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**Review Article**

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# Formulation and evaluation of herbal anti-aging toner against dark spot and wrinkle

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## ABSTRACT

The ancients have a long-recognized rice's ability to cure skin. One of the waste compounds from the food processing sector that might be used in cosmetic formulas in rice *(Oryza sativa)* water. This investigation aims to assess the biological characters of rice water, namely its anti-aging and phytochemical qualities, by designing and evolving an application of topical gel incorporating rice-based liquid. The toner is fuzzy white due to rice grain and as a little thick consistency. Because rice grain have ability to repair skin cell, they are good for skin. For seven days rice washed water toner as no aroma and well in protein, fat, manganese and oil. The formulation containing 96% rice water was set up for biocompatible with human skin and exhibited appropriate cosmetic properties.

## KEYWORDS

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Key words: fermented rice water, antioxidant, botanical actives, skin hydration, Anti-aging, stability clean beauty.

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## INTRODUCTION

Rice *(Oryza sativa)* is a huge food source worldwide, especially in Asia, and its by-products like rice bran oil, rice water have gained attention for their cosmetic TT and dermatological benefits. Rice bran oil contains potent antioxidants such as ferulic acid, y-oryzanol, and phytic acid, skin aging and alopecia, and show anti-wrinkle effects also management of various skin condition. Both rice bran oil, rice bran extracts have been used, in their free and non-encapsulation form, for protection against UVS radiation- induced skin injuries and for skin disease treatment.

The formulation of efficient rice water- based products essential a comprehensive understanding of its character, compatibility with other ingredients, and the specific benefits desired for skin. Rice water is a organic economic and simple ingredient that can be integrated into skincare products.

Furthermore, bioactive compounds from rice bran exhibit anti-aging properties. These bioactive are also reported to possess anti-wrinkle qualities, enhancing the skins appearance and texture. However, there remains a lack of scientific literature substantiating the claimed skin benefits of rice water; most of the existing evidence is derived from claims made by cosmetic manufacturers rather than peer-reviewed research.[1]

### Toner: -

A herbal skin toner is liquid skincare product applied to the face after washing face and before moisturizing. It helps remove any remaining impurities, balance the skin’s pH, tightens skin pores, and prepares the skin to absorb serums and moisturizers.[2]

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## MATERIALS AND METHODS

## METHODOLOGY

1. Literature Search Strategy

2. A systematic and comprehensive literature search will be conducted to gather relevant studies on the formulation, phytochemical constituents, and evaluation of herbal anti-aging toners.

1.1 Databases Used

PubMed

Google Scholar

ScienceDirect

Scopus

Web of Science

Herbal pharmacopoeias and cosmetic science references

1.2 Keywords and Search Terms

Keywords (individually and in combinations using Boolean operators such as AND/OR):

“Herbal toner”

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“Anti-aging formulation”

“Anti-wrinkle”

“Dark spot reduction”

“Skin-lightening herbs”

“Polyphenols and aging”

“Herbal cosmetic formulation”

“Phytoactive compounds for skin care”

1.3 Inclusion Criteria

Articles published in the last 10–15 years

Studies on herbal extracts used for anti-aging or depigmentation

Research involving formulation of toners, serums, or topical herbal preparations

Studies evaluating anti-oxidant, anti-wrinkle, skin-lightening, or collagen-boosting potential

1.4 Exclusion Criteria

Studies based only on synthetic chemicals

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Non-English language articles (unless translated)

Duplicated, incomplete, or non-peer-reviewed sources

## Methodology Ingredients

**RICE WATER: -**Rice water is a suspension of starch obtained by draining boiled rice or boiling rice up to entirely dissolves into the water. Treatment of diarrhoea. Matter rice is also a great source of dietary fiber, which support to lesser cholesterol level

**BOTANICAL NAME**: - *Oryza Sative*

**FAMILY: -** *Poaceae*

**PART TYPICALLY USED: -** seed

**ACTIVE CONSTITUTES**: - Starch, protein, lipids, dietary fiber, vitamin, and minerals

**USES**: - Skin Lightening, Anti-aging, Improve skin texture, Soothing irritated skin



Fig. No.01 Rice water

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**ALOE VERA: -** Aloe vera is a juicy plant used in alternative for its beauty, health, skincare and medicinal properties such as antioxidants that protect the skin from intensively aging.

