WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.63
Volume 15, Issue 11, 1932-1946. Research Article ISSN 2277–7105

FORMULATE AND EVALUATE OF RICE EXTRACT AND GREEN TEA EXTRACT TONER FOR SKIN

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Article Received on 05 May 2026,
Article Revised on 25 May 2026,
Article Published on 03 June 2026

https://doi.org/10.5281/zenodo.20527027

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How to cite this Article: *Miss. Janvi Rajeshwar Umap, Mr. Arth Sachin Morghade, Miss. Kirti Gunvanta Pandav, Associate Prof. Ruchika Gawande, Principal: Dr. Rahul Bijwar (2026). Formulate And Evaluate Of Rice Extract And Green Tea Extract Toner For Skin. World Journal of Pharmaceutical Research, 15(11), 1931–1946.

ABSTRACT

The growing interest in natural and eco-friendly skincare products has encouraged the use of traditional ingredients in cosmetic formulations. This study was carried out to formulate and evaluate a toner containing rice extract and green tea extract for improving skin health. Oryza sativa rice extract is known to contain amino acids, antioxidants, and vitamins such as B-complex and E, which are beneficial for skin nourishment and protection. Green tea extract provides additional antioxidant and soothing properties. The toner was prepared using these natural extracts along with suitable preservatives and essential oils to improve stability and fragrance. Various physicochemical parameters including pH, viscosity, microbial contamination, and stability under different storage conditions were evaluated. The formulation was also tested on healthy volunteers for four weeks to observe its effects on skin hydration, texture, and irritation potential. The results showed that the toner remained stable throughout the study period and produced no significant skin irritation. Participants experienced improvements in skin softness, brightness, smoothness, and overall appearance after regular use. The study demonstrates that rice extract and green tea extract can be effectively used in natural skincare products. The formulated toner was found to be safe, economical, and beneficial for maintaining healthy skin.

KEYWORDS: Rice Extract, Green Tea Extract, Natural Skincare, Herbal Toner, Antioxidants, Skin Hydration.

1. INTRODUCTION

From Ancient Times, Natural Materials Have Been Widely Used By People To Improve And Maintain Their Appearance.[1] Cosmetics Are Products Intended To Enhance Beauty And Support Personal Care.[2] Traditionally, Cosmetic Preparations Mainly Relied On Herbs And Other Naturally Obtained Ingredients. However, With Scientific And Industrial Development, Synthetic Chemicals Began To Be Incorporated Into Cosmetic Products Because Of Their Quick And Noticeable Effects.[3] Although Such Products May Provide Temporary Improvement In Appearance, Continuous Use Can Negatively Affect Skin Health. Various Side Effects Caused By Chemical-Based Cosmetics Have Encouraged The Cosmetic Industry To Shift Its Attention Toward Safer And Herbal Alternatives.[4]

The Formulated Face Mist Is Free From Harmful Synthetic Chemicals And Offers Several Skin Benefits. It Provides A Cooling And Calming Sensation, Helps Protect The Skin From Sun Exposure, And Exhibits Anti-Allergic Activity. A Skin Toner, Commonly Referred To As A Toner, Is A Cosmetic Liquid Used To Cleanse The Skin, Minimize The Visible Appearance Of Pores, And Refresh The Face. In Addition, It Supports Skin Hydration, Protection, And Rejuvenation.

Toners Can Be Applied To The Skin In Different Ways

- On A Cotton Round. (This Is The Most Frequently Used Method.)
- Spraying Onto The Face.
- By Applying A Tonic Gauze Facial Mask—A Piece Of Gauze Is Covered With Toner And Left On The Face For A Few Minutes.[5]

