



स्वास्थ्य वं परिवार
कल्याण मंत्रालय
MINISTRY OF HEALTH AND
FAMILY WELFARE
सत्यमेव जयते

एफएसएसएआई
fssai



**Eat Right
India**
सही भोजन. बेहतर जीवन.



NetProFaN
NETWORK OF PROFESSIONALS
OF FOOD AND NUTRITION



Healthy Gut Healthy YOU

Traditional
Recipes with
Potential
Probiotic
Benefits

Foreword

I am pleased to share with you that the Food Safety and Standards Authority of India (FSSAI) has launched a recipe book titled "Healthy Gut, Healthy You." This book is a testament to our commitment to promoting healthy eating habits and encouraging the use of natural and traditional foods.

As you all know, probiotics have become increasingly popular in recent years, but they have always been an integral part of Indian cuisine and culture. This book celebrates the rich history and diversity of Indian food and highlights the importance of incorporating probiotics into our diets for better health and wellness.

Our team of experts has carefully crafted each recipe to ensure that they are not only delicious but also highly nutritious, providing both great taste and health benefits. The book includes a variety of recipes, from traditional fermented drinks to probiotic-rich curries and chutneys.

By using this recipe book, you will discover new and exciting ways to incorporate probiotics into your meals, making healthy eating a pleasure rather than a chore. The recipes are easy to follow, and we encourage you to share them with your family and friends.

I truly hope that this recipe book inspires you to explore the world of probiotics and to embrace the rich cultural heritage of Indian cuisine. Remember, healthy eating is the foundation of a healthy life. So, let's start cooking and enjoy good health together!

CEO, FSSAI

Contents

About the Book	4
Introduction	5
Probiotic Recipes	9
Kali Gaajar Ki Kaanji	10
Akhuni Pickle	12
Panta Payesh	14
Chaddannam	16
Pularisi Koozh	17
Gundruk Sadheko	18
Panchamirtham	20
Kesar Piyush	21
Akhuni Chutney	22
Mishti Doi	24
Mesu Dip	26
Ragi Koozh	27
Mango Flavored Fermented Palm Sap	28
Vellarika Kaalan	29
Madra	30
Yogurt Bites	32
Curd Sattu Lassi	33
Ragi Ambli or Fermented ragi millet porridge	34
Lakshmi Chaaru	36
Apple & Soy Fusion Yogurt Drink	38
Kanji Vada	39
Panitenga	40
Tam-um	41
Raw Papaya Pickle	42
Madiya Pej	43

About the Book

India has six different seasons, namely *vasanta ritu* (spring), *grishma ritu* (summer), *varsha ritu* (monsoon), *sharad ritu* (autumn), *hemanta ritu* (fall winter), and *shishira ritu* (winter). Knowledge about seasons is important to make an efficient utilization of all the food products (Sarkar et al. 2015). Indian food is multivariate due to different religious beliefs, geography, climate and availability of ingredients. The combination of fresh and preserved ingredients in a traditional Indian thali from different regions of India is a gastronomic delight and it also fulfils requirement for balanced wholesome diet. Ancient Indian ayurvedic treatise *charaksamita* suggests that one should consume foods belonging to all six tastes (sweet, sour, salty, bitter, astringent and pungent). The fermented products are a combination of all these tastes and should be consumed more frequently to avoid disorders caused by nutritional deficiency (Van Loon 2003).

Probiotics are not new but existed in our traditional foods since ages (Amara 2012). Increasing evidence indicates that consumption of 'probiotic' microorganisms can help maintain favourable microbial profile in our body. Due to lifestyle changes there is an increased demand of functional foods which will meet nutritional requirement and also provide added health benefits. But people are not always aware that our diverse food culture. Generally, probiotic enriched traditional foods are marketed in the form of fermented meats, fish, milks and yogurts. However, with an increase in vegetarianism amongst consumers,

there is also a demand for different vegetarian probiotic products. Fermentation using a starter organism is being practiced by the products available in the market, but products prepared by spontaneous fermentation can also provide a good matrix for the probiotic organism to grow. And these products can easily be prepared at household level too.

