Formulation and Evaluation of Anti-Aging and Skin Brightning Face Cream

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Abstract

The skin healing benefits of rice have been known for centuries Rice can potentially be incorporated into cosmetics formulations. However, no scientific evidence supports their role in skin care product Aloe vera is medicinal plant. It is used in traditionally from ancient year in various herbal medicines such Ayurveda, siddha and homeopathic cosmetics and some medicinal products are made up from the mucilaginous tissue in the centre of aloe vera leaf and called aloe vera gel. Aloe vera contains potentially active constituents. Almonds are popular ingredients in face creams due to their numerous benefits for the skin.To nourish and moisturize the skin, the current study set out to formulate and evaluate anti-aging andskin brightening face cream that contained extracts, liquid paraffin as a lubricating agent bees wax as a stabilizer, and methyl paraben are using the water in oil method. It was concluded that the prepared formulation was physio-chemically microbiologically are stable, and possessed characteristics of characteristics of a standard cosmeceutical formulation for skincare

Keywords: Rice Cream, Cosmetic, Traditionally, Almond, Aloe Vera Gel

Introduction:

Improve the tone and texture of the skin. Gamma-oryzanol is one such substance that has been Rice (Oryza sativa) extract and other natural components are used to make anti-aging skin brightening face cream, a form of facial moisturiser. Due to its many skin-friendly properties, including its capacity to moisturise, brighten, and shield the skin from environmental damage, rice has been utilised in skincare treatments for ages. A study in the Journal of Cosmetic Science found that rice extract has a high concentration of antioxidants that can help shield the skin from free radical damage brought on by UV rays and other environmental stressors. (1) Rice extract is a well-liked component in skincare products for sensitive skin since these antioxidants also have anti-inflammatory qualities that help relax and soothe the skin. Rice extract has antioxidant capabilities in addition to having elements that can aid to demonstrated to increase skin suppleness and lessen the visibility of fine lines and wrinkles. (2) The addition of rice extract to other all-natural ingredients like shea butter, jojoba oil, and vitamin E can produce a luscious and nutritious face cream. Rice face cream can aid in moisturising and hydrating the skin, leaving it feelingsupple, luminous, and smooth. All things considered, rice face cream is a fantastic option for anyone searching for a healthy

and efficient approach to take care of their skin. It is understandable why rice extract has gained popularity as a component in skincare products all over the world given its many benefits and mild formulation. A study that appeared in the Journal of Cosmetic Dermatology demonstrated that rice extract had anti-aging benefits for the skin by increasing skin suppleness and minimising the visibility of wrinkles and lines of aging [(3)]. Another study found that rice bran extract provided moisturising and illuminating benefits on the skin, making it an excellent component for beauty products.[4] To enhance the skincare advantages of rice face creams, these components are frequently combined with hyaluronic acid, niacinamide, and glycerin. They are safe for all types of skin, even fragile skin, and are suitable for use as a daily moisturiser or as a remedy for dehydrated or dry skin.

The objective of rice face cream is to provide nourishment, hydration, and protection to the skin. Rice contains various nutrients and antioxidants that can help to improve the overall health and appearance of the skin. Rice face cream is formulated to moisturize the skin, reduce the appearance of fine lines and wrinkles, and improve the skin's elasticity and firmness. It may also help to brighten the complexion and reduce the appearance of dark spots and uneven skin tone. In addition, rice face cream may contain ingredients such as sunscreen or other protective agents to shield the skin from environmental stressors such as UV rays, pollution, and free radicals. Overall, the objective of rice face cream is to promote healthy, radiant, and youthful-looking skin.

The fruit of the almond is a drupe, consisting of an outer hull and a hard shell with the seed, which is not a true nut. Shelling almonds refers to removing the shell to reveal the seed. Almonds are sold shelled or unshelled. Blanched almonds are shelled almonds that have been treated with hot water to soften the seedcoat, which is then removed to reveal the white embryo. Once almonds are cleaned and processed, they can be stored for around a year if kept refrigerated; at higher temperatures they will become rancid more quickly. Almonds are used in many cuisines, often featuring prominently in desserts, such as marzipan. The almond tree

prospers in a moderate Mediterranean climate with cool winter weather. It is rarely found wild in its original setting. Almonds were one of the earliest domesticated fruit trees, due to the ability to produce quality offspring entirely from seed, without using suckers and cuttings. Evidence of domesticated almonds in the Early Bronze Age has been found in the archaeological sites of the Middle East, and subsequently across the Mediterranean region and similar arid climates with cool winters.