In Recent Years, There Has Been A Growing Preference For Natural And Chemical-Free Skincare Products. Among These Natural Ingredients, Rice Water—Obtained After Soaking Or Boiling Rice—Has Gained Significant Popularity. Traditionally Used In Many Asian Cultures, Rice Extract Is Known For Its Ability To Promote Soft, Radiant, And Healthy-Looking Skin. It Is Rich In Vitamins, Minerals, And Antioxidants That May Help Improve Skin Texture, Minimize Pigmentation, Tighten Pores, And Delay Visible Signs Of Aging. Due To These Beneficial Properties, Rice Extract Has Become A Widely Used Ingredient In Modern Skincare And Cosmetic Formulations.[6]

Green Tea Extract Is A Natural Concentrated Substance Prepared From The Leaves Of Camellia Sinensis. It Contains High Amounts Of Bioactive Compounds, Mainly Polyphenol,

Catechins And Antioxidants Such As EGCG, Which Are Known For Their Protective And Therapeutic Effects. Due To Its Antioxidant, Anti-Inflammatory, And Antimicrobial Activities, Green Tea Extract Is Commonly Used In Skincare Products, Herbal Cosmetics, Nutritional Supplements, And Medicinal Formulations. It Is Beneficial In Maintaining Healthy Skin, Minimizing Damage Caused By Free Radicals, Slowing Premature Aging, And Improving Skin Appearance. Its Soothing And Protective Nature Makes It An Important Ingredient In Many Natural And Herbal Preparations.[7]

Rice Extract Is A Natural, Starch-Rich Liquid Collected After Soaking, Washing, Or Cooking Rice. It Has Been Traditionally Used In Asian Skincare Practices For Many Years Because Of Its Nourishing And Soothing Properties. Rice Extract Contains Several Beneficial Nutrients, Including B Vitamins, Vitamin E, Amino Acids, Antioxidants, And Minerals Such As Zinc, Magnesium, And Potassium, Which Help Maintain Healthy Skin.[8]

For Skincare, Rice Extract Works As A Gentle Natural Toner That Can Improve Skin Brightness And Promote A Smoother Complexion. It Helps Tighten Enlarged Pores, Control Excess Oil Production, And Soothe Redness Or Irritation. The Antioxidants Present In Rice Extract Protect The Skin From Damage Caused By Free Radicals And Environmental Stress. In Addition, It Supports The Skin's Natural Barrier, Helping To Keep The Skin Hydrated And Healthy. Rice Extract May Also Assist In Reducing Acne, Calming Inflammation, And Healing Minor Skin Problems.[9]

Because Of Its Mild, Chemical-Free, And Cost-Effective Nature, Rice Extract Is Widely Used In Homemade Remedies As Well As Modern Skincare And Cosmetic Products. Its Traditional Importance And Scientifically Recognized Benefits Have Made It A Valuable Ingredient In Natural Skin Care Treatments Worldwide.[10]

1.1 Effects Of A Toner On Skin[11]

In The Past, Skin Toner Was A Typical Product Used As A Second Cleansing Agent For Removing Residual Makeup After Regular Facial Cleansing Or Used For Removing Excess Sebum Secreted From Facial Skin To Prepare The Skin Before Nourishing Treatment. Toners May Be Categorized Into Alcohol-Based Or Non-Alcohol-Based Toners For Various Skin Types Such As Oily Skin, Sensitive Skin, Or Combination Skin.[6] Nowadays, The Diversity And Prevalence Of The Products Cause Skin Toners To Be Utilized More As Cosmeceutical

Products With Several Purposes; For Example, Rehydrating Skin, Balancing Skin Ph, Tightening Skin Pores, Relieving Irritation, And Also Antisepsis.

1.2 Advantages Of Spray Formulations Are

1. Spray Toners Are Convenient To Use And Allow Smooth And Even Application Over The Whole Face.
2. The Tiny Mist Droplets Assist The Formulation In Reaching Deeper Into The Skin Pores For Better Absorption.
3. Keeping The Formulation In Spray Form Helps Maintain Its Stability By Lowering The Possibility Of Unwanted Chemical Changes.
4. Since The Product Is Dispensed Without Direct Handling, The Chances Of Microbial Contamination Are Reduced.
5. Toners In Spray Form Offer Faster Results Along With Enhanced Performance, User Safety, And Ease Of Application.

