



# FORMULATION AND EVALUATION OF ANTI-AGING POLYHERBAL CREAM

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## **Abstract:**

In this study, creams were formulated based on the anti-oxidant potential of herbal extracts and their evaluation. Punica granatum leaves were shade dried and extracted by using soxhlet method with different solvents such as n-hexane, Benzene, alcohol and consistency of different metabolites. In this study, creams were formulated based on the antioxidant potential of herbal extract and its evaluation. The creams were formulated with neem oil, jamul powder, carrot powder with different concentrations namely F1 to F4. The creams were to be stable during stability studies accordingly to ICH guidelines  $30 \pm 2^\circ\text{C} / 50 \pm 5\% \text{RH}$  and  $40 \pm 2^\circ\text{C} / 75 \pm 5\% \text{RH}$  for 2 months. The real-time stability studies were also conducted for 12 months. It can be concluded that herbal creams without side effects having antioxidant property can be used as provision of a barrier to protect the skin and avoid aging of the skin.

**Keywords:** Herbal Cream, Anti Aging, Punica, Anti Oxidant, Poly Herbal.

## **Introduction:**

Skin aging is the result of continual deterioration process because of damage of cellular DNA and protein. Aging process is classified into two distinct types, i.e. “sequential skin aging” and “photo-aging”. Both types have distinct clinical and historical features. Sequential skin aging is universal and predictable process characterized by physiological alteration in skin function. In the aging process keratinocytes are unable to form a functional stratum corneum and rate of formation from neutral lipids slows down, resulting in dry pale skin with wrinkle. In contrast, photo aging is caused by over exposure to UV rays from sunlight. It is characterized by dry, pale and shallow skin, displaying fine wrinkles as well as deep furrows caused by the disorganization of epidermal and dermal components associated with elastosis and heliodermatitis. Herbs and plants have already proved useful as a tool in complementary medicine<sup>1, 2</sup>. Cosmetic products are used to protect skin against exogenous and endogenous harmful agents and enhance the beauty and attractiveness of skin<sup>3</sup>. The use of cosmetics not only developing an attractive external appearance, but towards achieving longevity of good health by reducing skin disorders<sup>4</sup>. The synthetic or natural ingredients present in skin care

formulation that supports the health, texture and integrity of skin, moisturizing, maintaining elasticity of skin by reduction of type I collagen and photo protection etc This property of cosmetic is due to presence of ingredients in skin care formulation, because it helps to reduce the production of free radicals in skin and manage the skin properties for long time. The cosmetic products are the best choice to reduce skin disorders such as hyper pigmentation, skin aging, skin wrinkling and rough skin texture etc. The demand of herbal cosmetic is rapidly expanding. *Daucus carota* have the highest  $\beta$ -carotene, a precursor of vitamin A, and also contain abundant amount of Vitamin C. Vitamin A also acts as a very good anti-oxidant which slows down the process of aging. Vitamin C produces collagen in the body which is an essential protein for making our skin elastic. It also prevents wrinkles on the skin. 5, 6 The literature shows that antioxidant substances of the living organism always act as a “protection chain”, that is, different antioxidant substances possess a synergic effect and protect each other from direct destruction in the reactions of neutralization of the free radicals and other reactive species<sup>7</sup>.

### **ADVANTAGES:**

#### **1) Reduction of Wrinkles and Fine Lines**

Many anti-aging products, such as creams and serums, contain ingredients that can help reduce the appearance of wrinkles and fine lines. For example, retinoids(a type of vitamin A) have been shown to increase collagen production and reduce the appearance of fine lines and wrinkles. Other popular anti-aging ingredients include vitamin C, hyaluronic acid, and peptides

#### **2) Improvement in Skin Texture and Tone**

Anti-aging products can also help improve the texture and tone of your skin. For example, alpha hydroxy acids(AHAs) and beta hydroxy acids(BHAs) are commonly used exfoliating products to help remove dead skin cells and reveal smoother, brighter skin. Vitamin C and niacinamide are also effective in brightening and evening out skin tone.

### **DISADVANTAGES:**

#### **1) Potential Risks And Side Effects**

One of the biggest concerns with anti-aging products is the potential for adverse reactions. For example, some people may experience irritation or allergic reactions to certain ingredients. Some anti-aging products have also been linked to an increased risk of skin cancer, particularly those containing retinoids or AHAs.