Aloe vera is a cactus-like plant that grows easily in hot, arid climates and is farmed in enormous amount. Aloe barbadensis is a member of the 300 species-strong Liliaceae family. Aloe vera gel, a mucilaginous substance found in the centre of aloe vera leaves, is used to make beauty products and some medicines. Aloe vera gel contains no Anthraquinone. They are in charge of aloes' potent laxative effects. Nevertheless, anthraquinone may be present in whole leaf extract. There are 75 potentially active components in aloe vera, including vitamins, enzymes, minerals, sugars, saponins, and amino acids.Aloe vera is a cactus-like plant that grows easily in hot, arid climates and is farmed in enormous amount. Aloe barbadensis is a member of the 300 species-strong Liliaceae family. Aloe vera gel, a mucilaginous substance found in the centre of aloe vera leaves, is used to make beauty products and some medicines. Aloe vera gel contains no Antraquinone. They are in charge of aloes' potent laxative effects. Nevertheless, anthraquinone may be present in whole leaf extract. There are 75 potentially active components in aloe vera, including vitamins, enzymes, minerals, sugars, saponins, and amino acids.

Cream:

The topical medications that can be applied to the skin are called creams. Creams are

characterized as thick liquid or semi-solid dosage forms that vary in viscosity depending on the type of oil and water they include.[7] Creams are applied cosmetically for functions such washing, beautifying, enhancing look, protecting, or therapeutic. These topical preparations are intended to deliver drugs locally, into the mucous membrane or the skin's underlying layer. These treatments are intended to be applied topically to improve the drug's site-specific delivery to the skin for skin conditions[8,9]

Since creams are made using methods developed in the pharmaceutical business, they are regarded as pharmaceutical products. Both medicated and unmedicated creams are widely used to treat dermatoses and other skin problems. People can utilize creams that are allopathic, herbal, or ayurveda based on the demands of their individual skin issues. They include one or more drug ingredients that have been diluted or spread in an appropriate foundation. Based on phases, creams can be categorized as either w/o or o/w types of emulsion.[10]

IDEAL CHARACTERISTICS

1. Good penetration capabilities, enabling the cream's drug to seep into the skin and have the desired effect.
2. To avoid unwanted skin reactions like itching, rashes, or redness, it shouldn't be toxic.
3. It should flow readily across skin when applied
4. It should melt or liquefy at body temperature when applied to skin.
5. Don't irritate the skin or cause inflammation of it

ADVANTAGES

1.Ease of application.
2. Simple to use.
3. Avoiding hazardous situations.
4. No particular risk or technician is required for application.
5. Prevent changes in drug levels when there are variations between and within patients.
6. Excellent compliance with treatment [11,12]

Disadvantages:

1. Sometimes, if unstable for skin, the cream can cause a burning sensation on the skin
2. Can cause irritation to the skin
3. More pimples can develop
4. Skin discoloration may happen
5. Hypopigmentation

Drugs and excipients Profile:

1. **Rice**
   - **Common name**: Asian rice,Indica rice
   - **Biological name:** Oryza sativa
   - **Family:** Poaceae.
   - **Chemical constituent:** Starch, protein, lipids (fats), dietary fibre, vitamins, and minerals.

Fig 1: Rice

Uses:

- Exfoliation [facial scrubs]
- Skin brightening
- Moisturizing
- Anti-aging[13]

2.Almond:

Synonyms: sweet almond,Prunus dulcis

Botanical Name: Prunus Amygdalus Dulcis

Family: Rosaceae

Scientific name-prunus Amygdalus Dulci

Biological Source– The biological source of almonds is the seed of the Prunus dulcis tree, also known as the common almond tree . Almonds are a type of drupe, which is a fruit with a fleshy outer part and a hard inner shell containing the seed.

Fig2: Almond

Uses:

- Moisturizing
- Antioxidant
- Anti-inflammatory
- Skin nourishment [14,15]

3. Aloe Vera:

Synonyms: Aloe vera

Botanical name: Aloe barbadensis miller.

Family: Asphodelaceae (Liliaceae)

Biological Source: The biological source of Aloe vera is the dried juice or gel obtained from the leaves of various Aloe species, particularly Aloe barbadensis

Chemicalconstituent: Aloe vera contains 75 potentially active constituents: vitamins, benzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids.[16,17]

Fig3: Aloe Vera

Uses:

Acne treatment

Skin moisturizing

Wound healing

Sunburn relief [18,19,20]

4. Rose Oil:

Family: Rosaceae

Biological Source: The petals of difference Rosa species especially Rosa centifolia L. and Rosa damascene Mill.