1.3 Mechanism Of Spray

The Mechanism Of Action Of The Face Spray Toner Can Be Explained As Follows

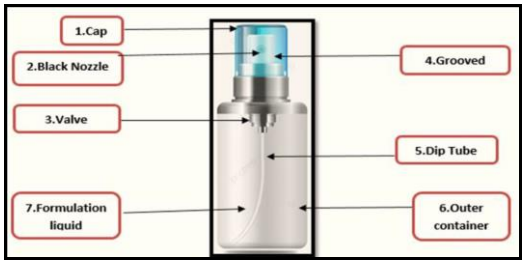

Fig. No. 01: Design Of A Spray.

1.4 Mechanism Of Action Of The Spray Formulation

When The Spray Bottle Is Pressed, The Pump Mechanism Inside The Nozzle Becomes Activated. This Action Pushes Air Through The Dip Tube And Creates A Pressure Difference Within The Bottle. Due To The Reduced Pressure Near The Top Section, The Liquid Formulation Moves Upward Through The Tube. As The Liquid Passes Through The Nozzle Actuator, It Is Broken Into Fine Mist Particles. These Tiny Droplets Are Then Sprayed Onto The Skin, Allowing Better Spreadability And Improved Penetration Into The Skin Surface.[12]

1.5 ADVANTAGES

1. Helps Brighten The Skin And Improves Overall Complexion.

2. Provides Antioxidant Protection Against Free Radical Damage.

3. Soothes Skin Irritation, Redness, And Inflammation.

4. Helps Maintain Skin Hydration And Softness.

5. Controls Excess Oil Production And Reduces Greasy Skin.

6. Assists In Tightening Enlarged Pores And Improving Skin Texture.

1.6 DISADVANTAGES

1. Excessive Use May Cause Dryness Or Tightness Of The Skin.

2. Improper Storage Of Natural Toners Can Lead To Microbial Contamination Or Spoilage.

3. Rice Extract-Based Toners May Have A Short Shelf Life Because Of The Absence Of Strong Preservatives.

4. Green Tea Extract May Cause Irritation In Very Sensitive Or Damaged Skin If Used In High Concentration.

5. Results May Vary Depending On Individual Skin Type And Condition.

6. Homemade Formulations May Not Always Provide Stable Or Consistent Quality.

2. DRUG PROFILE

1. RICE EXTRACT[13]

- **Biological Source** : Steam Distillation Of Petals Of Flower Of **Rosa Rubiginosa.**
- **Scientific Name** : Rosa Rubiginosa
- **Synonym** : Damaskrose, French Rose, Wild Rose.
- **Family** : Rosaceae
- **Uses** : Hydrates Skin, Minimizes Pores, Balances Ph.

- **Constituents**

1.Rich In Vitamins (B, E)

2. Amino Acids

3.Minerals

- **Procurement By :-** Marketed (**Company Name:-** Fortunate)

Fig. No. 02: Rice Extract.

2. GREEN TEA EXTRACT[14]

- **Biological Source** : Dried Leaves Of Camellia Sinensis
- **Scientific Name :** Camellia Sinensis
- **Synonym :** Herbal Tea, Green Tea
- **Family :** Theaceae
- **Uses :** Help Combat Acne, Reduce Redness, And Soothe Irritated Skin

• Constituents

1. Polyphenols (EGCG)
2. Catechins

- **Procurement By :-** Marketed (**Company Name:-** Aseschem)

Fig. No. 03: Green Tea Extract.

3. ALOEVERA GEL[15]

- **Biological Source:** Dried Latex From The Leaves Of Aloe Barbadensis Miller
- **Scientific Name :** Aloe Barbadensis Miller
- **Synonym :** Aloe**,** Aloe Vulgaris
- **Family :** Liliaceae
- **Uses :** Help Calm Irritated Skin, Reduce Redness, And Balance The Skin's Ph Levels, While Also Providing Gentle Exfoliation And Refining Pores.

