



Formulation and Evaluation of an Herbal Exfoliating Scrub Using Dragon Fruit Peel Extract

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ABSTRACT:

The growing desire for natural, eco-friendly skincare products has boosted the usage of plant-based and fruit-waste-derived substances in cosmetics. The purpose of this study was to develop and test an herbal exfoliating scrub using red dragon fruit peel extract, aloe vera, neem, tulsi, glycerin, and rose water. Red Dragon fruit peel, known for its antioxidant and exfoliating characteristics, was removed and mixed into a gel-based scrub with antibacterial and moisturizing herbal ingredients. The formulation was tested for physicochemical qualities such as pH, appearance, Spreadability, and stability under different situations. Sensory evaluations were also performed on volunteers to assess texture, application feel, skin irritancy test and user get satisfaction result. The scrub showing its promise as a natural, skin-friendly exfoliating solution. This composition not only regenerates fruit waste, but it also offers an environmentally friendly alternative to synthetic exfoliating agents in skincare.

Keywords: Antioxidant, exfoliating agents, formulation, antibacterial.

1. Introduction:

Dragon fruit, which belongs to the Cactaceae family, comes in two varieties: *Hylocereus polyrhizus* and *Hylocereus Undatus*.¹ This fruit contains several antioxidants, including betalains, hydroxycinnamates, and flavonoids.² These antioxidants serve an important function in protecting cells from free radicals, lowering the risk of chronic diseases and slowing the aging process.³ Dragon fruit is also high in Phyto albumins and vitamin C, which are known for its antioxidant effects and help to tighten and improve the flexibility of the skin, as well as give it a beautiful glow.⁴ Regular use of lotions containing dragon fruit extract can effectively prevent aging while also treating acne and calming sunburn.⁵

Dragon fruit, scientifically known as *Hylocereusundatus*, is a tropical fruit that is commonly produced and enjoyed in Thailand.⁶ Although the flesh of the dragon fruit contains a large number of vitamins, minerals, and dietary fibers, the peel, which accounts for 22% of the fruit's weight, is often discarded after consumption, despite its potential nutritional and functional value.⁷

Dragon fruit extract also helps with lisinopril decongestion, acne outbreaks, and promotes a brighter complexion by boosting skin brightness.⁸ Furthermore, gel face washes containing dragon fruit extract are frequently manufactured to be soft and safe for sensitive skin types, making them an adaptable solution for a variety of skin conditions.⁹ The extract is a crucial active ingredient that enhances the gel face scrub's overall effectiveness, providing a natural and useful skincare treatment.¹⁰

Antioxidants found naturally in the body can be used to fight free radicals as a skin care treatment. Abrasive cosmetics, often known as cosmetics with coarse grains, nourish the skin while exfoliating dead skin cells.¹¹ Some women typically prefer this type of cosmetic surgery. A facial is a type of therapy used to rid the skin of impurities left behind by various face-treatment treatments, such as blackheads, whiteheads, and acne.¹²

2. Main Ingredients for Herbal Exfoliating Scrub:



Fig No. 1 Red Dragon Fruit Peel, Aloe vera, Neem Extract, Tulsi, Glycerin, Rose Water.

3. Applications of Herbal Exfoliating Scrub:^{13,14}

1. Gentle massage promotes blood circulation.
2. Antibacterial herbal components help to fight acne.
3. Increases skin radiance for a healthy glow.
4. Evens out skin tone by promoting cell regeneration.
5. Prepares the skin to better absorb skincare products.
6. Removes dead cells from dull skin, brightening it.
7. Clears blocked pores and prevents outbreaks.
8. Smoothest rough roughness to provide a nicer feel.
9. Reduces oiliness by natural herbal balance.
10. Calming plant extracts help to relieve inflammation.

4. Formulation Profile of Herbal Exfoliating Scrub:

Table No. 1 Formulation of Herbal Exfoliating Scrub.

| Sr. No | Ingredients | Quantity |
|--------|-----------------------|----------|
| 1. | Red Dragon Fruit Peel | 10 gm |
| 2. | Aloe vera | 3 ml |
| 3. | Neem Extract | 5 ml |
| 4. | Tulsi | 2 ml |
| 5. | Glycerin | 2 ml |
| 6. | Rose Water | Q. S |

5. Extraction Procedure of Red Dragon Fruit Peel Extract:

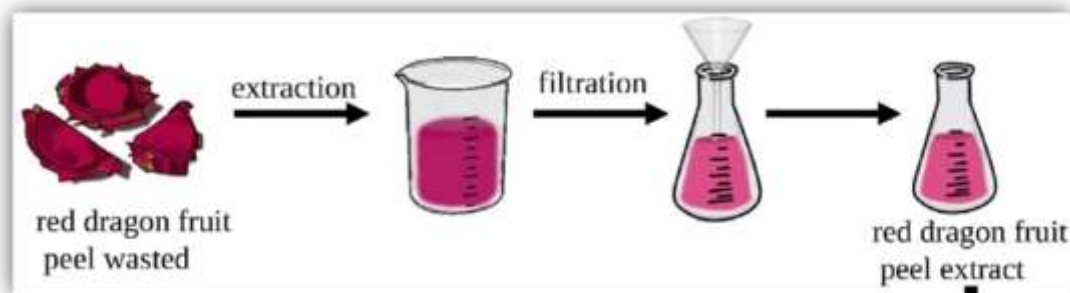


Fig No. 2 Extraction Procedure of Red Dragon Fruit.

6. Procedure for Preparing of Herbal Exfoliating Scrub:

- Step 1: Place 10 gm of dragon fruit peel powder in a clean basin.
- Step 2: Combine each of tulsi powder and neem extract.
- Step 3: Combine aloe vera gel and 2 ml of glycerin.
- Step 4: Gradually add a few of rose water to plain water.
- Step 5: Combine all materials thoroughly to make a smooth, thick scrub paste.
- Step 6: Place in a clean, airtight container.

7. Prepared Sample of Herbal Exfoliating Scrub:

Fig No. 3 Prepared Sample Scrub.

8. Physical Evaluation Parameter and Results of Herbal Exfoliating Scrub.

Table No. 2 Physical Evaluation Parameter of Herbal Exfoliating Scrub.

| Sr. No | Parameter | Observation |
|--------|----------------|----------------------|
| 1. | Color | Brown |
| 2. | Oduors | Fragrant |
| 3. | Appearance | Soft |
| 4. | Texture | Smooth |
| 5. | Spread ability | Uniform |
| 6. | Stability | Stable at Room Temp. |
| 7. | Consistency | Semisolid |
| 8. | Homogeneity | Good |

9. Conclusion:

- This herbal exfoliating scrub, which contains natural components such as dragon fruit peel powder, tulsi, neem extract, aloe vera gel, glycerin, and rose water, is a mild but effective approach to nurture and renew your skin. Accept the power of the environment for a healthier, more radiant beauty!

10. Conflict of Interests:

- The authors declare that they have no known competing financial interests or personal relationship that could have appeared to influence the work reported in this paper.

11. Acknowledgment:

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