# "Nutritional Power of Neeragaram (*Neer +Aagaaram = Watery Food*)- A Forgotten Traditional Food"

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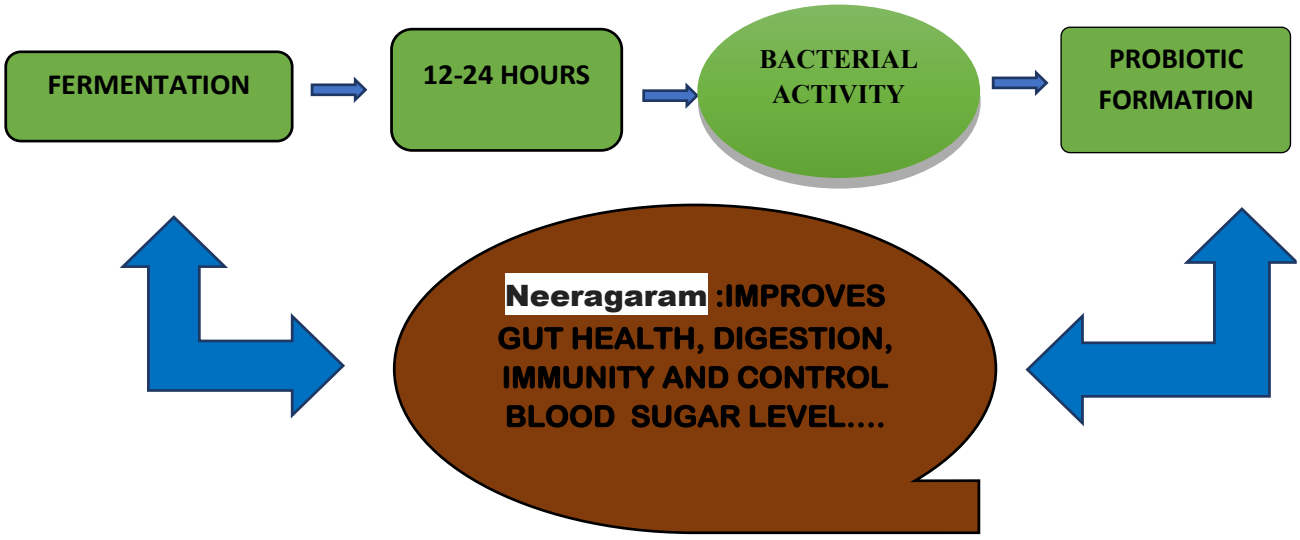
**DOI: https://dx.doi.org/10.51584/IJRIAS.2025.1010000039**

**Received: 16 October 2025; Accepted: 23 October 2025; Published: 03 November 2025**

## ABSTRACT

A forgotten traditional superfood is the best breakfast on those days has always played an important role in everyone's life duringolden ancestor period it was never about eating fancy food but something which is wholesome and heathywhich is our energy booster watery diet (pazhayasooru kanji)-***NEERAGARAM***. Researchers have conducted many studies on the diet states it gives more energy booster starting from adulthood to geriatric. The fermentation process helps the probiotic ,lactic acid bacteria are known to improve gut health, increase the bioavailability of electrolytes, aid in digestion,produce B-vitamins and beneficial enzymes and also it gives special attention to the diabetes patient where the blood sugar regulates when drinking this super drink.**"Fermented rice is called "Pazhayasaadam" in Tamil, "Vellachoru" in Malayalam, and "Chaddannam" in Telugu. The rice water is called "Neeragaram" in Tamil."**




**KeyworDs: Fermentation, neeragaram, nutrition, rice, electrolytes, digestion**

## INTRODUCTION

- Fermented rice has been an integral part of the Indian diet for centuries. It's a popular breakfast option for many people across the country and is enjoyed in various forms. Fermented rice is a part and parcel of the daily diet of farmers and laborers in India involved in intense physical activity, especially in the southern parts. If you are a person born and brought up in a village in South India, you may have nostalgic memories of having had fermented rice for breakfast along with the rice water, mixed with buttermilk and salt, and accompanied with onion shallots and a bite of green chilly.[1]

