These are w/o type of formulation and in this formulation oil content will be more than water content. These creams are mainly used for chapped and dry skin. It is known as moisturizer or moisturizing cream. Cold cream must have an emollient action. 3. Cold cream: 4. It should produce a cooling sensation in use and the oil film on the skin should be non-occlusive. 5. All creams and general creams: These creams are used more nowadays than before. These creams are somewhat oily but non greasy type and can spread on the skin easily. This can also be used as a night creams, nourishing creams, and protective creams for prevention of sunburns or for the treatment of roughened skin areas. 7. Night cream or massage creams: These creams are mainly used for the nourishing the skin or as a treatment to dry skin. Creams which are generally applied on skin. In.

Ant wrinkle Cream: Definition of ant wrinkle cream Intended to reduce the appearance of wrinkles in the skin. Aging is a common process of human beings in which there is inability in maintenance of homeostasis and risk of dying increases. After the age of 20 its symptoms appears as the collagen content per unit area starts decreasing, there is 1% decrease in collagen content per unit area of the skin every year . It is divides into two types, intrinsic and extrinsic aging. The intrinsic aging is associated with genetics whereas extrinsic aging is caused by external factors such as sun exposure, smoking, diet, lifestyle etc. Aging occurs due to sun exposure is known as photo aging various signs of photo aged skin are deep wrinkles, rough and dry skin, dark and light patches and loss of skin's elasticity.

Selection Of agent: Carrots are rich in beta-carotene, which actually gets its name from the classic vegetables. The body converts this beta carotene into vitamin A, which in carrots is called retinol, an ingredient found in many anti-wrinkle cream



Carrots, the anti-wrinkle secret in skin care. We already know the vast benefits they provide with their high amount of antioxidants (beta carotenes), vitamin A and other minerals, but what some of us don't realize is we all use water-based skin care products. 1. Reviving Skin that Glow: Carrot can help keep looking and feeling healthy and evens out texture due to the vitamin Candy antioxidant. 2. Anti-wrinkle: Carrots contain a good amount of vitamin C which helps stimulate collagen production which is key for skin elasticity improving the appearance of fine lines and wrinkles. Vitamin A, on the other hand, is most abundant with carrot juice and is known to destroy free radicals that cause the skin to age prematurely. 3. Carrot: it's obtained from *Daucus carota* belonging to Apiaceous family. It's a valuable herb since ages as because of its richness in vitamin A alongside other essential vitamins. Carrot seed is used as anti-wrinkle, revitalizing and rejuvenating agent. From β -carotene carrot gets its characteristic and bright orange colour, and lesser amounts of α -carotene and γ -carotene. A and β -carotenes are partly metabolized into vitamin A in humans. Whether you have dry, acne

prone or sensitive skin, carrot oil is a great skin saver. Rich in vitamin A and aryltenoids, carrot oil helps give your skin a natural radiant.

II. METHOD

Preparation of Extract: Air-dried and coarsely powdered (500 gm) of Daucus Carota were placed in a Soxlet extractor separately, using petroleum ether and then successively with ethanol.

The extracts were then concentrated to dryness under reduced pressure and controlled temperature, respectively and they were preserved in a refrigerator.

Cream Formulation: Oil in water (O/W) emulsion, (semisolid formulation) is formulated. The stearic acid cetyl alcohol and almond oil are dissolved in the oil phase and these are heated To 75°C. This is part A. The water-soluble components like methylparaben, triethanolamine, propylparaben, Daucus Carota are dissolved in an aqueous phase and it is heated up to 75°C. This is Part B. After heating, the aqueous phase was added in portions to the oil phase with Continuous stirring until the cooling of the emulsifier took place.

Evaluation of cream:

pH: Evaluation of pH of the Cream: By using a buffer solution, the pH meter was calibrated. The 0.5 g of the cream was weighed and dissolved in 50.0 ml of distilled water after that pH is measured.

Dye test: The red dye is mixed with the prepared cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. If the globules appear in red color, then the background is Colorless.

Homogeneity:

The Homogeneity of a prepared formulation is tested by touch and by appearance.

After feel: The emollient nature and smoothness are checked after application.

Type of smear: The formation of smears after applying to skin is checked.

Removal: The applied cream was observed for removal by using tap water.

Acid value: Take 10 gm of cream and dissolved in 50 ml mixture of equal volume of alcohol and solvent ether, then the flask was connected to reflux condenser and heated, until the content was dissolved completely, then add 1 ml of phenolphthalein and it is titrated with 0.1N NaOH, until light pink color appears after shaking the flask for 30 seconds.

Acid value = $n \times 5.61/w$

n = amount of NaOH required.

w = the weight of the substance.

