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Effective Utilization of Fermented Rice Water

[*1]Dr.J.Komalalakshmi & [2]Kid. T. K. Kirthana

[*1]*Academic coordinator, Chinmaya Vidyalaya Matriculation School, R.S. Puram, Coimbatore, Tamilnadu (India)*
[2]*VII STD "B", Chinmaya Vidyalaya Matriculation school, R.S. Puram, Coimbatore, Tamilnadu (India)*

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[*]**Corresponding Author**
Email: jkomalalakshmi[at]gmail.com

ABSTRACT

This Paper proposes a good alternative food for young kids .It enables the kids to become energetic and disease free young generation. The paper deploys the KLMN teaching learning technique for self-learning purpose. The Traditional food is nowadays being completely forgotten and fast food eating habits make kids always affected with some pains, laziness and non-alertness. This paper suggests that Consuming of fermented rice water for breakfast helps Students to study well and concentrate more since it increases the immunity .By making it as regular habit, children can be grown fit and live happily and also , saving the old rice which is helping to support country economy.

1. Introduction

Rice is the major food for the South Indians. Rice is eaten by about 3 billion people and is the most common staple food of the largest number of people on earth (Maclean et al., 2002). Worldwide, there are about 150 million ha of rice land (Table I). Rice is unique among the major food crops in its ability to grow in a wide range of hydrological situations, soil types, and climates (Fig. 2) (Huke and Huke, 1997; Maclean et al., 2002). A unique ecosystem service namely the water regulation and the preservation of aquatic and terrestrial biodiversity can be provided by Rice environments. Under flooded conditions Rice production is highly sustainable. In comparison with other field crops, flooded rice fields produce more of the greenhouse gas methane but less nitrous oxide, have no to very little nitrate pollution of the groundwater, and use relatively little to no herbicides. Flooded rice can locally raise groundwater tables with subsequent risk of salinization if the groundwater carries salts, but is also an effective restoration crop to leach accumulated salts from the soil in combination with drainage [1]. The Comprehensive Assessment of Water Management in Agriculture (CA) seeks answers to the question of how freshwater resources can be developed and managed to feed the world's population and reduce poverty, while at the same time promoting environmental security.

2. Review of literature

People who mainly depend on freshly cooked rice may suffer from deficiency of micronutrients. Diabetic patient are strictly advised to consume a limited measured quantity of rice for a better life with out pain. It is estimated that India is housing about **97,700** children with type 1 diabetes mellitus (T1DM). A study of 30 children with insulin-dependent diabetes with age at diagnosis ≤15 years, conducted in 1992, reported a prevalence of **0.26/1000**children. [2].The review of traditional siddha medical literature indicate the medicinal properties of 'Palam Sooru' such as reduce body heat, cure peptic ulcer, abdominal pain and constipation. Fermented rice water known as Palamsootru kanchi or Nisineer also used as healthy water in natural medicine in folklore practice in ancient times. It provides energy and helps with stomach issues like bloating, constipation and diarrhea, thus prevent dehydration act as effective electrolyte solution. In addition regulate the body temperature and also protect skin from the sun due to cooling effect and cures acne and red blisters of the face. Due to optimal PH of fermented rice water, it keeps hair shiny, long hair, improving skin elasticity, reducing surface friction and preventing grey hair. In spite of its great importance in day to day human life, scientific approach with respect to microbial and chemical studies are not much expedited. Therefore [3] the present generation is reluctant to take these types of traditional foods nowadays.The presence of phytic acid in rice and other food grains decreases the bioavailability of micronutrients such as phosphorous, magnesium, iron and zinc. It also inhibits the enzymes pepsin, amylase and trypsin. Due to the nutrient inhibiting property phytate is considered an anti-nutrient. The fermented rice which was consumed by most of the ancient people has several health benefits.[3]

3. Limitations

To meet the dual challenges of producing enough food and alleviating poverty, more rice needs to be produced at a low cost. However, whereas the low price of rice has benefited rice consumers, it now threatens the livelihoods of rice farmers, the very segment of the population that helped to alleviate poverty in the first place.