Biological Name: Rosa centifolia[21,22]

Fig 4: Rose water

Uses of Rose water

1.It is use as an essence.

2. It is use to nourishes skin.

3.Helps to keep the skin hydrated [23,24]

1.Bees Wax:

Chemical Formula: C15H31COOC30H612

Molecular Mass: 677.2215

Scientific Name: Cera Ala

Uses:

1. Use as Emulsifier and Emollient.

2. Emulsifying Agent. [25,26]

2. Borax:

Chemical formula: Na2 [B4O5(OH)4]-8H2O

Molecular Mass: 381.37 g/mol

IUPAC Name: sodium tetraborate decahydrate

Uses:

1.Use as a moisturizer.

2.It is use to prevent bacterial growth. [27,28]

3. Methyl paraben:

Chemical formula: C8H8O3

Molar mass: 152.15 g/mol

Appearance: Colourless crystals or white crystalline powder

Uses:

1. It avoid bacterial and fungal growth

2. It is use as a preservative [29,30]

4. Liquid Paraffin

Chemical Formula: CnH2n+2

Molecular Mass: 0.00

IUPAC Name: 2-(3,4,5-trihydroxyphenyl) chromenylium-3,5,7-triol: chloride

Uses:

1. Use as laxative

2. Use as a lubricant. [31,32,33]

Extraction Process:

Extraction Process of Rice

a)Cleaning and Soaking: Cleaning the rice grains to get rid of any impurities like dirt, stones, or other foreign objects is the first stage in the extraction of rice starch. The rice is then given a prolonged soak in water to soften the grains. To make sure that the starch can be easily extracted from the grains, this step is crucial.

b)Grinding: After the rice has been soaked, it is milled or blended into a fine paste. To create a slurry, the paste is combined with water. The rice grains are broken down during the grinding process, releasing starch granules that are subsequently suspended in the slurry.

c)Separation: The starch and protein in the slurry are then divided into two groups. By letting the slurry to settle, the heavier starch and protein particles sink to the bottom and float to the top, respectively. The pH and temperature of the slurry can be changed to enhance the separation procedure.

d) Washing: After that, the starch is thoroughly washed to get rid of any leftover protein fragments. To achieve this, add water to the starch and then wait for it to settle. After draining the water, the starch is what is left over. The starch's purity is increased during the washing process, which also helps to remove contaminants

e) Drying: The drying of the starch completes the extraction process. The starch is commonly dried in an oven or by spreading it out on a flat surface and letting it air dry. The starch can be pounded into a fine powder and utilized in a variety of food products once it has dried. To improve the starch's shelf life and get rid of any remaining moisture, drying is crucial.[34,35,36]

Fig5: Rice extract

Extraction Process of Almond:

a) **Soaking:** The almonds are first soaked in water, which helps to soften them and makes them easier to grind
b) **Grinding**: The soaked almonds are then ground into a fine slurry using a blender or other grinding equipment
c) **Filtering:** The ground almond slurry is then filtered to separate the solid almond pulp from the liquid. This process removes any large particles that may be present in the slurry
d) **Resulting slurry:**The resulting liquid milky white slurry, which is the basis for almond milk.[37,38]