- **Fermented rice is called "Pazhayasaadam" in Tamil, "Vellachoru" in Malayalam, and "Chaddannam" in Telugu. The rice water is called "Neeragaram" in Tamil.**[2]

- Fermentation is a natural process where microorganisms—such as bacteria and yeast—convert carbohydrates into acids or alcohol. In the case of rice, **lactic acid bacteria** play a dominant role. These bacteria proliferate during the fermentation process and enhance the rice's nutritional profile.**Neeragaram** is a natural coolant that helps the body withstand the heat during the summer months. Additionally, it is lower in calories and aids in weight management. [3]

- Lactic acid bacteria are known to improve gut flora, increase the bioavailability of minerals, aid in digestion, produce B-vitamins and beneficial enzymes. The natural acidic environment also makes fermented rice a natural preservative and digestive aid, reducing the chances of pathogen development.Probiotics in fermented rice help **maintain a healthy gut microbiome**. Proper gut flora balance supports digestion, avoids bloating, and might relieve Irritable Bowel Syndrome (IBS) symptoms and acid reflux.[4,5]

- **NEER +AAGAARAM = WATERY FOOD**¬Many research shows that this is the healthiest Breakfast. ¬We have many variety of rice like Mappilai samba, KaatuYanam ,karupukavunietc can be soaked over night& can be used for making neeragaram. ¬ Rice can be soaked over night 6-8 hours during summer & 8-12hours during winter for ideal growth of the bacteria.[6]

**How To Make And Eat Fermented Rice**

Preparing fermented rice at home is simple and takes only two ingredients: rice and water.

- **Cook Rice:** Cook rice your regular way. Allow it to cool.
- **Soak & Ferment**: Soak the rice in water and set it at room temperature for 12-24 hours.
- **Drain Off Excess Water:** Drain and consume the rice plain or with yogurt, pickles, or herbs for extra flavor.

**Why This? Not Rice?**¬When the rice is taken directly it will leads to more intake of Carbohydrates. ¬But when this **neeragaram** which is soaked overnight will breakdown the complex carbs into simple sugars and increases the bio availability of Vitamin B complex and minerals which is necessary for the body.[7]

**How To Eat It:**

You can eat fermented rice in various ways. Try any of the below-mentioned ways to do this:

- Serve with yogurt, spices, or fermented vegetables for a probiotic meal.
- Blend it into smoothies or porridge for a quick breakfast.
- Use leftover fermented rice water as a hair or skin rinse for additional beauty benefits.

## HEALTH BENEFITS OF FERMENTED RICE:

**1. Fermented Rice Has More Nutrition Than Regular Rice:**

- The fermentation process enhances the nutritional value of rice due to the action of microorganisms such as Lactic acid bacteria (LAB), yeast and other bacillus species which **of iron** increases after fermentation as a result of an increase in the ferric iron content during the fermentation process.
- There is a reduction in the fat content.
- Increase in total protein content, especially in concentrated rice water. Also, certain amino acids get synthesized during the fermentation process.
- Decrease in phytate content. Phytate is an antinutrient that interferes in the absorption of several minerals, especially iron.

- Increase in the content of B complex vitamins such as thiamine, riboflavin, niacin and vitamin B12.[8,9]

**2. Good Source Of Vitamin B12 For Vegetarians And Vegans:**

- Vegetarians especially, vegans are highly deficient in B12 since this vitamin is present mainly in foods of animal origin such as meat, poultry, seafood, fish, eggs and milk products. Low-fat milk (250 ml of milk) though provides half of the recommended daily allowance of vitamin B12.This vitamins play a key role in brain development. Many of the people thinks that the nutrients will be enhance in only nonvegetarian diet. But in our southern India we have the natural coolant vegetarian source of nutrient electrolytes from the fermented water which makes the body prevents from **fatigue and weakness.**[
- Fermented rice can be the natural answer for vegans to meet their vitamin B12 requirements to a considerable extent. The microbes aiding the fermentation process are responsible for the production of vitamin B12 during fermentation**.[**10]

**3. Improves Digestion:**

- Nowadays, many of us suffer digestibility issues such as indigestion, flatulence, bloating, constipation, etc., due to mental stress, poor eating habits, consumption of alcohol and rampant use of antibiotics, which disturb the gut microbial balance. This subsequently results in the reduction in the proportion of beneficial bacteria that aid in digestion and an increase in the pathogenic or undesirable bacterial population.
- Probiotic foods help in the restoration of probiotics or beneficial bacteria in the gut.