With this backdrop a potential probiotic recipe contest was conducted in August, 2022 for Network of Professionals of Food and Nutrition (NetProFaN) members to share their traditional and healthy recipes that may have a good probiotic potential. During the challenge NetProFaN chapters conducted city level competitions and submitted the best entries to FSSAI. 452 entries were received from students, professionals and cooking enthusiast. Out of these entries best recipes were selected based on the probiotic potential. The book provides the recipe along with the scientific evidence of the probable probiotic organism present.

The nutritive value is calculated based on the amounts submitted by participants according to NVIF (1989), IFCT (2017), USDA (2017). The calculations provide an estimate and are not exact. The value may vary depending on individual portions and variety of food products available in different regions. We hope this book will provide traditional recipes which you can try and enjoy with your family.



Introduction

Probiotics

Probiotic originates from the Greek word “pro-bios” which means “for life”. According to FAO – “Probiotics are live micro-organisms that when taken in adequate amounts confer a health benefit on the host.” These microorganisms are defined by their Genus, species and strains and all these three details are required to identify a probiotic (FAO/WHO 2002).

Probiotics are beneficial bacteria which have been used for centuries in our Indian culture through fermentation. In many parts of India traditional fermented foods and

probiotic drinks were made with the local seasonal ingredients and raw material available ensuring minimal wastage of food. Probiotic drinks and food are made by both dairy and non-dairy raw materials. This can be done by natural or spontaneous fermentation or by the addition of probiotics. Probiotics in natural foods also enhances flavor, texture and aroma of the food and also has several medical properties. Yogurt based drinks, probiotics added to juices, protein bars, liquid beverages have become popular as it boosts immunity and also boosts “Gut Health”. Figure 1 summaries various health benefits of probiotics.



Figure 1: Health attributes of probiotics (Nagpal et al 2012)



Probiotics in Ayurveda

In Ayurveda, the traditional Indian system of medicine, emphasizes the importance of right kind of food for the formation and sustenance of body. Ayurveda gives great importance to milk and milk products and fermented milk products are prescribed to normalize “Agni” – the digestive fire.

Bhojanakuthahalam and Kshemakuthahalam and many ancient texts have elaborated on fermented milk and milk products and other probiotic effect of foods in health and prevention and treatment for many digestive disorders. Medicated buttermilk called takra which is a good source of probiotics has been elaborated both as food and as treatment in Ayurveda.

Buttermilk is considered as elixir- param-amrutam which keeps disease away. This natural probiotic and beneficial bacteria in many indigenous foods has been explained on treating and prevention of gut health diseases.

Probiotics in Indian Recipes or Food

From ancient times, India has used as a source of preservation. India’s diversity with multiethnic cultures and cuisines is a source of its strength and traditionally has used fermented foods and beverages for gut health and innate immunity. Conventional fermented foods are generally consumed and form an integral part of our diet. It can be prepared at household or in small scale industry level using relatively simple

techniques and equipments (Aidoo, Nout & Sarkar 2006). In the Indian sub-continent, fermented food using local food crops and other biological resources are very common. But the nature of the products and base material varies from region to region (Sekar & Mariappan 2007)

Fermentation of cereals, beverages, fruits, vegetables, milk & milk products, fish, meat and legumes are common in many regions of the country even today. Each region uses its resources from land, sea and has evolved because of the climate, culture and the seasonal changes and type of soil in the region.

Satish Kumar et al. (2013) categorized fermented foods as follows:

1. Cereal – based (with / without pulses) fermented foods
2. Cereal/Pulse and buttermilk – based fermented food
3. Cereal – based fermented sweets and snacks
4. Milk – based fermented foods
5. Vegetable, bamboo shoot (BS) and unripe fruits-based fermented foods
6. Meat-based fermented foods and
7. Pulse (Legume)-based fermented foods.

