



A Review Of Rice Water For Its Dermatocological & Haircare Benefits

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ABSTRACT: Rice water contains vitamins, amino acids, and trace minerals such as zinc, magnesium, and vitamins B and C, all of which can beautify the skin and encourage healthy hair pigmentation. Rice has long been recognized to promote healing of the skin.

Rice contains the embryo and endosperm of *Oryza sativa* seeds, and, it can be utilized as a byproduct in the form of rice water. Although there are promising studies regarding the cosmetic applications of rice water, there is still a need for more rigorous scientific research. This project aimed to develop a product based on rice water and check its potency in anti-aging and antioxidant activities. The results showed that rice water not only possessed antioxidant activity but also elastase inhibitory activity. Formulation of 96% rice water was found to be non-cytotoxic or non-irritating to human skin and it showed favorable aesthetic properties which means it can be used for cosmetic application in skincare for antiaging purposes. It is also well-adapted for hair care, caring for hair without any negative consequences by strengthening hair, and acting as a chemical-free shampoo that maintains the pH of the scalp. Moreover, it is known for its action promoting hair growth with visible results within a very short time of use. Rice water is known to protect hair from damage, keeping hair strong and promoting rapid growth due to its protein content.

Hair loss is a common problem among most teenagers, which is usually brought about by dandruff and body heat. Dandruff is induced by the *Malassezia* species fungus. To remedy this, an easy and efficient method is the use of rice water.

KEYWORDS: Rice water, anti-aging, hair growth, anti-oxidant, anti-fungal activity, staple food, probiotics, microbiome.

INTRODUCTION:

Rice is considered as a king of cereals. Rice is a staple food for over more than half of the population in the world. The seed of grass species *Oryza sativa* (Asian rice), or commonly, *Oryza glaberrima* (African rice). It's grown in warm place of the world, mainly in Asia, and is a very staple food that can be prepared in many ways.

Rice and Rice product have more potential health benefits. There are many products made by using rice such as rice water, rice serum, anti-dandruff shampoo, face wash, etc.. . Rice water is a nutrient rich liquid left over from washing rice has been traditionally used to treat skin and hair. It's packed with vitamin B, C & E and minerals that help tighten skin, reduce pore size, promote skin cell growth, improve blood flow, and slow down aging. Rice bran is rich phytochemicals, including flavonoids, phenolics, tannis, sterols,

tocols, γ-oryzanol, and amino acid, which exhibit a range of pharmacological properties, such as anti-oxidant, anti-inflammatory, anti-aging, anti-tumor, anti-cancer, anti-diabetes and protective effects against ocular impairment and colitis. Rice is used as-

- **Staple food:** Rice is a most widely consumed grain by over 70% of the population of the world.
- **Starch:** Rice starch finds numerous uses, such as in ice cream-making, custard powder, puddings, gel making, and distillation of potable alcohol.
- **Puffed rice:** It is produced from paddy and consumed as a whole.
- **Rice bran:** It is utilized in preparation of snacks, cookies, biscuits, bread. Etc.

Rice is utilized in treatment of many diseases like diarrhea, dehydration, vaginal health and discharge problems owing to its possible anti-inflammatory and antimicrobial nature. It may also be employed to calm irritation and inflammation of the skin, especially for a condition like acne and eczema. Furthermore, it is reported in some studies that it is beneficial for healing wounds and repairing the skin barrier. Rice water is highly nutritious for skin and hair and contains about 16% proteins, which are essential for the health of cells. It also has 10% triglycerides and lipids and 9% starch, which is an ingredient still employed in Japanese cosmetics.



Rice water can be added to your skincare routine in a few ways: as a skin toner (up to two times daily), facial mask (once a day), or facial rinse. For the hair, it can be either used as a shampoo or final rinse based on your regular shampooing schedule. Rice water contains beneficial elements such as carbohydrates, inositol, phytic acid, and inorganic compounds. The ingredients of rice water can be drawn out by boiling a handful of white rice in two cups of water and draining out the liquid residue, retaining a nutrient dense solution.

Rice water is beneficial for skin, hair, foot, etc.