1. A main challenge facing many Asian countries is to keep providing sufficient and affordable food for their growing and urbanizing populations. Future demand for rice is a function of population growth, the age structure of the population, income, and urbanization[4]

2. Food Production and Poverty Alleviation: A key response option to achieve food security and alleviate poverty is to increase the usage of fermented rice to avoid the environmental degradation, destruction of natural ecosystems, and loss of

biodiversity that are associated with an expansion of cropped area.

4. Materials and methods

❖ *The KLMN Technique*

The klmn technique [5] is deployed to make the things known to the children and after which the questionnaire is being used. Awareness of health ,hygiene, and sanitation , good health, fermented rice water and its benefits were made known .

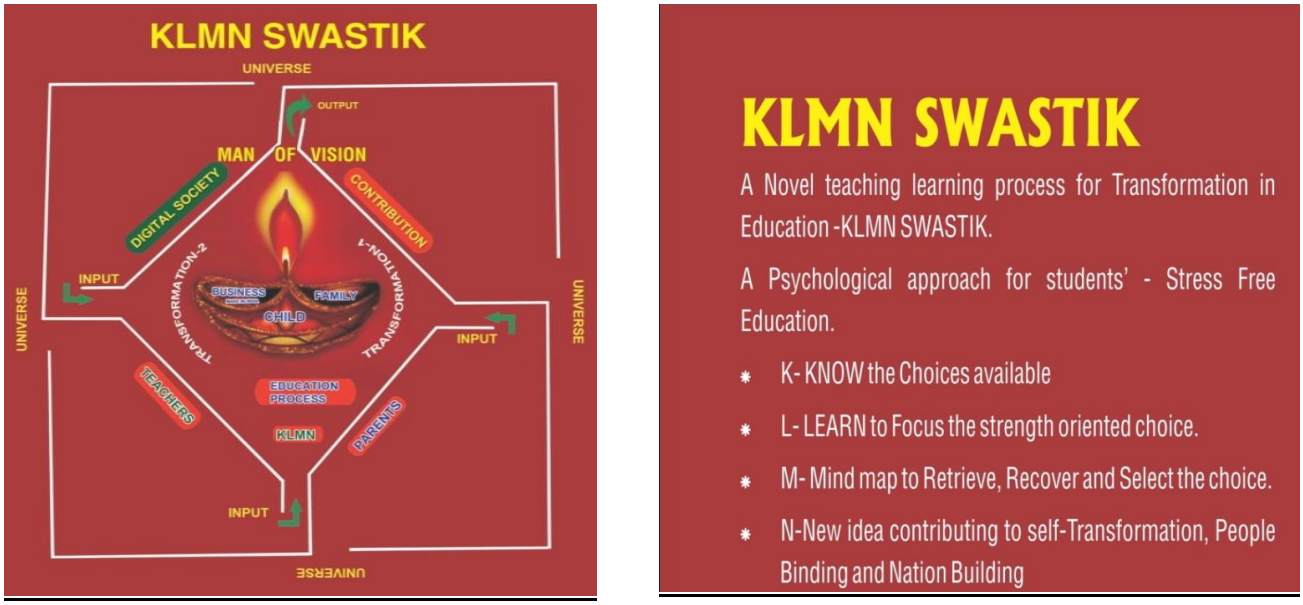

Fig 4.1. KLMN technique

Materials and Methods Rice was cooked and excess water was drained. It was allowed to cool at room temp. It was soaked fully in water and stored in a container. It was covered and left overnight at room temp. A loopful of inoculums was taken from the surface of the rice and streaked on a nutrient agar medium and incubated at 37 ˚C for 24hrs.

Preservation and storage of isolates, Gram staining, Motility test, Catalase test, Oxidase test, Sugar fermentation test, Inoculation. The simple staining and the biochemical tests gave the following results[6].

Fig 4.2 Fermented rice water usage.