## 2) Lack Of Regulation

Another issue with anti-aging industry is lack of regulation. This means that there are few rules governing the claims that companies can make about their products. As a result, it's important to do your research and choose products from reputable companies with a track record of safety and effectiveness.

## MATERIALS AND METHODS

Preparation of Punica leaf extract Punica granatum leaves were collected locally from surrounding area of Guntur. Air-dried leaves were ground to a fine powder in a suitable grinder mixture. Shade dried powder was extracted using soxhlet extractor with distilled water, alcohol, hexane separately to get semisolid extract. The organic solvents were recovered by steam distillation. The extracts were then concentrated to dryness under reduced pressure and controlled temperature, respectively and they were preserved in a refrigerator.

Determination of Total Antioxidant Capacity The total antioxidant capacities of the aqueous and ethanolic extracts were determined by the phosphomolybdenum assay <sup>9</sup>, based on the reduction of Mo (VI) to Mo (V) by the extract and subsequent formation of a green phosphate-Mo (V) complex in acidic condition. 0.1 ml of each extract was combined with 1 ml of reagent solution (0.6 M sulphuric acid, 28 mM sodium phosphate and 4 mM ammonium molybdate). The reaction mixture was incubated at 95°C for 90 min. After cooling to room temperature.

S.no	Ingredients	Catagory	Quantity
1	Punica extract	A.P.I	2ml
2	Neem Oil	A.P.I	1ml
3	Eucalytus Oil	A.P.I	1ml
4	Jamul Powder	A.P.I	2mg
5	Glycerin	Moisturizer	1ml
6	Zno skin	Whitener	1gm
7	Methyl cellulose	polymer	2gm
8	Sodium alginate	polymer	2mg
9	Cellulose	polymer	2mg
10	Bees wax	base	0.9mg
11	Grape seed	Oil base	0.9mg

## Formulation

The formula for the cream is given in Table 1. Binder or polymer material is added to the glycerin water to form liquid dispersion and show slightly swelling property. This liquid dispersion is added to the Punica leaf extract. To this mixture base and oils are added. Finally other ingredients like skin whitener and preservatives were added with continuous mixing.

## Evaluation of cream

**Organoleptic evaluation** The cream thus obtained was evaluated for its organoleptic properties like color, odour, and state. The appearance of the cream was judged by its color and roughness and graded. Results are listed. **Test for microbial growth in formulated creams** The formulated creams were inoculated on the plates of Muller Hinton agar media by streak plate method and a control was prepared by omitting the cream. The plates were placed in to the incubator and are incubated at 37<sup>o</sup> C for 24 hours. After the incubation period, plates were taken out and check the microbial growth by comparing it with the control. Results are listed

### Conclusion:

In conclusion, the preparation and evaluation of an anti-aging herbal cream require careful consideration of various factors including selection of appropriate herbs, formulation techniques, and evaluation methods. Throughout this topic, we have discussed the importance of choosing potent herbs with proven anti-aging properties such as ginseng, green tea extract, and aloe vera. These herbs not only possess antioxidant properties but also aid in collagen production, skin hydration, and reducing wrinkles.

The preparation process involves extraction of active compounds from selected herbs using suitable solvents followed by formulation into a cream base. It is essential to optimize the formulation to ensure stability, skin compatibility, and efficacy of the final product. Techniques such as emulsification and incorporation of natural preservatives play a crucial role in enhancing the quality of the herbal cream.

Evaluation of the anti-aging herbal cream involves various tests including physicochemical analysis, stability studies, and efficacy assessment. Physicochemical tests determine parameters such as pH, viscosity, and spreadability, which are indicative of product quality and consistency. Stability studies are essential to assess the shelf-life and storage conditions of the cream, ensuring that it remains effective over time. Efficacy assessment involves in vitro and in vivo studies to evaluate the anti-aging effects of the cream on skin cells and human subjects, respectively.

Overall, the preparation and evaluation of an anti-aging herbal cream require a multidisciplinary approach combining knowledge from fields such as pharmacognosy, cosmetic chemistry, and dermatology. By carefully selecting potent herbs, optimizing formulation techniques, and conducting thorough evaluation studies, it is possible to develop a high-quality herbal cream that effectively addresses the signs of aging, providing consumers with a safe and natural alternative to conventional anti-aging products.

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