Sources from various regional areas in India

Fermented Cereal Products	Selroti Panta Bhaat Anarase Naan Marchu Kulcha Naan Chilra Bhatura Adai Khaman Ambali
Fermented beverages	Chuak Apung Handia Sonti Feni Chhang Tongba Cholai Zawlaidi Palm wine Mahua Zutho Laupani Lugdi Gudamba
Fermented Fruits and vegetables	Soibum Sinki Mesu Anishi
Fermented Dairy	Shrikand Rabdi Lassi Churpa Khadi Dahi

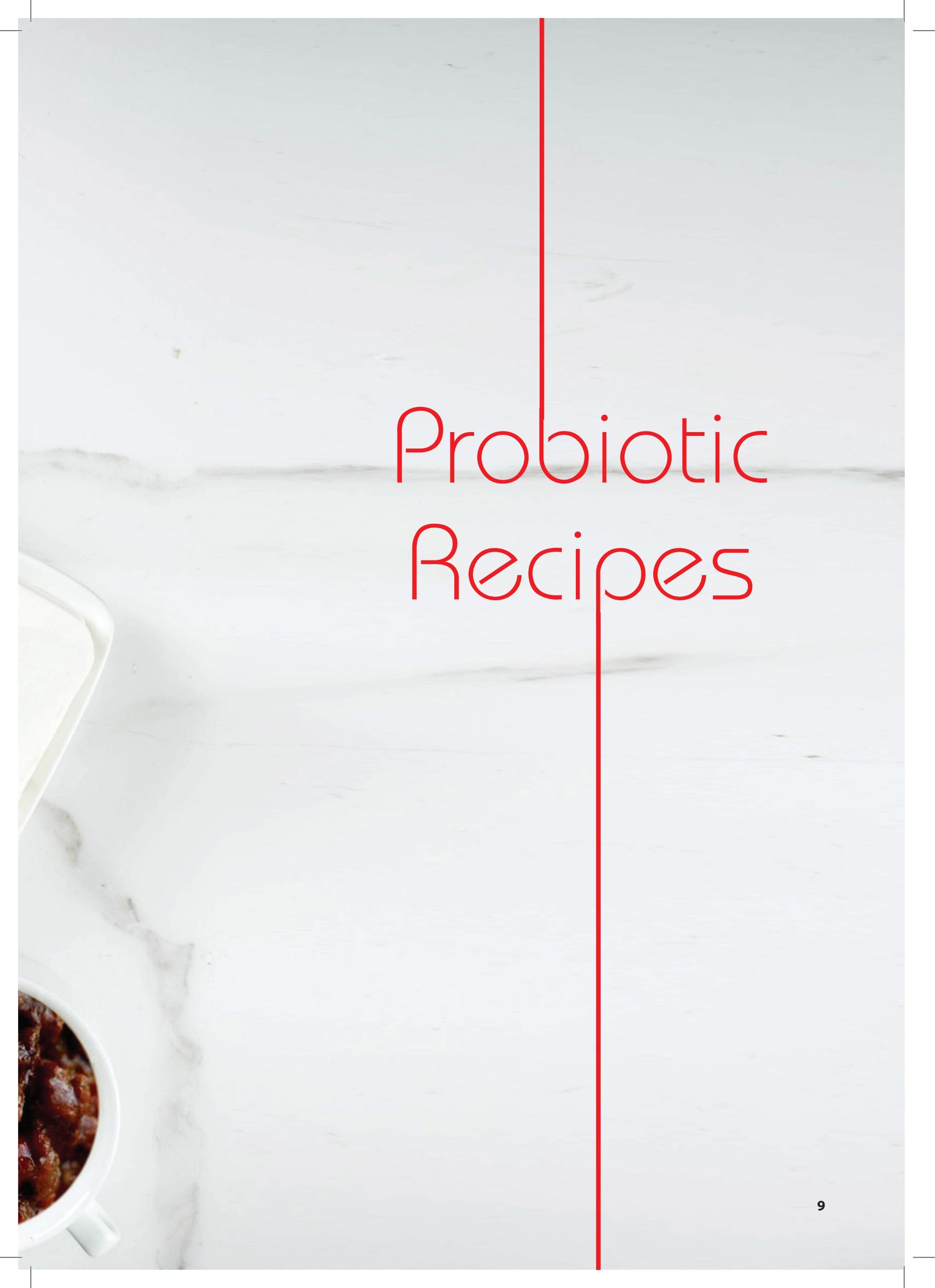
Regulatory guidelines for probiotic foods

Probiotics in India is controlled by food laws that is applicable to general food and does not come under the purview of pharmaceuticals or medicines. WHO states that probiotics should:

- Survive through the digestive tract
- Should have bile and acid tolerance
- Should have the capability to proliferate in the gut

Fermented foods is said to have probiotic potential if it qualifies following fact:-“The presence of LAB count in a viable range of 10^6 - 10^8 cfu/g at which it is considered to posses health benefits” (Shah 2001). Ganguly et al. from ICMR & DBT (2011) have also formulated the guidelines for probiotics on similar lines. Although the most typical food matrices for probiotic bacteria is the fermented dairy products but it is possible to obtain probiotic foods from several other matrices. Although there is a large quantity of traditional fermented food produced from different substrates, we still lack information about the identity and the source of some probiotic strains. It is also important to evaluate the probiotic potential of traditional fermented foods.

To conclude, the scientific literature clearly indicates the presence of probiotics in different fermented foods worldwide. Indian cuisine is a rich source of fermented foods. These traditional fermented foods are not being explored fully for its probiotic potential. Further research is required in these areas to ensure that our traditional practices have scientific basis. This book provides potential probiotic recipes which have scientific evidence of presence of probiotic strains.

The background is a light-colored, marbled surface, possibly a countertop. A thin red vertical line runs down the right side of the page. On the left side, there is a white bowl containing a dark, chunky food item, likely a stew or soup. The text 'Probiotic Recipes' is centered in a red, sans-serif font.

Probiotic Recipes

Kali Gaajar Ki Kaanji



Tanuja. R

Preparation time	- 10 mins
Fermentation	- 3-4 days
Cooking time	- 10 mins
Serving size	- 10

Description:

A traditional North Indian fermented drink. Traditionally Kaanji recipe is made with black (Purple) carrots and this drink has a dark red wine color. Kaanji is spiced with ground mustard seeds, and black salt or salt. The carrots, spices, seasonings are mixed with some boiled cooled water and kept to ferment for a few days. It is usually prepared during Holi as a welcome drink.

Ingredients:

- Black (dark purple) carrots - 200 g
- Yellow mustard seeds - 5 Tsp
- Water - 2 litres
- Salt/black salt - 4 Tsp
- Turmeric powder - 2 Tsp
- Red chili powder - 1 Tsp

Preparation:

2. Wash the carrot and discard 1/2-inch of the top and bottom. Peel them using a vegetable peeler. Chop them into 1/4-inch thick and 1-inch long fingers.
3. Grind the mustard seeds to a coarse powder.

Cooking:

1. Heat water in a large pot and as soon as it comes to a boil, switch off the heat.
2. Some people do not boil the water while making this drink. Boiling is done to ensure the drink doesn't get spoiled while fermenting.

Nutritional Value (per serving)



Energy
36 kcal



Protein
1.5 g



Carbohydrates
6.5 g



Fat
0.30 g

3. Add the carrot to the pot and cover it with a lid for 10 minutes.
4. Remove the lid and add salt, turmeric powder, red chili powder, and mustard powder to the water and stir well.
5. Transfer the Kaanji drink to a clean glass or ceramic jar and cover the mouth of the jar with a muslin cloth. Secure the cloth using a twine.

Fermentation:

1. Place the jar in the sun for 2-5 days for fermentation. Stir the mixture using a clean and dry wooden spoon every alternate day.
2. Keep the jar in a shaded area at night and bring it back to sunlight in the morning.
3. The time of fermentation will depend on how strong the sun is. Kaanji will get ready in 2 days in peak summer and if it is mild, then it can take up to 5 days for it to ferment properly.
4. The ready kaanji is tangy and pungent in taste with a nice fermented aroma.
5. Once the kaanji drink is ready, remove the cloth and stir the drink using a long wooden spoon.
6. If you see any green mold on the kaanji, it means that you have fermented it more than required. Make sure to discard it otherwise it may cause stomach upset.
7. Serve kaanji in glasses along with a few pieces of carrots and beets in each glass as an appetizer drink
8. Consume the refrigerated / room temperature kaanji drink within 2-3 days

Name of the Potential Probiotic Microorganism:

Fermented carrot juice is a promising carrier for probiotic: Lactobacilli, L. acidophilus, L. plantarium, L.casei and Bifidum longum