Saponification value: Introduce about 2 gm of substance refluxed with 25 ml of 0.5 N alcoholic KOH for 30 minutes, to this 1ml of phenolphthalein added and titrated immediately, with 0.5N HCL. Saponification value = $(b-a) \times 28.05/w$.

The volume in ml of titrant = a

The volume in ml of titrating = b

The weight of the substance in gm = w

The cream is known as o/w type. If the condition is reversed, then it is known as w/o type cream i.e. the disperse globules appear Colorless but the background is in red color.

Irritancy test: Apply prepared cream on the backside of the left hand. Then the area of cream applied and time is taken into consideration. Irritation on applied

Area, eczema, other rashes are Observed within 24 hrs after the application of a cream.

Accelerated stability testing: Accelerated stability testing is performed for more stable two prepared formulations. Stability testing is performed at least for one week. The formulations were kept at $40^{\circ}\text{C} \pm 1^{\circ}\text{C}$ for 20 days.

III. RESULT AND DISCUSSION

pH of the Cream: The ph of the cream was found to be in the range of 5.6 to 6.8 which is good for skin ph. All the prepared formulations of cream are nearer to skin ph i.e. Ph of f1-6.8 and f2-6.7.

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
PH	6.8	6.7	5.3	6.3	5.8	5.9	6.1	6.3

Acid value and Saponification value: The results of acid and Saponification value of all formulation of cream are presented in the table, and showed satisfactorily values.

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
Acid value	5.2	5.3	5.5	6.2	6.6	6.7	6.8	6.9
Saponification value	22.2	24.2	25.2	26.2	27.4	28.5	29.2	29.5

Irritancy test: The formulation shows no redness, edema, inflammation, and irritation during irritancy studies. These formulations are safe to use for skin.

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
Irritancy	NILL							

Dye test: This dye confirms that all formulation was o/w type emulsion cream. But formulation F1 shows more stable in o/w type emulsion.

Appearance: When formulation was kept for a long time, it found that no change in the color of cream

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
Appearance	No change							

After feel: Emolliency, slipperiness and amount of residue left after the application of a fixed amount of cream were found.

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
After feel	Emollient							

Type of smear: After application of the cream, the type of smear formed on the skin was non-greasy.

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
Type of smear	Non greasy							

Removal: The cream of F6 and F7 applied on the skin was easily removed by washing with tap water

Parameter	F1	F2	F3	F4	F5	F6	F7	F8
Removal	Good							

Daucus Carota are well known for its medicinal and Cosmeceuticals value in the Indian traditional system of medicine.

The present project work is to extract and prepare herbal cream. The tyrosinase inhibitory substances are used in cosmetic products as a skin whitening agent to reduce skin pigmentation by decreasing the melanin production. The daucus carota makes the skin smooth, moisturize, heal fastly and regenerates.

From above it concluded that these plant extracts produce excellent whitening, anti wrinkle and sunscreen effect on the skin. Production of free radicals causes oxidative stress and oxidative photodamage to membranes and molecules in the skin.

The maturation of skin becomes wrinkled and rough. β -carotene is the most abundant and most efficient precursor of vitamin A. β -carotene is called as a radical scavenger. Because it protects the skin from harmful UV radiations. β -carotene is capable to increase cell turn-over and regeneration in the outer layers of the skin, making it effective for diseases and skin conditions related to epithelium damage.

β -carotene also enhances the appearance of dry or damaged skin by reducing flaking and restoring suppleness. In skincare products, beta-carotene is used to protect the skin from sun rays and also to protect the skin tone due to its anti oxidant and anti-aging properties

It is reported that Daucus Carota contains more amounts of vitamin C and an abundant amount of β -carotene.

From the above discussion, it is assumed that β -carotene containing plant as well as antioxidant activity producing plants can be used in face care cream, to produce sunscreen, anti-aging, and anti-wrinkle effects.

Hence these two extracts are the best choice to use in face creams.

The almond oil has emollient properties and also gives smoothes, glow to the skin. The prepared formulation is a polyherbal face cream of O/W type emulsion, so the creamis hence can be easily washable with portable water.

Therefore, we tried to make a polyherbal face cream containing the extract of *Daucus Carota*. Our study indicated that the formulation F1 found to be more stable while remaining formulations were not stable and resulted in a breakdown of the emulsion when stored for a long time.

This formulation had almost suitable and constant pH, homogeneous, emollient, nongreasy and easily removed after the application. The stable formulation F1 was safe with respect to skin irritation and sensitization.

IV. CONCLUSION

It is concluded that on combining the extracts of *Daucus Carota* in different compositions to get multipurpose effect on skin such as whitening, anti-wrinkle, anti- aging, and sunscreen effect in skin.

We know that it is not possible to get efficiency effect with single herb but by taking combinations of different extracts can be possible to increase the efficiency of extracts.