Benefits of rice water:

- **Rice water use as anti-aging:**
It for reduction of appearance of fine lines and wrinkles. Rich in antioxidants, rice water fights free radicals that cause skin damage and premature aging.
- **Brightening dull complexion:**
Rice water's ferulic acid and allantoin content helps brighten skin, reduce dark spots, and even out skin tone for a radiant, healthy glow.
- **Shrinks enlarged pores:** Rice water's astringent nature is capable of minimizing enlarged pores through deep cleansing of the skin, and constant use as a toner is capable of tightening the skin and contracting pores.
- **Tightens Skin:** Rice water's amino acids, vitamins, and minerals tighten the skin and reduce the appearance of pores, leading to a smoother complexion.
- **Soothes Inflammation:** With its anti-inflammatory benefits, rice water calms skin inflammation, which lessens redness and irritation, thus being good for eczema as well as acne.
- **Hydrate skin:** Rice is packed with vitamins such as vitamin E and B, and minerals such as magnesium and selenium, rice water moisturizes and benefits the skin. Having lots of starch, rice water serves as a natural moisturizer, holding the moisture together to calm dry skin.
- **Stratum basale Skin barrier repair:** Rice water supports and repairs the skin's natural barrier, acting as a gentle moisturizer and protective layer, while its starch content enhances moisture retention and resilience.

ANATOMY OF SKIN:

Skin is an essential organ covering the whole exterior of the body, creating a protective shield against pathogens and environmental injury. Skin is the largest organ of the body; encapsulating the whole exterior of the body, it is approximately 2 mm thick and around six pounds. It protects the body from heat, light, damage, and infection. The skin also regulates body temperature, provides sensory information about the environment, stores water, fat, and vitamin D, and has a function in the immune system defending us against disease.

There are mainly three

1. Epidermis (outermost layer)
2. Dermis (middle layer)
3. Hypodermis (innermost layer] also known as subcutaneous.

Each layer has distinct functions and characteristics.

1. Epidermis:

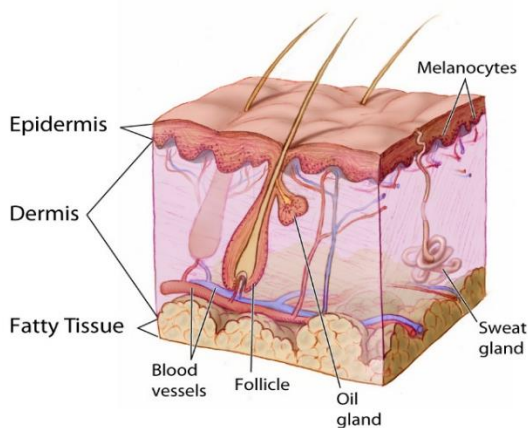
The epidermis is the external layer of the skin that acts as a protective shield over the body against external dangers. It is made up of five sublayers:

- Stratum corneum
- Stratum lucidum
- Stratum granulosum
- Stratum spinosum

Its key functions include:

- Defending against pathogens, UV rays, and mechanical damage
- Serving as a waterproof membrane to avoid excessive water loss
- Synthesizing melanin in the stratum basale, which decides skin color and provides protection from UV.

This intricate organization allows the epidermis to protect the body while preserving its integrity and function.



2. Dermis:

The dermis is the middle layer of skin and is responsible for skin structure and function. Characteristic features are:

- Composition: It has connective tissue, blood vessels, hair follicles, sweat glands, and nerves.
- Strength and Elasticity: Strength and elasticity are given by collagen and elastin fibers so that skin can be stretched and recoiled.
- Sensory Receptors: Sensory receptors reside in the dermis, including:
- Meissner corpuscles (light touch)
- Pacinian corpuscles (pressure and vibration)

- Sublayers: The dermis has two layers:
- Papillary dermis (superficial layer): Thin and superficial.
- Reticular dermis (lower layer): Thicker and denser, having a network of collagen and elastin fibers.

The dermis is responsible for the general health of the skin, allowing it to react to stimuli, control body temperature, and hold its shape.

3. Hypodermis:

The hypodermis or subcutaneous tissue is the innermost skin layer. Its primary roles are:

1. Attaching the dermis to deeper structures
2. Storage of fat: Adipose tissue stores energy
3. Insulation: Maintains body temperature
4. Protection: Shields against trauma

The hypodermis is responsible for supporting overall skin function and health.