Fermented rice is a very good source of probiotics and hence helps in alleviating digestion problems. In Siddha medicine, fermented rice and its water are prescribed for peptic ulcer, abdominal pain and constipation**.**[11]

**4. Rich In Electrolytes:**

- Neeragramis a traditional fermented rice water from southern India that serves as a natural nutrient electrolyte drink which helps in hydrationand rich in **calcium, iron, potassium, sodium and minerals.**It supports recovery from illness -during illness like fever,vomiting and diarrhoea the body loses a lot of fluids and electrolytes.By restoring the lost electrolytes, these rehydrating properties helps to restore these vital nutrients promote to quicker recovery from the illness.[12]

**5. May Reduce Blood Glucose Levels:**

- Studies showed decreased blood glucose levels after consumption of fermented rice. The levels of HbA1c (this indicates the average blood glucose levels over the past 3 months) glucose was significantly reduced.

- In addition to this, there was a reduction in LDL (low-density lipoprotein), VLDL (very low-density lipoprotein), triglycerides, and also BUN, creatinine and uric acid levels. However, more studies are necessary to confirm the effect of fermented rice on diabetes.[13]

**6. Reduces Anti-Nutritional Factors**

- Rice contains anti-nutritional factors such as lectin, phytates and trypsin inhibiting factors. Fermentation helps to reduce these antinutrients and helps in better absorption of minerals such as calcium and iron.The process also enhanced the nutritional value of black rice flour, reducing anti-nutrients like **phytic acid (65.65%) and tannins (50.47%**) and boosting mineral levels, particularly copper, iron, zinc and manganese.[14]

**7. Helps In Boosting Immunity:**

- Fermented rice is a rich source of probiotics, it could help boost immunity as probiotics have a significant impact on our immune system.A healthy gut is directly linked to a strong immune system. The probiotics in fermented rice promote the growth of good gut bacteria. Thisbacterium helps the body ward off infections, viruses, and inflammation. Regular intake of fermented rice can strengthen the natural defense system of your body, making it an important addition during seasonal changes.[15]

**8. Cosmetic Benefits Of Fermented Rice Water:**

- The water that you soak the rice for fermentation is also very healthy and hence it should be consumed along with the rice.Other than offering a host of health benefits. It has been used as a natural remedy for skin and hair-related issues since the olden days.[16]

**9. Good For The Skin:**

- Fermented rice water can be used as a cleanser and toner for the skin as it is a significant source of vitamins and minerals, including vitamin E, which is good for the skin. It helps in anti-aging as it contains antioxidants that prevent free radical formation that damages the skin cells.Some people even use the water leftover from soaking rice as a face rinse to brighten and soften the skin. It acts as a natural detoxifier for the body and works wonders from inside out.[17]

**10. Ayurveda And Fermented Rice**

- Accordingto Ayurveda, fermented rice is **cooling**, **nourishing**, and **digestive**. It pacifies **Pitta** and **Vata**, while Kapha types may need to combine it with spices to avoid dampness.
- Neutralizes excess heat: A natural coolant, it is consumed during hot summers to balance Pitta dosha by neutralizing excess body heat and preventing stomach ailments like ulcers and heat boils.
- Nourishes and detoxifies: It is considered a deeply nourishing food that, at the same time, helps the body flush out toxins

  a) **Agni (digestive fire)** is gently kindled.
  b) **Ama (toxins)** is removed over time.
  c) **Ojas (vital energy)** is enhanced.