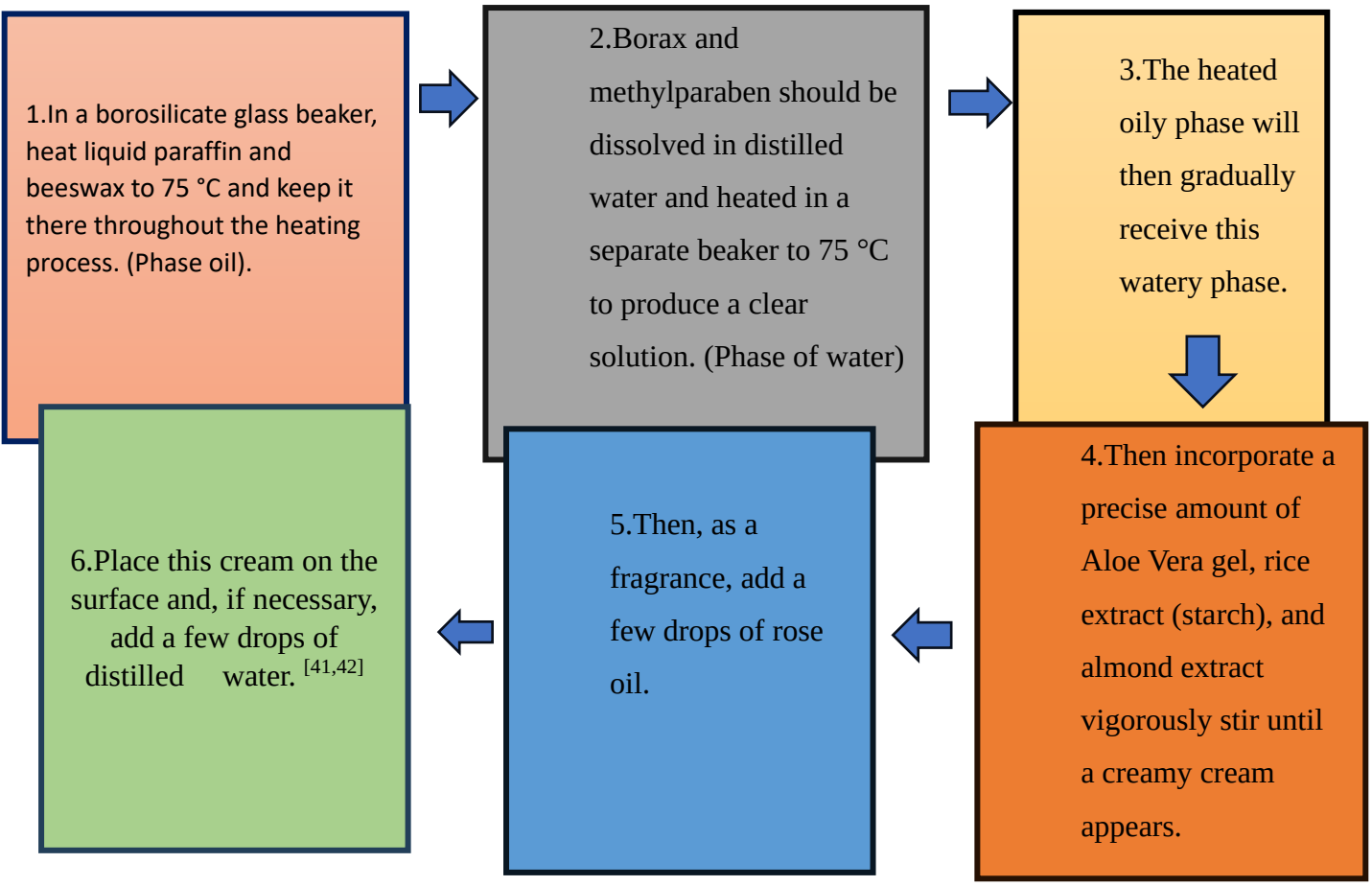
Fig6: Almond Extract

Extraction Process of Aloe Vera Gel:

a) **Harvesting**: Harvesting the aloe vera leaves is the first stage in the extraction process. For gel extraction, only full-grown leaves that are at least 3–4 years old should be utilised.
b) **Washing:** To get rid of any dirt or debris, the leaves are carefully washed after harvesting and wash out the impurities.
c) **Peeling:** A sharp knife or peeler is used to remove the leaf's outer coat. Aloin, a yellow liquid found in this stratum, has a harsh taste and may irritate the stomach.
d) **Filleting:** The gel within the leaves is then removed by filleting. Cutting the leaves lengthwise and using a spoon or knife to scrape out the gel are steps in the filleting process.
e) **Straining:** After that, the gel is squeezed to get rid of any last bits of fibre or leaf.
f) **Stabilization:** A natural preservative, such as vitamin C or citric acid, is added to the gel to solidify it. This keeps the gel fresh longer and increases its shelf life.[39,40]

Fig7: Aloe vera gel

Procedure:



Sr. No	Ingredients	F1	F2	F3	F4
1	Rice extract	3gm	2.5gm	2gm	**2.5gm**
2	Almond extract	2ml	1.5ml	2ml	**2ml**
3	Aloe vera gel	2gm	2gm	1.5gm	**1.5gm**
4	Bees Wax	2gm	2.5gm	2.5gm	**2.5gm**
5	Borax	0.2gm	0.4gm	0.4gm	**0.4gm**
6	Methyl paraben	0.2gm	0.2gm	0.2gm	**0.2gm**
7	Liquid Paraffin	8ml	8ml	9ml	**10ml**
8	Rose water	Q.S	Q.S	Q.S	**Q.S**
9	Distilled water	Q.S	Q.S	Q.S	**Q.S**

Table no:1 Formulation Table

Fig8: Optimized Formulation

Evaluation Parameter:

Physical Parameters:

In this test colour, odour, texture, and state of cream are absorbed.