**BOTANICAL NAME**: - *Aloe barbadenis*

**FAMILY**: - *Aloaceae*

**PLANT TYPICALLY USED**: Leaf

**ACTIVE CONSTITUTES: -** Vitamin, Enzyme, polysaccharides, minerals, fatty acid, amino acid and anthraquinones

**USES: -** Acne treatment, wound healing, anti-oxidant, skin brightening, anti-inflammatory [4]



Fig.No.02 Aloe

**ROSE WATER: -**Rose water is perfect for cleansing your skin and removing any impurities that could cause unwanted spots. It is suitable for people with any skin type.

**BOTANICAL NAME: -** *Rosa Rubiginosa*

**FAMILY: -***Rosaceae*

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**PLANT TYPICALLY USED: -** Flower

**ACTIVE CONSTITUTES: -** Phenyl ethanol, Linalool, Citranellol, Neroli, geraniol

**USES: -** Anti- inflammatory, Astringent effect on pores, Skin whitening age.[5]



Fig. No.03 rose water

**GlYCERIN: -** Glycerin is a natural, clear, thick liquid widely used in skincare because of its strong moisture-holding ability. Glycerin works as a moisture which means it pulls moisture form the environment and help the skin stay smooth, clean and hydrated.

**ACTIVE CONSTITUENTS: -** Amino Acid, phytochemical (C3H8O3)

**USES: -** Humectant, skin-softening agent, Barrier- supporting, Enhance absorption, Mild and non-irritating

**NIACINAMIDE POWDER:**- Combined with rice water creates potent toner that brightening skin, minimize pores and regulates sebum. It offer deep hydration, instant moisture, and pore refinement, acting as a “sponge” to keep skin plump and smooth.

**HYALURONIC ACID**:- PURIFIED WATER: - purified water is a water that has been filtered by boiling it into vapor and then compressing the steam back into a liquid.

**USES**: - Household, Medical, Laboratory, Cosmetic, Aquariums

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**GREEN TEA EXTCART**:- It is pharmcongnostical drug rich in caffine. It contain polyphenols and catechins that reduce inflammation and repair skin.

**BOTANICAL NAME**:- Camellia sinensis

**FAMILY**:- Theaceae

**PLANT TYPICALLY USED**: - leave

**ACTIVE CONSTITUTES**:- polyphenol catechins. Antimicrobial, USES:- Antimicrobial, anti inflammatory, anti oxidant

**PURIFIED WATER: -** purified water is a water that has been filtered by boiling it into vapor and then compressing the steam back into a liquid.

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## Advantage: -

1.Remove residual impurities.

2.Minimize pore appearance.

3.Hydration.

4.Prepare skin for skincare product.

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5.control oil.

6.restore pH balance.

7. delivery active ingredient.

8.Refreshes and tightens the skin

9.soothes and calm skin.

10. Improve skin texture. [6]

## Evaluation of toner

Prepared formulation of herbal face toner was subjected to following evaluation parameter

Organoleptic characteristics

1.Organoleptic properties was analyzed by the sensory organ ex-colour, taste, smell, texture.

2.Homogeneity

Homogeneity was examine by visual examination for the appearance and present of any clog.

3.pH-

The solution of 25 ml was taken in a beaker with graduations and now the calibrate pH meter

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(acidimeter) was made stand in the formulation for some time and reading was note down.

4.Surface tension

The formulation was propagate in the stalagmometer and the surface tension was recorded.

5.Viscosity

Ostwald's viscometer was used to measure the viscosity of the formulation. The viscosity of water and formulation was registered in centipoise.

6. Skin irritation

Small amount of toner was sprayed on left hand dorsal skin and maintain at an interval; result was the non-toxic for skin.

7. Skin conditioning

The appearance of the skin after entreaty of the toner was seen to be smooth, moist and Supply.