HOME REMEDIES USING RICE WATER FOR SKIN:

1. How to achieve clear skin at home naturally with rice water:
 - Rinse 1/2 cup of Rice to remove impurities.
 - Soak the rice in 1 cup of water for 30 minutes.
 - Strain and store the water in a nozzle container.
 - Keep it in the refrigerator.
 - Take the cool Rice water in a bowl.
 - Add one tablespoon of lemon juice to it.
 - Mix Two tsp of Rose water.
 - Apply to the skin with a cotton pad as toner.
2. Rice water use as cleanser
 - Use the rice water as a cleanser by applying it to your face using a cotton pad. Gently wipe your face to remove impurities and traces of makeup.
3. Rice water use in facial serum
 - Take a 2 tbsp rice water in a bowl.
 - Dip a green tea bag in a rice water for 4-5 min.
 - Mix 1 tbsp aloe vera gel.
 - Add 1 tbsp of honey in it.
 - Mix it properly
 - Apply the smooth mixture on the face.
 - Leave it for 10-15min.
 - Wash your face with cold water.
4. Rice water use for pigmentation cream
 - Take a fermented rice water.
 - Add 1-2 tbsp aloe vera gel.
 - Mix it properly.
 - Add a pinch of turmeric powder in it
 - Mix gently and apply the mixture on your face by using cotton pads.

5. Rice water use as a skin glow tonner.

- Soak a ½ cup of rice overnight.
- Rinse the rice water from it
- Take a rice water
- Add jojoba oil and lavender oil
- Mix it well.
- Apply the mixture and keep it for 10-15 min
- Wash your face with cold water.

6. Rice water use in face scrub

- Take 1 tbsp rice flour
- add some drop of rice water in it
- put some 2-3 drop of honey
- add ½ tbsp coffee
- mix it well
- gently apply on your face and neck
- keep it for 15 minutes.
- Wash it with cold water

7. Rice water use in whiten armpits

- Take 2 tbsp of fuller's earth
- Add a tbsp of rice water
- Mix it well
- Apply it on your armpits and scrub it
- Keep it for 10-15 min
- Wash it and cold water and apply moisturizer

ANATOMY OF HAIR:

Playing a vital part in shielding the head, controlling body temperature, and enhancing general look, the hair and scalp are intimately linked.

❖ Hair Structure:

- Hair follicle: A tiny pocket in the scalp where hair grows.
- Hair shaft: Composed of the visible portion of the hair.
- Cuticle: The outermost layer, gives gloss and defense.
- Cortex: The layer in between with melanin that defines hair color.
- Medulla: The innermost layer; not always present.

❖ Scalp Structure:

- Skin: The outermost layer, including hair follicles, sebaceous glands, and perspiration glands.
- Subcutaneous tissue: A layer of fat and connective tissue under the skin.
- Muscles and fascia: Muscles beneath fascia and fibrous tissue

❖ Hair Growth Cycle:

- Anagen phase: A phase of active growth lasting 2–6 years.
- Catagen phase: Transitional phase lasting 2–3 weeks.
- Telogen phase: resting phase, lasting 3–4 months.
- Exogen phase: Phase where old hairs are released.

❖ Scalp Health:

- Sebum production: Sebaceous gland produce sebum, which moisturizes the hair and scalp.
- pH balance: The scalp's natural pH balance is essential for good hair growth.
- Blood flow: Adequate blood flow to the scalp promotes general health and hair development.

❖ Common Scalp and Hair Issues

- Dandruff: Is scaling skin on the scalp sometimes caused by dry skin, sensitivity, or fungal infections.
- Hair loss: Can be brought on by genetics, hormonal imbalances, stress, or scalp issues.
- Scalp irritation: Often sets off by product accumulation, allergies, or skin disorders, redness, itching, or inflammation.

Hair care and scalp maintenance:

- Regular washing: maintains hair and scalp cleanliness.
- Balanced diet: helps strong hair development by vitamins and minerals.
- Gentle handling: Reducing heat styling, using mild products, and avoiding too much tension will help keep the scalp and hair in good condition.

Understanding the hair and scalp's structure and function helps people to encourage healthy hair growth, solve typical problems, and care of general scalp health.