- **Constituents**

1. Polysaccharides
2. Vitamins
3. Minerals

- **Procurement By :-** Marketed

Fig. No. 04: Aloevera Gel.

4. ROSE WATER[16]

• **Scientific Name** : Rosa Rubiginosa

• **Family :** Rosaceae

• **Kingdom :** Plantae

• **Uses :** Flavouring Agent, Mild Astringent Effect On Pores To Avoid Dirty Pores On The Skin Medicinal Importance Anti-Inflammatory Action, Moisturizing And Anti-Aging Agent, Cosmetic & Skin Protection Application, Astringent Effect On Skin Pores Skin Whitening Agent.

• **Constituents**

1.Phenyl Ethanol

2.Linalool

3.Citranellol

• **Procurement By :-** Marketed

Fig. No. 05: Rose Water.

5. GLYCERINE[17]

• **Biological Source :** Glycerine (Glycerol) Is A Natural Compound Derived Primarily From Plant-Based Oils (Palm, Soybean, Coconut) And Animal Fats (Tallow).

• **Scientific Name :** Glycerol

• **Synonym :** Glycerine, Glycerol

• **Family :** Alcohol Family

• **Uses :** Moisturizes Skin, Deep Hydration, Improve Appearance

- **Procurement By :-** Marketed

Fig. No. 06: Glycerin.

6. SODIUM BENZOATE[18]

- **Scientific Name :** Sodium Benzoate Or Benzoic Acid Sodium Salt
- **Synonym :** Benzoic Acid Sodium Salt, Benzoate Of Soda, And Sodium Benzoate Salt
- **IUPAC Name :-** Sodium Benzenecarboxylate
- **Uses :** Preservative To Inhibit The Growth Of Harmful Bacteria, Mold, And Yeast In Acidic Products.

Fig. No. 07: Sodium Benzoate.

3. FORMULATION OF TONER

1. Procurement Of Herbs

- Rice Extract
- Green Tea Extract
- Aloevere Gel

2. Preparation Of Toner[19]

Take Rice Extract &Green Tea Extract In A Sterile Glass Beaker Then Add Rose Water To The Extract And Mix Gently. Incorporate Pure Aloe Vera Gel Into The Mixture For Soothing Properties. Add Glycerin Act As A Humectant And Moisturizer. Add Sodium Benzoate As A Preservative To Inhibit Microbial Growth Stir The Mixture Continuously For 15–20 Minutes Using A Magnetic Stirrer Under Aseptic Conditions To Ensure Homogeneity. Measure The Ph Of The Formulation Using A Digital pH Meter.

3. Filter Formulation[20]

Filter The Final Formulation Through Whatman Filter Paper To Remove Any Particulate Matter And Improve Clarity.

4. Transfer Toner Into Spray Bottle[21]

Transfer The Toner Into Sterilized Spray Bottles To Protect It From Light And Store In A Cool, Dry Place.

Table No. 01: Formulation Of Toner.

INGREDIENTS	CATAGORIES	F1	F2	F3	F4	F5
Rice Extract	Skin Brightening	8ml	8ml	8ml	8ml	8ml
Green Tea Extract	Antioxidant	8ml	8ml	8ml	8ml	8ml
Aloevera Gel	Soothing, Moisturizing	2ml	2.5ml	3ml	3.5ml	4ml
Rose Water	Fragrance	7ml	7ml	7ml	7ml	7ml
Glycerine	Humectant	1ml	1.2ml	1.4ml	1.6ml	1.8ml
Sodium Benzoate	Preservative	0.15gm	0.15gm	0.15gm	0.15gm	0.15gm
Citric Acid	pH Adjust	Q.S.	Q.S.	Q.S.	Q.S.	Q.S.
Water	Vehicle/ Solvent	Q.S Upto 30 Ml	Q.S Upto 30 Ml	Q.S Upto 30 Ml	Q.S Upto 30 Ml	Q.S Upto 30 Ml

Fig. No. 08: Formulation Of Toner F1 to F5 Batch.