8. Temperature variations

The formulation was liable to unusual temperature at 45 o C for months to check the Stability.[7]

**Formulation of toner**

1.Rinse the half cup of rice well to get rid of any contaminants

2.Place the rinsed rice in blow and sufficient amount of water . Let it soak for 2-3 until the water turn cloudy.

3.Swril the rice in water and strain the rice water in a blow .

4.Add a aloe vera gel , green tea extract and rose water and 1-2 drops of essential oil .

5.Blend the mixture briefly or stir well to ensure all ingredient are combined.

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6.Allow the mixture to ferment for 12- 24 hr for additional benefits.

7.Tranfer the mixture in a air tight container (spray bottle) and store it in refrigerator.

8.Evaluation test

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## RESULTS

### Types of toners

There are three kind types of toners available on the market today

**1.Alcohol based formulation**

2. **Glycerin or glycol-based**

**3. Water-based,** water-based toner without alcohol smell or witch hazel to decrease the risk of irritation.

### Toner for particular skin type

**For oily skin**

Toners all work to minimize excess oil. Attempt an oil- balancing toner with glycolic and salicylic acid for dull skin remover though, for the greatest effect. A wonderful component to try If you want to minimize the appearance of your pores is niacinamide. Niacinamide, antioxidants and plants extracts are included in Paula's, Choice Skin Balancing Pore-controlling Toner to lessen oiliness and encourage cleaner, smoother skin.

**For acne-prone skin**

Choose a light and mild formula if you are prone to pimples or severe acne breakout. Skin using herbal toners with alcohol as the finally you want to do is aggravate your skin worse. To get cleanse of dull skin and lessen the oil and that might clog pores, try using a toner that contain one or two alpha hydroxy acids. A gentle and non-alcoholic alternative is Mario Badescu's Glycolic Acid Toner

**For dry skin**

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Thomas advises those with dry skin type to use face toners that contain humectants, “Humectants are chemical in cleansers and lotions that act like a magnet to draw water compound to the skin to humectant it.” Once more, you should avoid using any intense compounds that could cause skin dehydrating, such as alcohol. Rather, seek out calming, hydrating components such as glycerin, tocopherol and hyaluronic acid.

**For combination skin**

The finest of all the worlds is what you desire if you have mixed skin. For toners, that stand for a mixture that will nourish skin and take out extra oil. Clarifying with Iris by Clarins is an alcohol-free, well-balanced solution. Rather, it uses extracts of sage and iris to revitalize skin. Look for hydrating antioxidants and mild acids including lactic, salicylic and hyaluronic acid when evaluating alternative solutions.[3]

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## DISCUSSION

Good outcomes were obtained with spray toner composition. Everything was cheap and useful, and all of the goods were bought fresh from the neighborhood market. The examined formulation met the necessary criteria from that perspective as well. Despite having a cleansing effect. Their was no rashes and irritation following application. The developed formula possessed the characteristics of traditional cosmeceutical skincare formulation and was discovered to be physiochemically stable. Compared to gel or lotion, the spray formulation proved to be more effective due to its ability to better penetrate the skin's small pores by spraying tiny particles with a specific amount of power on to the skin. Using the inherent qualities of rice water to create a toner that hydrates, brightens, and supports general skin health an example of a holistic approach to skincare.

## Future scope of toner

It is projected that the size of all over the world skin toner market will grow as to compound annual growth rate (CAGR) of 5.2% between 2023 and 2033. By 2033, its valuation is probably going to be up-close to US$ 2.1 billion. By 2023, the skin toner market is expected to be valued US$ 1.3 billion.

### FUTURE DIRECTIONS

- Summary of the findings and their implication for the development of herbal skincare products.
- Suggestions for future research directions, such as exploring new herbal ingredients optimizing formulation parameters.[8]
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## CONCLUSION

Herbal rice water toner demonstrated desirable physicochemical properties including a mildly acidic pH compatible with skin, appearance, delightful, natural aroma, and less viscosity suitable for easy application Stability studies confirmed the formulation remained physically and chemically stable under various storage conditions. Microbial evaluation showed the product to be safe, with microbial counts within acceptable limits and no pathogenic contamination. Additionally, patch testing indicated that the toner is non-irritating and safe for topical use. In general, the rice water toner revolved in this study is a promising natural skincare product with benefits for skin hydration and soothing effects.