HOME REMEDIES FOR HAIR GROWTH:

1. Rice water use in hair growth:

- Take ½ cup of clean rice
- Add 2-3 cup of water in it
- Soak it for 2-3 hrs
- Separate out the fermented rice water
- Add 3-4 tbsp onion juice
- Add 5-10 drop of essential oil
- Mix it well
- Apply gently on your scalp
- Kept it for 1-2 hrs and wash it with mild shampoo

2. Rice water use as anti dandruff

- Take 3-4 tbsp curd in a bowl
- Add some amount of fermented rice water
- Add aloe vera gel
- Add some drop of lemon juice
- Mix it well and apply it on your scalp
- Keep it for 1-2hrs and wash it with mild shampoo

3. Rice water use to reduce hair fall

- Take 100ml of coconut oil
- Add curry leaves, hibiscus flower, fenugreek seeds, black sesame seeds
- Boil it until the oil reduce to its half of the quantity
- Filter the mixture and separate the oil
- Add some rice water
- Mix it well and apply

CONCLUSION:

Rice is a natural food product which is generally used for dietary and medicinal purpose. And the rice based product have been used for cosmetic products.

The main goal of this review is to study about the natural product i.e. rice based rice water as they do not product any type of side effects. Rice water used in many different ways. They are use in the production of many skin care, hair care, any medicinal products which are marketed by many brands.

REFERENCE:

1. Prachi D. Barsagade, Pranali Patil and Dr. Milind J. Umekar., (2020) . A Formulation of Face Pack and Hair Products of Rice Water for The Use of Skin and Hair problems. Vol 9 , issue 4, 2020.Pp.683-686
2. Kajal Kesare, Urja Tawri, Manali Barai, Gaurav Parmal, Kaustubh Joshi, Dr. Mitali Bodhankar Ma'am.,(2021) USE OF RICE WATER (*Oryza sativa*) & HIBISCUS FOR HAIRNUTRITION AND HAIR GROWTH. volume 8 Issue 6. Pp.182-187
3. Joana Marto 1 ID, Angela Neves 1, Lidia Maria Goncalves 1 ID, Pedro Pinto 1,2, Cristina Almeida 1 ID and Sandra Simoes 1,* Rice Water: A Traditional Ingredient with AntiAging Efficacy Cosmetics, 2018; 5: 26.
4. R. Pushpam, S.R. Mythili & T. C. Nikitha., (2019). Medicinal Rice and it's Medicinal Value. ISSN: 2319-7706 Volume 8 Number 10 (2019). Pp. 2090-2092.
5. Prabha R Chaudhari, Nishesh Tamrakar, Laxmi Singh, Ambika Tandon and Deepak Sharma., (2018). Rice nutritional and medicinal properties: A Review Article. Pp. 150-151.
6. R Balakrishnaraja, G. Ranjith, M. Aniskumar, P S Vijayanand, P Thirumalai Vasan., (2023). Study on rice water composition and preparation of antidandruff shampoo against *Malassezia* species. IOP Publishing. Pp. 1-3.
7. Saunders C W, Scheynius A, and Heitman J 2012 *Malassezia* fungi are specialized to live on skin and associated with dandruff, eczema, and other skin diseases. PLoS pathogens, 8(6).
8. Settharaksa S, Madaka F, Charkree K, Charoenchai L. The study of anti-inflammatory and antioxidant activity in cold press rice bran oil from rice in Thailand. Int J Pharm Sci, 2014; 6: 428-31.
9. Awasthi, S.; Das, A.; Bhattacharjee, C. Physico-chemical properties of different kind of rice water and their effect on diarrhoea causing bacteria and dandruff causing fungi. J. Phytol. 2011, 3.
10. Meduri Teja Sri et al.,(2021) "Formulation and Evaluation of fermented rice water and herbal shampoo journal of Drug Delivery and Therapeutics." The main objective of this research article is reduce hair fall and stimulate hair growth.
11. Isha Sanjivkumar Jain et al.,(2024) Harnessing The Power Of Natural Allies On Skin, *Oryza Sativa* And Muscovite: "A Scientific Review", Eurasian Journal Of Analytical Chemistry. Natural substance like rice water was been used from the ancient period it is a traditional skincare , hair care product.
12. <https://www.femina.in/beauty/hair/use-rice-water-for-hair-for-a-beautiful-mane-123027.html>
13. The benefits of rice water for hair and skin by Neeti Jaychander, November, 30: 01(2013)
14. HB Wong, Rice water in treatment of infantile gastroenteritis, The Lancet, 1981; 318(8237): 102–3.
15. <https://en.wikipedia.org/wiki/Rice>
16. Pengkumsri N, Chaiyasut C, Saenjum C, Sirilun S, Peerajan S, Suwannalert P, Physicochemical and anti-oxidative properties of black, brown and red rice varieties of northern Thailand. Food Sci Techno(Campinas), 2015; 35: 331-8.