4. EVALUATION OF TONER

4.1 Physical Evaluation[22]

Organoleptic Tests Were Performed On Toner For Skin And Colour, Odour, Clarity Check Were Visually Observed. This Test Was Confirmed By Visual Appearance And By Applying On Skin.

4.2 pH Examination[23]

The Formulation Was Tested With A Digital pH Meter And Reading Was Matched With The pH Meter Scale.

Ideal Range : 5.0 – 6.5

4.3 Spray Volume[24]

Spray Contains 0.15 – 0.20 Ml Per Spray

Ideal Range : 0.10 ml – 0.20 ml per spray

4.4 Skin Irritation[25]

Small Amount Of The Mist Toner Was Sprayed On Left Hand Dorsal Skin And Kept For Some Time, Result Was Found Non-Irritant On The Skin.

4.5 Drying Time[26]

The Formulation Was Sprayed 2 Times On A Tile To Check For Calculation Of Time Taken For The Formulation To Dry.

Ideal Range : 45 – 60 seconds

4.6 Stability Test[27]

The Product Was Kept For 1 Month.

A stability test is performed to check whether the formulation remains safe, effective, and unchanged during storage over a period of time.

Room Temperature -25°C ± 2°C

5. RESULT

❖ **Table No. 02: Physical Evaluation.**

Sr. No	Formulations	Colour	Odour	Clarity
1.	F1	Light Green	Pleasant	Clear
2.	F2	Light Green	Pleasant	Clear
3.	F3	Pale Green	Pleasant	More Clear
4.	F4	Pale Green	Pleasant	Slightly Clear
5.	F5	Whitish Green	Pleasant	Slightly Clear

❖ **Table No. 03: pH Examination.**

Sr. No	Formulations	pH	Observation
1.	F1	5.2	Fail
2.	F2	5.4	Fail
3.	F3	5.6	Pass
4.	F4	5.8	Fail
5.	F5	6.	Fail

❖ **Table No. 04: Spray Volume.**

Sr. No	Formulations	Spray Volume	Observation
1.	F1	0.11 ml	Fine spray
2.	F2	0.12 ml	Uniform spray
3.	F3	0.13ml	Fine and uniform spray
4.	F4	0.15ml	Slightly heavier mist
5.	F5	0.17ml	Dense spray pattern

❖ **Table No. 05: Skin Irritation.**

Sr. No	Formulation	Irritancy
1.	F1	No Irritation
2.	F2	No Irritation
3.	F3	No Irritation
4.	F4	Slightly Irritation
5.	F5	Slightly Irritation

❖ **Table No. 06: Drying Time.**

Sr. No	Formulation	Drying Time	Observation
1.	F1	45 Sec	Fast drying
2.	F2	48 Sec	Smooth drying
3.	F3	52 Sec	Ideal drying time
4.	F4	56 Sec	Good drying
5.	F5	60 Sec	Slightly slower drying

❖ **Table No. 07: Stability Test.**

Sr. No	Formulations	Room Temperature (25°C)	Observation
1.	F1	Stable	Stable
2.	F2	Stable	Stable
3.	F3	Highly stable	Highly Stable
4.	F4	Stable	Stable
5.	F5	Slight pH variation	Moderately Stable

The Interpretation Of Results On Hand.

a) Before Application Of Toner

b) After Application Of Toner

Fig. No. 09: F3 Batch Best.

DISCUSSION

The Herbal Toner Containing Rice Extract And Green Tea Extract Was Successfully Formulated And Evaluated In Different Batches (F1–F5). All Formulations Were Examined For Various Evaluation Parameters Such As Physical Appearance, pH, Spray Pattern, Drying Time, Stability, And Skin Irritation Test.

Batch F1 Showed Acceptable Physical Appearance And Spray Characteristics, But The pH Was Slightly Lower Than The Ideal Skin pH Range. The Drying Time Was Comparatively Longer And Slight Instability Was Observed During Storage Studies. However, No Skin Irritation Was Found.