The fermented rice water showed the presence of the lacto bacilli bacteria like Leconostoc sp and lactrobacillus sp which antimicrobial substance had led their potential as natural preservatives because it may be used to combat the growth of pathogens mechanism and also breakdown the antinutritional

factors in rice that result in the improved bioavailability of micronutrients such as Phosphorus, Calcium and Iron.[7].

❖ ***Health Hygiene and Sanitation***

The human gut is the front line where the body's immune system end and our symbiote bacteria begins, 90% of bacteria present in the gut. Keeping the bacteria ecosystem in the gut in a stable symbiotic balance occupies most of the resource of the human immune system.

Fig.5.1.Hygiene Questionnaire

Hygiene Questionnaire

From the beginning the pupils were charged with absolute responsibility for the success of their efforts. The new course of study contains a **hygiene questionnaire** that afforded the means for a comparative study. Ten of its thirty questions are here given:

Sl. no	Questions	Responses-Number of times			
		0	1	2	3
1	How many times you clean your room?				
2.	How many times you got cold per month?				
3.	How many times you wash your hands?				
4.	How many times you take bath?				
5	How many times you brush?				
6	How many times your toilet cleaned per week?				
7	How many times you go to toilet?				
8	How many times you wash your bath?				
9	How many times you eat during periods?				
10	How many times you change the Sanitary Napkins?				

Good: 20-30 Satisfactory: 10-20 Needs to improve: 0-9

Fig 5.2 HQ2

Sl. no	Questions	Answers	
		Yes	No
1	Do you sleep with bedroom window open?		
2.	Do you eat breakfast every day?		
3.	Do you drink coffee?		
4.	Do you eat slowly and chew your food thoroughly?		
5	Do you have a regular time every day to go to the toilet?		
6	Is there a bathtub in your home?		
7	Do you have a toothbrush and Tung cleaner of your own?		
8	DO you have any bad teeth?		
9	Do you have ever been to a dentist?		
10	Do you have headaches often?		
11	Do your eyes hurt often?		
12	Do you know health?		
13	DO you know hygiene?		
14	DO you know sanitation?		
15	DO you know about a habit?		
16	DO you know a pain and disease?		
17	. DO you know why do we take medicine?		
18	DO you know nutritional diet?		
19	Do you speak aloud?		
20	Do you hear mild sound?		
21	Do you know how to clean your private organs?		
22	Do you cut your nails ever week?		
23	Do you clean your hair and comb daily?		
23	Do you clean your hair and comb daily?		
24	Do you know fermented rice water?		
25	Have you heard about period's time Sanitary napkins?		
	Total Responses		

Number of Yes response: /25
Number of NO response: /25
If Number of yes responses > Number of no response Then GOOD
Otherwise: Needs to improve.

❖ ***The Microbial Ecosystem of a body***

The microbial ecosystem that envelopes human body is important to maintain the wellbeing of an individual. The modern medicine focuses on fighting against the pathogens through the antibiotics. Undoubtedly, they produce miraculous improvement in infectious diseases. But it should be thought how the world community could control the pathogens before the invention of the antibiotic. So the forces of evolution are more powerful than anything medical science can come up with. Therefore the disease can be controlled or cured by improving the public nutrition which strengthens the human body to fight off potential infection on their own. The human gut

has thousands of different species of bacteria that are part of the human symbiote live in the gut, mainly in the large intestine. Many foods, carbohydrates can only be digested if gut flora is present where the probiotic bacteria plays major role in the digestion.[3].

❖ ***New Contribution –Part***

The author suggested the effective usage of fermented rice water to be consumed as breakfast resulting constipation free, pain free, energetic and always attentive towards the whole day among the young kids. First the author would like to take charge in consuming the fermented rice water daily, and promote the health drink to others for the wellbeing of fellow friends.[8].

