

Research and Application of Red Ginseng Facial Mask

Puyuan Yu

Jilin University, Changchun, China

* Corresponding Author Email: 1123904568@qq.com

Abstract. Red ginseng facial mask, as a skin care product integrating traditional herbal essence and modern skin care technology, has gradually emerged in the market in recent years. This paper systematically combed the origin and development of red ginseng facial mask, and discussed the skin care efficacy of red ginseng, the principle of facial mask and the perfect combination of red ginseng and facial mask in detail. In the aspect of preparation technology, the key links of extraction and purification of red ginseng, preparation of facial mask matrix, and molding and packaging of facial mask were described in detail. In addition, a comprehensive performance test of red ginseng facial mask was conducted through safety test, stability test and efficacy test to ensure its product quality and skin care effect. In terms of market application and promotion, the article deeply analyzes the current situation and development trend of the facial mask market, and puts forward targeted marketing strategies to enhance the market competitiveness of red ginseng facial mask. Through this study, we not only deepened our understanding of red ginseng facial mask, but also provided scientific guidance for its future research and development, production and marketing.

Keywords: red ginseng facial mask; Red ginseng skincare benefits; Preparation process of facial mask; Performance testing; Market Promotion Strategy.

1. Introduction

1.1. The origin and development of the red ginseng mask

Red Ginseng Facial Mask, an emerging skincare product, is closely related to the origin and development of ginseng, a miraculous medicinal herb. Ginseng, praised as the "king of all herbs", has been regarded as a rare herb that nourishes yin and nourishes life and strengthens the foundation of the body in the long history of oriental medicine. Its profound history of use, dating back to thousands of years ago, fully demonstrates the importance of ginseng in the field of medicine and health care [1].

As a kind of processed ginseng product, it is obtained by steaming and drying fresh ginseng. In this process, the valuable active ingredients such as ginsenosides in ginseng are transformed, thus giving red ginseng its unique medicinal value and skincare efficacy. It is because of these unique properties of red ginseng that red ginseng masks have emerged in recent years with the growing concern for skin care and the pursuit of diversification of facial masks, and have gradually occupied a place in the market and been warmly sought after by the majority of consumers [2].

The rise of red ginseng mask is not only due to the medicinal value of red ginseng itself, but also due to the in-depth research and precise extraction of red ginseng ingredients by modern technology. Through advanced extraction technology, the active ingredients of red ginseng can be preserved to the maximum extent, so that these ingredients can give full play to their role in the mask, bringing deep nourishment and repair to the skin. Meanwhile, as consumers' concern for the safety of skin care products is increasing, preservative-free and additive-free red ginseng masks are favored by the market [2].

In the field of skin care, Red Ginseng Mask has become a popular product among consumers due to its excellent skin care effect and natural ingredients. From nourishing skin, brightening skin tone to anti-aging and antioxidant, red ginseng mask has various effects to meet different consumers' skincare needs. With people's relentless pursuit of beauty and the continuous improvement of the quality of skin care products, the market prospect of red ginseng mask will be even broader [3].

The development of red ginseng mask has also promoted the improvement of the related industrial chain. From the planting and harvesting of red ginseng to the R&D and production of facial masks, every link is full of technology and craftsmanship. Especially in the R&D process of facial mask, not only the extraction and utilization of red ginseng ingredients, but also the safety, stability and usage feeling of the product are taken into consideration. Therefore, the success of Red Ginseng Mask is also a reflection of the perfect combination of technology and nature ^[4].

Red Ginseng Mask is expected to continue to play its unique advantages in the field of skin care and bring more surprises to consumers. With the advancement of science and technology and the changing needs of consumers, Red Ginseng Mask will continue to innovate and satisfy people's desire and pursuit of beauty with richer forms and more excellent effects. Meanwhile, the success of Red Ginseng Mask will further promote the application of traditional Chinese medicine in modern skincare products, showing the unique charm of oriental aesthetics ^{[5][6]}.

1.2. The significance of the study of red ginseng facial mask

Red ginseng mask, as a skincare product that combines traditional herbal essence with modern skincare technology, is of far-reaching significance. Red ginseng, a herb with deep historical background, provides valuable resources for the development of modern skincare products by virtue of its thousands of years of proven skincare efficacy. Combining red ginseng with facial masks not only brings into play the effects of red ginseng in nourishing yin and tonifying life, and strengthening the root of the body, but also enables these precious ingredients to penetrate the skin more effectively through modern technological means to achieve the purpose of skincare and nourishing the skin.