Batch F2 Exhibited Improved pH And Better Spray Uniformity Compared To F1. The Formulation Showed Moderate Stability And Acceptable Drying Time. The Toner Was Compatible With Skin And Did Not Produce Any Irritation Or Redness.

Batch F3 Demonstrated The Best Overall Performance Among All Formulations. It Showed Optimum pH (5.6), Uniform Spray Pattern, Ideal Drying Time (52 Sec), Good Stability, And Excellent Skin Compatibility Without Any Irritation. Stability Studies Confirmed That The Formulation Remained Stable Under Different Storage Conditions Without Phase Separation Or Microbial Growth. Therefore, F3 Was Selected As The Optimized Formulation Suitable For Regular Skincare Use.

Batch F4 Showed Good Physical Appearance And Acceptable Spray Volume, But The Drying Time Was Slightly Higher Than F3. Minor Changes In Stability Were Observed During Storage At Higher Temperature Conditions. The Formulation Was Safe For Skin Application.

Batch F5 Also Produced Satisfactory Results In Terms Of Appearance And Skin Compatibility. However, The pH And Stability Were Less Suitable Compared To F3. Slight Variation In Spray Pattern And Drying Time Was Observed During Evaluation Studies.

Overall, All Formulations Were Successfully Prepared And Evaluated, But Batch F3 Was Found To Be The Most Effective And Stable Formulation With The Best Evaluation Parameters Among All Batches.

6. CONCLUSION

This Study Successfully Formulated A Herbal Mist Toner Containing Rice Extract And Green Tea Extract With Beneficial Skin Brightening, Antioxidant, And Soothing Properties. Five Different Formulations (F1–F5) Were Prepared And Evaluated For Various Parameters Including Ph, Physical Appearance, Clarity, Spray Volume, Drying Time, Skin Irritation, And Stability. Among All Formulations, F3 Showed The Most Satisfactory Performance With Good Clarity, Pleasant Odour, Optimum Sprayability, Suitable Drying Time, Skin-Friendly Ph, And Better Stability. The Effectiveness Of The Toner May Be Attributed To The Bioactive Phytoconstituents Present In Rice Extract, Green Tea Extract, And Aloe Vera Gel, Which Help In Refreshing, Moisturizing, And Rejuvenating The Skin. Therefore, The Developed Herbal Mist Toner Can Be Considered A Promising Natural Skincare Formulation For Maintaining Healthy And Glowing Skin.

7. REFERENCE

1. Baumann, Leslie: Botanical Ingredients In Cosmeceuticals. Journal Of Drugs In Dermatology, 2007; 6: 1-84.
2. Vaidyanathan R, Anand B: Importance Of Chemistry In Herbal Cosmetics And Cosmeceuticals. Research Journal Of Pharmacy And Technology, 2017; 10(12): 4460-4462.
3. Edward Hart: Cosmetics. Journal Of The American Chemical Society., 1904; 26: 333-335.
4. Kalicanin, Biljana: A Study Of The Possible Harmful Effects Of Cosmetic Beauty Products On Human Health. Biological Trace Element Research, 2015; 170: 15-477.
5. Usigan, Ysolt (16 June 2010). "6 Reasons Why You Should Add Face Toner To Your Beauty Routine"
6. Thakur, R., Anoop, B., & Sharma, A. Herbal Cosmetics And Their Benefits In Skincare. *International Journal Of Pharmaceutical Sciences And Research*, 2020; 11(5): 2050–2057.
7. Choi, S. Y., Ko, E. J., Lee, Y. H., Kim, B. G., Shin, H. J., Seo, D. B., Lee, S. J., & Kim, B. J. Effects Of Rice Bran Extracts On Skin Barrier Function And Anti-Aging Activity. *Journal Of Cosmetic Science*, 2013; 64(6): 471–482.
8. Yun, J. S., & Lee, J. H. Traditional And Modern Applications Of Rice Water In Skincare. *Asian Journal Of Beauty And Cosmetology*, 2018; 16(3): 345–352.