## ABBREVIATIONS

author declare no abbreviations

## FUNDING

self funded

## CONFLICT OF INTERESTS

Author declare no conflict of interests

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## REFERENCES


1. Yogesh B, Raut B, Bais SK, Regoti NV. Formulation and evaluation of rice water toner as anti-aging property. JPHT Journal. Available from: https://www.ijprdjournal.com/

2. Kakekar P, Kazi S, Bais SK. Formulation of rice water toner for use on skin. IJPHT Journal. 2025;3(1):3257–3260. Available from: https://www.ijprdjiornal.com

3. Marto J, Neves A, Goncalves L.M, Pinta P, Almeida C, Simoes S. Rice water: traditional ingredient with anti-aging efficacy. Cosmetics. 2018;1–2. Available from: https://www.mdpi.com/journal/cosmetics

4. Mate K.B, Batra J.R. Formulation and evaluation of herbal face toner. IJRPR. 2025;6(5):13660–13664. Available from: https://www.ijrpr.com

5. Gore K.R, Avad V.R. Formulation and evaluation of a fermented rice-water based toner enriched with botanical actives for acne-prone skin. 2025;6:page No.11982.

6. Dusane G.V, Jejurkar A.S, Kawade R.M, Kuhile N.R. Preparation and evaluation of herbal toner. IJCRT. 2024;12(6):689–690. Available from: https://www.ijcrt.org

7. Baviskar D.K, Patil N.R, Pawar S, Shaikh T. Formulation and evaluation of a natural skin-lightening and anti-aging face cream using rice extract. AJBR. 2024; 27:542–543. doi:10.53555/AJBR.v27i2.7989

8. Nikhil V. Rajguru, Prof. Ashok. S. Jagdale, Vaibhav. P. Damare Preparation and evaluation of facial toner. 2024; vol12[6]: page No. 0e979, 0e980 www.ijcrt.org

9. Rajguru N.V, Jagdale A.S, Damare V.P. Preparation and evaluation of facial toner. IJCRT. 2024;12(6): e979–e980. Available from: https://www.ijcrt.org

10. More S, Gadhave N, Choudhary P, Mavkar R. Formulation and evaluation of herbal toner: a review. 2024; 2:8. Available from: https://www.globalresearchonline.net

ANU-SEARCH THE INTERNATIONAL JOURNAL OF PHARMA AND ALLIED SCIENCES

11. Jingure S.M, Gunjal R.P, Karande G.P, Amol S, Shaikh S.I. A review of formulation and evaluation of rice water toner for skin. Int J Adv Res Sci Commun Technol. 2025;5(May):392–396. Available from: https://www.ijarsct.co.in

12. Saba E, Lee C.H, Jeong H, Lee K, Kim T.H, Roh S.S, Kim S.H, Rhee M.H. Fermented rice bran prevents atopic dermatitis in DNCB-treated NC/Nga mice. J Biomed Res. 2016;7(3):334–343.

13. Lucas S.D, Gonçalves L.M, Carvalho L.A, Correia H.F, Da Costa E.M, Guedes R.A, Moreira R, Guedes R.C. Optimization of 3-acyl kojic acid derivatives as potent and selective human neutrophil elastase inhibitors. J Med Chem. 2013;56(6):9802–9806.

14. Ryu H, Park K.H. The effects of fermented skincare ingredients on skin health. J Dermatol Sci. 2018;9(12):131–139.

15. Shah D, Verma R. Sustainable practices in the cosmetic industry: the role of rice by-products in eco-friendly skincare formulations. Int J Cosmet Sci. 2021;43(2):130–138.

16. Sharma R, Gupta S. The therapeutic potential of rice water for skin and hair care: a review of recent advancements. Int J Cosmet Sci. 2022;44(5):103–115.

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