From the perspective of product development, the research of red ginseng mask has promoted the skin care industry to explore the application of natural herbal ingredients. With the increasing demand of consumers on the safety and naturalness of skincare products, herbal ingredients represented by red ginseng have gradually become a new hot spot in skincare research and development. Through the extraction, purification and fusion of active ingredients from red ginseng with mask base, more efficient and safer skin care products can be developed to meet the market demand.

The research on red ginseng facial masks also involves interdisciplinary fields, such as medicine, pharmacy, chemistry and marketing, which facilitates communication and cooperation among multiple disciplines. For example, in the R&D process of red ginseng mask, knowledge in the fields of medicine and pharmacology is required to ensure the safety and effectiveness of the product; technology in the field of chemistry is used to optimize the formulation and stability of the product; and marketing strategies help to enhance the popularity and sales of the product. This interdisciplinary research model not only promotes the R&D process of red ginseng masks, but also brings new opportunities and challenges for the development of related disciplines ^[7].

1.3. The current status of domestic and international research

In the research field of red ginseng facial mask, scholars at home and abroad have made remarkable progress. Domestic research mainly focuses on the optimization of the preparation process of red ginseng masks, the enhancement of skin care effect and the promotion of its application in the market. By finely regulating the extraction and purification process of raw materials, improving the formulation of mask base, and optimizing the molding and packaging technologies, domestic researchers have continuously promoted the development of red ginseng mask products in the direction of high quality and high efficacy ^[8]. Meanwhile, in-depth studies have been conducted on the positioning of red ginseng masks in the market, consumer demand and marketing strategies to meet the increasingly diversified demands of the skin care market. Foreign scholars in the field of red ginseng facial masks have paid more attention to the analysis of active ingredients and the exploration of the mechanism of action. Through in-depth research on key active ingredients such as ginsenosides in red ginseng, they have revealed the specific mechanism and scientific basis of these ingredients in the skin care process ^[9]. Such studies not only provide theoretical support for the efficacy of red ginseng masks, but also provide directions for further product development and innovation.

As an emerging product in the field of skin care, the research and application of red ginseng facial mask is of great significance. Scholars at home and abroad have carried out extensive and in-depth studies on the preparation process, skin care efficacy, market application and active ingredient analysis of red ginseng facial masks, and significant progress has been achieved. There are still some problems and challenges in the current research, which need to be explored by future researchers. By continuously optimizing the preparation process, standardizing the evaluation criteria, and promoting product innovation and market expansion, red ginseng facial masks are expected to play a greater role in the field of skincare and meet the needs of more consumers ^[10].

2. Theoretical Basis of Red Ginseng Mask

2.1. Skin care benefits of red ginseng

As a processed form of ginseng, red ginseng has been widely used in Chinese medicine since ancient times. In recent years, with the growing demand for natural skin care products, red ginseng has attracted much attention for its unique skin care effects. Red ginseng is rich in active ingredients, such as ginsenosides and polysaccharides, which give red ginseng a variety of skin care functions.

Ginsenosides and polysaccharides in red ginseng have significant antioxidant and anti-aging effects. Ultraviolet radiation is one of the main factors of skin aging, which induces skin cells to produce too many free radicals, thus damaging cell structure and function. The active ingredients in red ginseng can effectively scavenge these free radicals and protect skin cells from UV damage, thus slowing down the skin aging process.

Red ginseng also promotes the production of collagen and elastin in the skin. These two proteins are key components in maintaining skin elasticity and firmness. As we age, collagen and elastin in the skin will gradually decrease, leading to skin laxity and wrinkles. Ginsenosides in red ginseng can stimulate skin cells to synthesize more collagen and elastin, thus improving skin elasticity and firmness, and reducing the appearance of wrinkles. Red ginseng also has good moisturizing and nourishing effects. Dry skin is the root cause of many skin problems such as flaking, itching and sensitivity. The polysaccharide in red ginseng has strong water retention capacity, which can help the skin lock in water and keep the skin moisturized. At the same time, other active ingredients in red ginseng can also improve the microcirculation of the skin, providing more nutrients and oxygen to the skin, resulting in healthier and more radiant skin ^[11].

2.2. The principle of action of the mask, the

As an important category of skin care products, the core of the principle of its action lies in the specific penetration mechanism, so that the active ingredients in the mask can cross the skin barrier, penetrate into the deep layers of the skin, and have direct interaction with the cells, so as to realize its skin care effect. This penetration process covers a variety of principles, including osmotic pressure, molecular diffusion and the natural absorption function of the skin.

Osmotic pressure plays a key role in mask application. When the mask is applied to the facial skin, the water and other active ingredients in the mask will form a certain osmotic pressure, pushing these ingredients through the skin's stratum corneum and into the deeper layers of the skin tissue. This process effectively hydrates the skin and allows the active ingredients to reach deeper levels, thus maximizing their skincare effects.