Fig9: cream

1. **Colour:** Visual examination was used to determine the colour of the cream. The outcome is shown in the table
2. **Odour:** The odour of cream was found to be characteristics.
3. **State:** The status of the cream was visually inspected. The cream was semi solid in its current state, as shown in the table.
4. **Consistency:** Manually massaging the cream on the hand to test the formulation revealed that it had a smooth feel.
5. **Spreadability:** Spreadability of the formulated cream was determined by sandwiching the sample between two slides, compressing it to a uniform thickness by applying a specific weight for a predetermined amount of time, and measuring the amount of time needed to separate the two slides. Spreadability was determined using the formula below, and the results are shown in table.

Weight tide to upper slide (W) x Length of glass slide(L) taken to separate slide (T)

6. **Spreadability(S):** ——————————————————————

Time taken to separate slide (T)

7. **Washability:** After applying the product to the skin, the ease of water washing was evaluated. Results were displayed in a table.
8. **Non- irritancy Test:** The non-irritancy test results for an herbal cream formulation was assessed. No irritation or redness were visible during preparation. The condition was observed for 24 hours and 28 minutes, Result were displayed in table.
9. **Viscosity:** Cream's viscosity was measured using a Brooke field viscometer at a temperature of 25 degrees Celsius and spindle number 63 at rpm. Table results were displayed.
10. **Greasiness:** Here, a thin layer of cream was put to the skin's surface, and its grease- or oil-likeness was assessed. We can conclude from the findings that the cream is not greasy.
11. **Homogeneity**: By looking at it and touching it, the uniformity of the formulation was evaluated.
12. **Removal:** By rinsing the area where the cream had been applied with tap water, the creams ease of removal was evaluated.
13. **After Feel:**Emollience, slipperiness, and the quantity of leftover residue after applying a specific amount of Cream was examined.
14. **Type of Smear:** After applying the cream, the kind of film or smear that developed on the skin was examined.
15. **pH determination:** Basically, we are talking about how acidic different compounds are. pH (cream)) is often between 4 and 7. A digital pH meter or pH paper was used to
16. measure the results of this test.

Result:

The Present Research was the formulation and evaluation of Anti-agining and skin brightening face cream. The evaluation parameters were coming under results, like the physical evaluation of Anti-agining and skin brightening face cream of the cream, Spreadability, Washability, non irritancy test, viscosity, Homogeneity of Anti-agining and skin brightening face cream.

Discussion:

We made a special cream with different herbs. It is easy to wash off and does not feel greasy. It spreads well and the formula is good. It does not stand out and does not cause skin irritation. It is safe to use and will not harm your skin.

Stability Study of Cream:

Table no: 2 Stability Study of Cream

Sr. No	**Properties**	**F1**	**F2**	**F3**	**F4**
1	Colour	White	White	White	**White**
2	Odour	Pleasant	Pleasant	Pleasant	**Pleasant**
3	State	Solid	Semi-Solid	Semi-Solid	**Semi-Solid**
5	Spreadability	7	3	4	**5**

	Time (sec)				
6	Washability	No Washable	No Washable	Washable	**Washable**
7	Irritancy Effect	Nill	Nill	Nill	**Nill**
8	Viscosity	8550cps	8440cps	8480cps	**8456cps**
9	Homogeneity	Uniform	Uniform	Uniform	**Uniform**
10	Removal	Removable	Removable	Removable	**Removable**
11	After Feel	Emollience	Emollience	Emollience	**Emollience**
12	Type of smear	Thick	Thin	Thin	**Thin**
13	pH	6.66	7.30	7.35	**7.38**

Conclusion:

In conclusion**,** Anti-agining and skin brightening face cream is a skincare item made with rice based ingredients that are reputed to provide positive skin care effects. Antioxidants, vitamins, and minerals found in rice are said to nourish the skin, keep it hydrated, and encourage a more even complexion. Additionally, rice based herbal extracts may relaxing and anti-inflammatory, which may be able to calm sensitive skin and lessen redness.

It's crucial to remember that a rice herbal face cream's effectiveness might change based on a number of variables, including a person's unique skin type, sensitivity, and general skincare regimen. While some people could find rice herbal face cream to be a useful addition to their skincare regimen. While some people could find Anti-agining and skin brightening face cream to be a useful addition to their skin regimen, others might not experience any noticeable effects.

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