Health benefits:

- Purple carrot, beetroots are great sources of Vitamin A, Vitamin B9, anthocyanins, polyphenols and flavonoids) hence called as functional food.
- Fermented vegetables can be used as potential source of probiotic and enhanced nutritional values.
- It is an antioxidant and promotes cell renewal.
- By maintaining or improving intestinal microflora, prevents stomach infections
- Enhance immunity

Akhuni Pickle

(Axone and ginger)



Surbhi Rajpoot

Preparation time - 30 mins
Cooking time - 20 mins
Serving size - 1-2 Tbsp/meal

Akhuni is a homemade synbiotic (fermented soybean product) served as side dish in North Eastern India. It is also added to meat dishes to enhance their flavor. It is commonly used as a staple with the people of Nagaland and the Sema tribe. The soybean is used in the form of fermented soya bean cakes in this pickle.

Ingredients:

- Axone: 6 nos. (Fermented soy bean cakes available in stores)
- Ginger - 650 g
- Oil - 10 Tbsp
- Chili powder - 3 Tbsp
- Cloves of garlic - 22 nos.
- Salt - 3 Tbsp (add as per your taste)
- Roasted Sichuan pepper powder - 1 1/2 Tbsp
- King Chili - 5 nos.
- Cold pressed sesame oil - 8 Tbsp

Method:

Preparation of ingredients:

- Take the dried axone and hand crumble it in a vessel
- Wash the ginger with clean water and peel
- Grind the washed/peeled ginger and filter the juice.

Nutritional Value (per serving)



Energy
31 kcal



Protein
0.52 g



Carbohydrates
1.50 g



Fat
2.50 g

- Spread the ginger on a plate and let it sundry for a few hours or a day until it is flaky.
- Peel and chop the garlic into small pieces

Cooking instructions:

- Take an iron kadai or wok, add sesame oil and fry dried king red chilies for 30 seconds and remove from oil.
- Next, fry chopped garlic in the same oil until brown and remove.
- Fry the red king chilies and remove
- In the same kadai, with oil stir fry axon for 5 to 10 minutes on medium heat
- Grind the fried red king chilies with salt and make a powder.
- Add salt, red chili powder and fried garlic to the kadai with stir fried axone, mix well for a minute or two.
- Next add dried ginger to the mixture and mix well for another 5 min on medium flame.
- Leave the mixture in the wok to let it dry.
- After cooling to room temperature store the pickle in a glass jar in a cool dry place.

Name of the Potential Probiotic Microorganism:

Lactobacillus plantarum, L. brevis, Leuconostoc mesenteroides and Pediococcus cerevisiae, Pediococcus pentosaceus and Enterococcus faecalis

Health benefits:

1. Promotes beneficial Gut Bacteria, multiple studies have concluded that the micro flora in fermented pickles improve the gut microbiota.
2. A good source of vegetarian protein.
3. Fermented soy products also proved to be effective in attenuating the effects of Diabetes mellitus, blood pressure, cardiac disorders and cancer-related issues.

Panta Payesh



Pratiksha Mehta & Addya Gupta

Preparation time	: 20 minutes
Soaking Time	: 4- 6 hours
Cooking Time	: 35-40 minutes
Fermentation Time	: 12 hours to overnight
Servings	: 4

Ingredients:

- Black Rice - 60 g
- Coconut milk - 200 ml (fresh or tetra pak)
- Kakvi syrup - 60 g (liquid sugarcane jaggery)
- Almonds slivered - 12-15
- Cashews - 5-7 broken pieces
- Cardamom powder - 1/2 Tsp

Garnishing:

- Roasted nuts and oil seeds (pumpkin, flax, poppy)
- Chopped almonds & cashews
- Roughly cut rose petals

Soaking & Cooking:

- Soak raw black rice for 4 hours to overnight. Decant the water.
- Add fresh water to the rice and pressure cook or cook in a sauce pan until soft.
- Cool it to room temperature.
- Transfer the rice in a pot.