9. Cabrera, C., Artacho, R., & Giménez, R. Beneficial Effects Of Green Tea—A Review. *Journal Of The American College Of Nutrition*, 2006; 25(2): 79–99.
10. Katiyar, S. K., Ahmad, N., & Mukhtar, H. Green Tea And Skin. *Archives Of Dermatology*, 2000; 136(8): 989–994.
11. Dweck, A.C. "Natural Ingredients For Soothing And Skin Toning Applications." *International Journal Of Cosmetic Science*, 2002; 24(6): 347–356.
12. Allen, L.V. *Ansel's Pharmaceutical Dosage Forms And Drug Delivery Systems*. 10th Edition, Lippincott Williams & Wilkins, 2014.
13. Burlando, B., & Cornara, L. "Therapeutic Properties Of Rice Components In Dermatology." *Journal Of Cosmetic Dermatology*, 2014; 13(4): 271–278.
14. Khan, N., & Mukhtar, H. "Tea Polyphenols In Promotion Of Human Health." *Nutrients*, 2018; 11(1): 39.
15. Surjushe, A., Vasani, R., & Saple, D.G. "Aloe Vera: A Short Review." *Indian Journal Of Dermatology*, 2008; 53(4): 163–166.
16. Boskabady, M.H., Shafei, M.N., Saberi, Z., & Amini, S. "Pharmacological Effects Of Rosa Damascena." *Iranian Journal Of Basic Medical Sciences*, 2011; 14(4): 295–307.
17. Fluhr, J.W., Darlenski, R., & Surber, C. "Glycerol And The Skin: Holistic Approach To Its Origin And Functions." *British Journal Of Dermatology*, 2008; 159(1): 23–34.
18. Pubchem. Sodium Benzoate. National Center For Biotechnology Information. Available From: Https://Pubchem.Ncbi.Nlm.Nih.Gov/Compound/Sodium-Benzoate Accessed On 16 May 2026.
19. Sherzad Hadad. Improved Antimicrobial Efficiency Of Aqueous Crude Extracts Of Green Tea Against Oral Microbiota. N.D. Accessed August 23 2025 Https://Www.Jrmds.In/Articles/Improvedantimicrobial-Efficiency-Of-Aqueouscrude-Extracts-Of-Green-Tea-Against-Oralmicrobiota-83172.Html?Utm_Source=Chatgpt.Com 2025.
20. Kim, S. Y., & Park, J. H. Skin Benefits Of Rice Water: A Review Of Cosmetic And Medicinal Applications. Journal Of Cosmetic Dermatology, 2015; 14(3): 234–240. Https://Doi.Org/10.1111/Jocd.12192
21. Kumar, R., & Singh, M. Formulation And Evaluation Of Herbal Face Toner. International Journal Of Pharmaceutical Sciences And Research, 2018; 9(5): 2037–2044. Https://Doi.Org/10.13040/IJPSR.0975- 8232.9(5).2037-44
22. Barel, A.O., Paye, M., & Maibach, H.I. *Handbook Of Cosmetic Science And Technology*. 4th Edition, CRC Press, 2014.

23. Indian Pharmacopoeia Commission. *Indian Pharmacopoeia*. Government Of India, 2018.
24. Allen, L.V. *Ansel's Pharmaceutical Dosage Forms And Drug Delivery Systems*. 10th Edition, Lippincott Williams & Wilkins, 2014.
25. Draize, J.H., Woodard, G., & Calvery, H.O. "Methods For The Study Of Irritation And Toxicity Of Substances Applied Topically To The Skin And Mucous Membranes." *Journal Of Pharmacology And Experimental Therapeutics*, 1944; 82(3): 377–390.
26. Sharma, P.P. *Cosmetics: Formulation, Manufacturing And Quality Control*. 5th Edition, Vandana Publications, 2014.
27. ICH Harmonised Tripartite Guideline. *Stability Testing Of New Drug Substances And Products (Q1A R2)*, International Conference On Harmonisation, 2003.