In addition to osmotic pressure, molecular diffusion is also an important mechanism of mask penetration. The small molecule active ingredients in the mask, such as ginsenosides in red ginseng, will naturally diffuse into the skin cells through the free movement between molecules. This diffusion not only enables the active ingredients to be evenly distributed on the surface of the skin, but also ensures that they penetrate deep into the skin and interact with the intracellular structure, thus improving the skin condition.

The role of facial masks is not limited to the osmotic principle mentioned above. Depending on the type and composition of the mask, it may also have multiple effects such as moisturizing,

cleansing, nutrient replenishment and antioxidant ^[12]. For example, the red ginseng ingredient in red ginseng masks is rich in antioxidants, which can effectively protect the skin from external factors such as ultraviolet rays and slow down skin aging.

2.3. The combination of the red coloring with the mask

The combination of red ginseng and facial mask is a perfect fusion of traditional herbal medicine and modern skincare technology. Red ginseng, a thousand-year-old herbal treasure, has injected new vitality into the modern skincare field with its rich active ingredients. When red ginseng meets facial mask, a skin care revolution about beauty and nature is quietly emerging.

The active ingredients in red ginseng, such as ginsenosides and polysaccharides, have significant antioxidant and anti-aging effects. These ingredients can effectively resist the damage of ultraviolet rays on the skin and reduce the production of free radicals, thus protecting skin cells from oxidative stress. In addition, red ginseng also promotes the production of collagen and elastin, improving the elasticity and firmness of the skin, resulting in a more youthful and vibrant skin. These skin care effects are fully utilized in the vehicle of facial mask ^[13].

As a necessary product for modern skin care, the penetration principle and mechanism of facial mask provide a strong guarantee for the deep absorption of the active ingredients of red ginseng. Through osmotic pressure, molecular diffusion and skin absorption, the active ingredients in the mask can quickly cross the skin barrier, penetrate deep into the skin layer and interact with the skin cells, thus achieving rapid and efficient skin care effect. The combination of red ginseng and facial mask is based on this principle, maximizing the skin care effect of red ginseng.

3. Preparation process of red ginseng facial mask

3.1. Extraction and purification of red ginseng

In the extraction of red ginseng, boiling, alcohol extraction and ultrasonic extraction have their own merits. Boiling method is easy to operate, but the extraction efficiency is relatively low; Alcohol extraction method can better dissolve the active ingredients in red ginseng, but need to pay attention to solvent recovery and treatment; and ultrasonic extraction method is gradually becoming the preferred method in the industry by virtue of high extraction efficiency and intact retention of active ingredients. In practice, we should choose the appropriate extraction method according to the specific needs and conditions. The purification of red ginseng extract is also important. The purification process aims to further remove the impurities in the extract and improve its purity. The purification methods, such as solvent precipitation, membrane separation and chromatographic separation, have their own characteristics and should be selected according to the specific needs and the nature of impurities. Through the scientific and reasonable purification process, we can obtain the red ginseng extract with higher purity and better safety, and lay a solid foundation for the subsequent preparation of red ginseng facial mask.

3.2. Preparation of mask base, the

The preparation of mask base has a crucial impact on the quality and effect of red ginseng mask. In order to ensure that the mask base can achieve the desired permeability, fit and stability, the preparation process must be finely blended and controlled for each component.

Water is the basic ingredient in the mask base, which not only plays the role of dissolving and diluting other ingredients, but also provides the skin with the necessary moisture supply. In the preparation process, it is necessary to choose a pure water source and strictly control the amount of water added to ensure the overall quality of the mask base.

Humectant is another key ingredient in the mask base, which can effectively lock the water and provide long-lasting moisturizing effect for the skin. Commonly used humectants include glycerin, hyaluronic acid, etc. These ingredients have good moisture absorption and water retention, which can significantly improve the moisturizing performance of the mask. During the preparation process, it is

necessary to select the appropriate humectant according to the moisturizing needs of the product and precisely control the amount of humectant added.

Emulsifiers play a crucial role in the preparation of mask bases. It can effectively blend the oil and water phases together to form a stable and uniform emulsion system. The selection of emulsifiers should be based on the formulation and process requirements of the product, and its safety and stability should also be considered.

Thickeners are used to adjust the consistency of the mask base, making it easier to apply and adhere to the skin. Commonly used thickeners include carbomer and cellulose, which can effectively improve the consistency and stability of the mask. In the preparation process, the amount of thickeners should be moderate to avoid affecting the overall permeability and comfort of the mask.