Ayurvedic texts recommend consuming it in the summer, especially in the morning, with salt, curd, or buttermilk.Especially in hot and humid climates, fermented rice has a cooling effect on the body. It balances excess **Pitta dosha** in Ayurveda.[18]

**Comparison Of Neeragaram And Cooked Rice (Per 100g):**

| Nutrient | Cooked Rice | Neeragaram (Fermented Rice) |
|---|---|---|
| **Iron** | 3.4 mg | 73.91 to 91 mg |
| **Calcium** | 21 mg | 850 mg |
| **Potassium** | Not specified | 839 mg |
| **Sodium** | 475 mg | 303 mg |
| - Thus not just minerals, but even Vitamins like B6, B12 and K are readily available and easily absorbed now, thanks to the quick break-down of substances in fermented rice. | | |

## SCIENTIFIC AND NUTRITIONAL BENEFITS OF NEERAGARAM

Beyond its role in traditional medicine, neeragaram is a powerhouse of nutrition and has been the Scientific reasons for post-fermentation benefits Research from institutions like the All India Institute of Medical Science (AIIMS) in Bhubaneswar and Government Stanley Medical College in Chennai have reported that after **12 hours of fermentation.**

**Iron:** Up to 21 times the amount found in fermented rice

**Calcium:** Increases from 21 mg to 850 mg per 100g

**Potassium**: Increases to 839 mg per 100g after fermentation.

**Source of probiotics:** The growth of lactic acid bacteria (LAB) makes neeragaram a rich source of probiotics, the beneficial bacteria that populate the gut. These probiotics improve the health of the intestinal flora, aiding digestion and nutrient absorption.

**Reduced anti-nutrients**: The fermentation process breaks down anti-nutritional factors like phytates and lectins, which can interfere with the body's absorption of minerals like iron.

**Formation of beneficial compounds**: The activity of microorganisms produces other bioactive compounds, including short-chain fatty acids (SCFAs), which are crucial for gut health.

**Enhanced amino acid profile**: The process creates additional amino acids, which are beneficial for a range of bodily functions, including brain health.[20]

## DISCUSSION

According to several research studies like Research from institutions like the All India Institute of Medical Science (AIIMS) in Bhubaneswar and Government Stanley Medical College in Chennai have investigated the watery diet has significantly enhances many nutritive value after the **12hours** of the fermentation process .When rice is fermented it produces something called probiotic, this probiotic can make the rice less likely to spike the blood sugar level also[19].Finallyit has more iron,calcium, magnesium content in the diet and also it contains minerals for the metabolic activities of our normal body functioning.So,fermented rice isan excellent choice for the people with diabetes. Fermented foods with vitamin B 6 and vitamin B12 particularlyplays a vital role in brain development and functioning. **Pazhya sooru**a term an ancestor super food remembers us in these days with ***NEERAGARAM***a tratiditonal south Indian dish made by leftover rice and water has many benefits like energy booster, improves digestion, immunity and energy levels. Thusthis forgotten ***NEER +AAGAARAM = WATERY FOOD***gives us the wholesome health benefits from adulthood to geriatric age group. [21]

## CONCLUSION

Fermentation produces probiotics, which can help restore the balance of friendly bacteria in stomach and reduce some gut problems. Probiotics have been shown to help with the symptoms of Irritable bowel syndrome, a common digestive illness. Probiotics may also help lower the cholesterol and blood pressure.It is a **time-tested superfood** rooted in tradition and backed by science. It offers a unique blend of taste, nutrition, and healing power. Easy to make, budget-friendly, and adaptable to various palates, it supports gut health, boosts energy, cools the body, and nurtures the mind.As modern diets increasingly cause digestive disorders and inflammation, this humble dish offers a natural solution. Whether you're a health enthusiast, a homemaker, or a busy professional—embracing fermented rice can be a simple, powerful shift toward better well-being.Reintroduce this ancestral wisdom into your lifestyle, and let fermented rice bring balance from the inside out.This tradition continues to be improved upon through scientific advances.

Neeragaram's public health significance extends beyond its nutritional content to its role in cultural practices and local food systems. It represents a traditional dietary intervention that could be leveraged to promote better

health, especially in rural areas. Scientific research, including studies from institutions like AIIMS Bhubaneswar and state health departments, is validating the health benefits of this traditional super food.

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