In this regard, we mixed the extracts of *Daucus Carota* to improve as well synergizes the cosmetic properties of prepared products compare to individual extracts.

These studies suggest that the composition of the extracts and base of F1 is more stable and safe.

REFERENCE

- [1]. Saraf, S. and Kaur, C.D., 2010. Phytoconstituents as photoprotective novel cosmetic formulations. *Pharmacognosy reviews*, 4(7), p.1.
- [2]. Datta, H.S. and Paramesh, R., 2010. Trends in aging and skin care: Ayurvedic concepts.
- [3]. Journal of Ayurveda and integrative medicine,
- [4]. Rajvanshi.A, Sharma.S, Khokra.SL, SahuAnuragRajvanshi.RK, Shalini Sharma, SukhbirLalKhokra, Ram Kumar Sahu, RajendraJangde. Formulation and evaluation of *Cyperusrotundus* and *Cucumissativus* based herbal face cream. *Pharmacologyonline*. (2011); 2:1238-1244
- [5]. Singh, M., Sharma, S., Khokra, S.L., Sahu, R.K. and Jangde, R., 2011. Preparation and 1)evaluation of herbal cosmetic cream.
- [6]. *Pharmacologyonline*, 2, pp.1258-1264.
- [7]. Ashawat, M.S., Madhuri, B., Shailendra, S. and Swarnlata, S., 2009. Herbal cosmetics:" trends in skin care formulation". *Pharmacognosy Reviews*, 3(5), pp.72-79.
- [8]. SharifMoghaddasi, M. and Verma, S.K., 2011. International Journal of Biological & Medical Research. *Int J Biol Med Res*, 2(1), pp.466-471
- [9]. Aburjai, T. and Natsheh, F.M., 2003. Plants used in cosmetics. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*, 17(9), pp.987-1000.
- [10]. Pal, A., Soni, M. and Patidar, K., 2014. Formulation and evaluation of polyherbal cream. *International Journal Pharmaceutical and Biological Archives*, 5, pp.67-71.
- [11]. Akhtar, N., Mehmood, A., Khan, B.A., Mahmood, T., Muhammad, H., Khan, S. and Saeed, T., 2011. Exploring cucumber extract for skin rejuvenation. *African Journal of Biotechnology*, 10(7), pp.1206-1216.
- [12]. MISHRA, A., Mishra, A., Verma, A. and Chattopadhyay, P., 2012. Effects of *Calendula* essential oil-based cream on biochemical parameters of skin of albino rats against ultraviolet B radiation. *Scientia pharmaceutica*, 80(3), pp.669-68.
- [13]. Rao, H., 2012. Therapeutic applications of almonds (*Prunusamygdalus L.*): a review. *J. Clin. Diagn. Res*, 6, pp.130-135.
- [14]. Sahu, R.K., Roy, A., Kushwah, P. and Sahu, A., 2012. Formulation and development of face cream containing natural products. *Research Journal of Topical and Cosmetic Sciences*, 3(1), pp.16-19.
- [15]. Sahu, R.K., Roy, A., Kushwah, P., Khare, M. and Mudotiya, R., 2012. Formulation and development of whitening polyherbal face cream. *Research Journal of Topical and Cosmetic Sciences*, 3(1), p.IV.
- [16]. Nandal, U. and Bhardwaj, R.L., 2012. Aloe vera: A valuable wonder plant for food, medicine and cosmetic use-a review. *International Journal of Pharmaceutical Sciences Review and Research*, 13(1), pp.59-67.
- [17]. Jin, Y.H., Lee, S.J., Chung, M.H., Park, J.H., Park, Y.I., Cho, T.H. and Lee, S.K., 1999.
- [18]. Aloesin and arbutin inhibit tyrosinase activity in a synergistic manner via a different action mechanism. *Archives of pharmacal research*, 22(3), p.232.
- [19]. Smit, N., Vicanova, J. and Pavel, S., 2009. The hunt for natural skin whitening agents. *International journal of molecular sciences*, 10(12), pp.5326-5349.
- [20]. Mapunya, M.B., Hussein, A.A., Rodriguez, B. and Lall, N., 2011. Tyrosinase activity of *Greyiaflanaganii* (Bolus) constituents. *Phytomedicine*, 18(11), pp.1006-1012.
- [21]. BayerActa.C, Dermatoven. A.P.A. Nutrition and Functional Foods for Healthy Aging. (2008); 17 (4), 160-166.
- [22]. Vaibhavdadu..Charaka: the ayurvedaencyclopaedia. *European journal of pharmaceutical and medical research*. (2016); 3(7), 175-178.
- [23]. Kuno, N. and Matsumoto, M., Nisshin Oil Mills Ltd, 2004. Skin-beautifying agent, anti- aging agent for the skin, whitening agent and external agent for the skin. U.S. Patent 6,682,763.