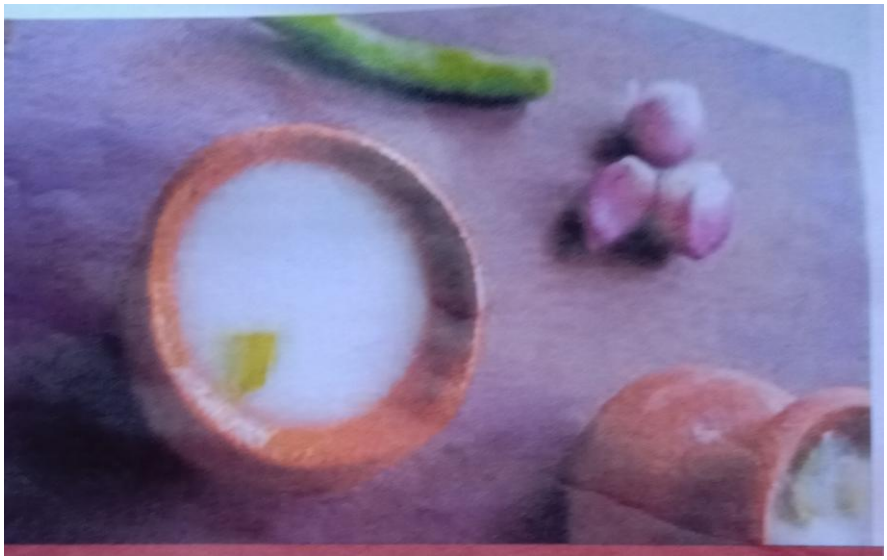

Fig 5.3 Mud pot with Fermented Rice water

5. Conclusion

At first, the KLMN methodology is known to the author and it is used for analysing, studying and organising the project. After Understanding the KLMN, the author deployed it to understand the need for good health. Secondly the author, learnt knowledge from library, elders and resources. The author the mindmapps the knowledge collected from various resources, to identify the problems, and proposes a solutions and matched problem with the solution to arrive at a conclusion. Finally, the author suggested her contribution as results, questionnaire and interpretations on the data collected as solutions which is stated as , Consuming the fermented rice water as breakfast in the morning helps the children to maintain the temperature in the body as a result they are found very energetic throughout the day and no pain in head and stomach.

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References

1. B. A. M. Bouman,1 E. Humphreys,2 T. P. Tuong1 and R. Barker3,Rice and Water, Advances in Agronomy, Volume 92,Copyright 2007, Elsevier Inc. All rights reserved,0065-2113/07 ,DOI: 10.1016/S0065-2113(04)92004-4
2. https://www.google.co.in/search?q=child+diabetes+in+india&oq=child+diabetic+&aqs=chrome.2.69i57j0l5.6529j0j7&sourceid=chrome&ie=UTF-8.
3. Varnakulendran N. et al., Study on the Fermented Boiled Srilankan Red Rice- Scientific and Traditional View, , Cloud Publications ,International Journal of Advanced Ayurveda and Naturopathy, 2016, Volume 1, Issue 1, pp. 1-5, Article ID Med-346.
4. Pingali, P. L., Hossain, M., and Gerpacio, R. V. (1997). ‘‘Asian Rice Bowls: The Returning Crisis?’’ p. 341. CAB International, Oxon, UK (in association with IRRI, Los Ban˜os, Philippines)
5. Dr.J.Komalalakshmi, A KLMN Teaching Technique for Transformation in Education, International Journal for Research in Applied Science & Engineering Technology (IJRASET) ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor : 6.887 Volume 6 Issue II, February 2018- Available at www.ijraset.com.
6. Murakeasmuthaliyar K.S., 1998: Kunapadam-mooligai vagupu, Department of Indian medicine and Homeopathy publication.
7. Brian J.B. Wood, 1997: Microbiology of Fermented Foods. Springer Publication. ISBN0-7514-0216-8.
8. Dr.J.Komalalakshmi, kid .T.K.KIRTHANA, ”Effective utilization Of Fermented Rice Water “,submitted to the 26 th District Level National Children’s Science Congress -2018.