Preservatives play a role in inhibiting the growth of bacteria and microorganisms in the mask base, thus ensuring the safety and hygiene of the product. When selecting preservatives, priority should be given to their safety and efficacy, and the provisions of relevant regulations and standards should be strictly adhered to.

In order to improve the permeability and fit of the mask, some advanced technical means can also be used in the preparation process. For example, micro-emulsification technology can combine oil and water phase ingredients in the form of tiny droplets, thus significantly improving the permeability and absorption of the mask. Nanotechnology allows active ingredients to be prepared into nanoscale particles, making it easier to penetrate the skin barrier and provide better skin care effects.

In order to ensure the quality and safety of the mask base, it is also necessary to carry out strict quality inspection and stability test. These tests include appearance inspection, pH value measurement, viscosity measurement, microbial detection and other indicators, only the mask matrix that meets the requirements of all indicators can be used in the subsequent production of red ginseng mask. Through the fine control on the preparation of mask base, the quality and effect of red ginseng mask can be guaranteed.

4. Performance testing of red ginseng masks

4.1. Security testing

4.2 Stability testing

Stability test is another important performance test for red ginseng mask. This test mainly examines the stability and shelf life of the product under different environmental conditions. In the stability test, samples of red ginseng mask are usually placed under different temperature, humidity and light conditions to simulate the various environments that may be encountered during the actual use of the product. The stability of the red ginseng masks is assessed through regular testing of the samples for changes in appearance, odor, composition and skin care effects.

For example, under high temperature conditions, masks can be observed for deterioration, decomposition or increased irritation. Under high humidity, the mask can be tested for moisture resistance and microbial contamination. In addition, through the UV irradiation experiment, we can also understand the effect of light on the active ingredients in the mask.

The results of the stability tests not only help to determine the shelf life of red ginseng masks, but also provide a scientific basis for the storage and use of the product. Through these tests, manufacturers can ensure that the red ginseng mask maintains its excellent quality and skin care effect in the hands of consumers.

Stability testing is also an important part of product quality control. It can help enterprises to find and solve potential quality problems in time, so as to enhance consumers' trust and satisfaction to the products. In the highly competitive skin care market, the stability test of red ginseng mask is undoubtedly one of the key factors to win the favor of consumers.

4.3 Functionality tests

Efficacy test is a key part of the performance test of red ginseng masks, and its main purpose is to verify the skin care effect of the product. In this test, scientific methods are usually adopted to evaluate the specific improvement effects of red ginseng masks on the skin, such as moisturizing effect, anti-aging effect, skin tone improvement, etc.

In order to provide an objective and accurate assessment, efficacy testing often combines both instrumental measurements and subjective evaluations. Instrumental measurements can be used to quantitatively assess changes in skin condition through specialized equipment such as skin moisture meters and skin elasticity meters. Subjective evaluation, on the other hand, relies on the subject's self-perception and feedback, and usually includes questionnaires, visual ratings and other methods.

Through these tests, the actual effects of red ginseng masks in skin care can be fully understood. For example, through the moisturizing test, the increase in skin moisture after using red ginseng mask can be observed; while the anti-aging test can assess the effect of the mask on the improvement of signs of aging such as wrinkles and skin laxity. These test results not only provide consumers with a scientific basis for product selection, but also provide important feedback for the development and improvement of red ginseng masks.

Overall, efficacy testing is an important tool to ensure the effectiveness of Red Ginseng Mask. It verifies the actual effect of the product through scientific methods, so as to provide consumers with better and more effective skincare experience. At the same time, it also helps to enhance the competitiveness of red ginseng mask in the market and promote its wide application in the field of skin care.

5. Conclusions

5.1. Summary of the study

In this paper, we have carried out a comprehensive research on red ginseng facial mask, including its preparation process, performance testing, and market application and promotion. This series of studies not only deepens our understanding of red ginseng mask, but also provides a solid theoretical foundation and practical guidance for its future development and application.

In the preparation process, we discussed the extraction and purification of red ginseng, the preparation of mask matrix, and the molding and packaging of the mask in detail. Through these researches, we have successfully developed a set of efficient and stable preparation process of red ginseng mask, which provides technical support for the large-scale production of red ginseng mask.

In terms of performance test, we conducted comprehensive safety, efficacy and stability tests on red ginseng mask. The test results show that the red ginseng mask has excellent performance in safety, moisturizing and anti-aging, and the product has good stability and can maintain excellent skin care effect under different conditions.

In the future, we will continue to pay attention to the development of Red Ginseng Mask and contribute more wisdom and strength to its wide application in the field of skin care. We believe that with the deepening of research and technological advancement, red ginseng mask will win more consumers' love and trust with its unique skincare efficacy and excellent product quality.

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