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Research

Formulation and Evaluation of Anti-Aging Cream Using Red Grapes Peel Extract

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Abstract:

Aging is a natural process that affects everyone. As we age, our skin undergoes various changes, such as the loss of elasticity, the appearance of fine lines and wrinkles, and the development of age spots. Exposure to ultraviolet radiation from the sun is a significant extrinsic factor that generates reactive oxygen species (ROS), damaging dermal collagen and elastic fibers, leading to wrinkles, dryness, pigmentation, and loss of elasticity over time. While these changes are inevitable, there are ways to minimize their impact and maintain a youthful appearance. One such way is by using herbal anti-aging creams. In this article, we will explore the preparation of a herbal anti-aging cream using red grape peel extract which is rich in antioxidants and its potential benefits for the skin.

Keywords: *Reactive Oxygen Species (ROS), anti-ageing, radiation, oxidative stress, pigmentation, red grape peel.*

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1. Introduction

Skin aging is a natural biological process influenced by both intrinsic and extrinsic factors. Intrinsic aging, also known as photoaging, is primarily caused by exposure to ultraviolet (UV) radiation from the sun. Over time, UV rays generate reactive oxygen species (ROS) that damage dermal collagen and elastic fibers, resulting in wrinkles, dryness, pigmentation, and loss of elasticity. However, the rate of skin ageing can be slowed down through external intervention. One effective approach is the topical application of plant extracts rich in antioxidants, which can combat UV-induced aging at the skin level. Red grape peels in particular contain high levels of resveratrol and other flavonoids that can help protect the skin from UV radiation and oxidative stress [1].

2. Benefits of Red Grape Peel Extract for the Skin: The use of red grape peel extract in skincare products, such as anti-aging creams, can offer several benefits for the skin. Some of the key benefits include:

i. **Antioxidant Protection:** The antioxidants present in red grape peel extract help neutralize free radicals and protect the skin from oxidative stress. This can help prevent the breakdown of collagen and elastin, proteins that are essential for maintaining the skin's firmness and elasticity.

ii. **Reduction of Wrinkles and Fine Lines:** Grape peel extracts have demonstrated anti-aging effects by attenuating wrinkle formation and improving skin hydration and brightness [1],[2],[3].

iii. **Brightening of the Skin:** Red grape peel extract contains natural acids, such as tartaric acid, which can help exfoliate the skin and brighten the complexion. [[7],[8],[9]]

iv. **Moisturization and Hydration:**The moisturizing properties of red grape peel extract help keep the skin hydrated and prevent dryness. This can contribute to a smoother and plumper appearance, reducing the visibility of wrinkles and fine lines. [1],[2],[3].

3. Methodology

The following methodology was employed to prepare the anti-aging cream using red grape peel extract:

i. Collection of Red Grapes

Fresh red grapes were procured from the market and thoroughly washed with distilled water to remove any dirt or debris.

Fig 1- Collection of Red grapes

Fig 2- Peeling off Red grapes

ii. Extraction

The grape peels were crushed and made into a powder form using a mortar and pestle. The powder was then subjected to extraction using a Soxhlet apparatus and a solent (methanol). The extraction process involved Soxhlet Extraction. Solvent used is Methanol. [4]

Fig 3- Soxhlet Apparatus

Fig 4-Extraction Of Red Grape peel

Fig 5- Concentration of Extract

iii. **Formulation of Anti-Aging Cream:** The anti-aging cream was formulated using a selected oil-in-water emulsion cream base. Solid oils, including cetyl alcohol, stearic acid, and coconut oil, were melted together in a warm water bath. A warm water-propylene glycol mixture was prepared separately. The oil phase was then emulsified into the water phase to form a cream. The red grape peel extract was added to the cream and thoroughly mixed [4],[5]. Finally, the cream was poured into containers to set.

iv. **Excipients Used: Glycerin:** Humectant to attract moisture and hydrate skin. **Stearic acid:** Thickening agent to provide texture and consistency to the cream. **Cetyl alcohol:** Emulsifying wax that helps blend oil and water phases. **Propylene glycol:** Co-solvent to enhance penetration and preserve the formulation. **Coconut Oil:** Helps improve the sensory properties and acts as a natural Humectant. **Distilled water:** Acts as the dispersion medium and ensures proper consistency. [4],[5],[6].

v. Composition of Anti-Aging cream.

Extract Used	3ml
Glycerin	5g

Cetyl Alcohol	5g
Stearic Acid	3g
Propylene Glycol	5ml
Coconut Oil	5-7 drops
Water	75ml

Table 1- Composition of Anti-Aging cream

Fig 6- Anti-aging Cream

4. **Evaluation of the Cream:** The formulated anti-aging cream was subjected to various evaluation parameters to determine its effectiveness and safety [4],[5],[6]. The following parameters were considered:

i) **Organoleptic Properties:** The cream was examined for its appearance, texture, and odor. It was observed to have a smooth texture and a creamish color. The cream did not exhibit any strong odor.

ii) **pH:** The pH of the cream was determined using pH paper, and it fell within the range of 5.5-6.0, indicating an acidic pH suitable for the skin.

iii) **Homogeneity:** On visual inspection, the cream was not smooth and had clumps But it did not affect its Application

iv) **Layering test:** The cream left a smooth, non-greasy layer on skin without any stickiness. Got absorbed well.

v) **Type of smear:** On application to skin, the cream spread easily forming a thin, uniform smear without residue.

vi) **Removal by water:** The cream rinsed off easily with water without leaving any oily layer, indicating good washing properties.

vii) **Skin Irritation Test:** The cream was applied to the inner arm of volunteers to assess its potential for skin irritation. No irritation or adverse reactions were observed, indicating that the cream is non-irritant.

pH	5.5-6.0
Skin Irritation Test	No irritation caused
Homogeneity	Had clumps
Smear test	Thin, Uniform smear

5. **Result**

The result of the organoleptic examination of the anti-aging cream showed its smoothness when applied to the skin surface. The cream had a creamish color and did not exhibit any strong odor. The pH of the cream was within the desirable range of 5.5-6.0. Additionally, the cream demonstrated no skin irritation, signifying its safety for use.

6. **Conclusion**

In conclusion, the preparation of an anti-aging cream using red grape peel extract offers a promising solution to combat skin aging. By harnessing the antioxidant and anti-inflammatory properties of Resveratrol, this cream has the potential to reduce wrinkle depth, improve skin elasticity, increase moisture content, and

address pigmentation issues. It also provides a consumer-friendly alternative to commercially available anti-aging products.

7. Discussion

Further research and optimization of the formulation will help explore the full potential of Resveratrol and other natural extracts from indigenous sources. By leveraging the power of nature, we can develop effective and affordable solutions for skin rejuvenation. The formulation presented in this study serves as an innovative approach to anti-aging skincare, promoting the use of lesser explored plant materials and their antioxidant-driven benefits.

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