Nutritional Value (per serving)



Energy
375 kcal



Protein
4 g



Carbohydrates
29g



Fat
12 g

Fermentation:

1. Use an earthen pot (preferably) to ferment the rice to increase the probiotics count.
2. Pour drinking water to the rice in earthen pot until the rice is completely immersed in water.
3. Cover with a lid (earthen pots with lids are available).
4. Before covering with the lid tie a muslin cloth on the mouth of the pot and keep it for 12 hours or overnight in a dark warm place.
5. Do not refrigerate.
6. Next morning drain the cloudy water. This cloudy water is nutrient rich and can be added to buttermilk or drink it plain with salt for later part of the day.

Preparation:

1. In a pan pour coconut milk and add 150ml of water and bring it to a boil.
2. Add kakvi syrup for sweetness according to your palate.
3. Let the mixture cool at room temperature.
4. Add the fermented rice to the cooled mixture and add cardamom powder.
5. Add the chopped nuts and poppy and flax seeds .
6. In an earthen dish pour Panta Payesh and garnish with seeds and rose petals.

Name of the Potential Probiotic Microorganism:

Lactic Acid Bacteria (LAB), Lactobacillus, Bifido bacterium

Health benefits:

- Panta Payesh is rich in good microbes that enriches the natural balance in gastrointestinal Tract. The presence of Probiotics strains improves the integrity of the intestinal barrier, which may prevent gastrointestinal infections, IBS, and IBD- irritable bowel syndrome and Irritable bowel disorders.
- The Black rice has the highest content of total anthocyanins (327.60 mg 100 g-1) among all of the studied colored grains. Anthocyanins as a functional ingredient has role in preventing chronic and degenerative diseases due to their antioxidant, anti-inflammatory, anti-cancer, hypo glycemc activities.
- Kakvi syrup is rich in iron and folate which help prevent anemia by ensuring that a normal level of red blood cells is maintained.
- The microorganisms created by Panta Payesh are an excellent creation of potential probiotics to enhance gut health and overall immunity.

Chaddannam



Kadaliyamma I.M & Shree Varshini Kannan

Preparation time	- 25 mins
Cooking time	- 10 mins
Fermentation	- 8-10 hrs
Serving size	- 4

Chaddannam in Andhra Pradesh and Telangana, is a simple dish of curd rice, sliced onions, and chilies which is fermented overnight and served as breakfast the next day morning with extra sliced onions or a pickle on the side.

Ingredients:

- Cooked Rice - 2 Cups (~ 325 gm)
- Curd - 1 Cup
- Milk - 1 Cup (~ 250 ml)
- Sliced Onions - 2 Medium (~ 100 gm)
- Chopped Green Chilies - 3 or 4
- Salt to Taste

Method:

- Warm the milk till it is just warm.
- To an earthen pot or a large steel vessel, add the cooked rice, curd, warm milk, onions, green chilies and salt.
- Mix well and set aside for 8 to 10 hours overnight.
- In the morning, mix well and serve as breakfast with any pickle like lime, Amla or mango pickle on the side.

Nutritional Value (per serving)



Energy
184 kcal



Protein
6.35 g



Carbohydrates
27.42 g



Fat
5.47 g

Name of the Potential Probiotic Microorganism:

Lactic Acid bacteria: • Lactobacilli • Lactococcus • Leuconostoc

Health benefits:

- Improved digestion of lactose.
- Increased vitamins, minerals & folate and beneficial bacteria due to fermentation.
- Improved immunity.

Pularisi Koozh



P.G. Bavana Dutt

Preparation Time	- 6 to 8 hrs fermentation time
Cooking Time	- 15 Minutes
Serving Size	- 1-2

Pularisi Koozh is the typical traditional & comfort food. It is soft and mushy, excellent in flavor. Fermenting oats before cooking them makes them creamier, richer in flavor, and more nutritious. It's a healthy breakfast option that is as quick as instant oatmeal, but far healthier. Have added some seeds for extra fiber and source of Omega 3

Ingredients:

- Milk - 50 ml
- Curd - 60 ml
- Oats - 50 g
- Honey - 10 ml
- Fruits (mango) - 20 g

Instructions:

Fermentation

- Add oatmeal, milk, honey and curd in a small bowl and mix. Cover the bowl with cheese cloth or any other kind of cloth. Fix it with twine or an elastic band.
- Let it ferment, at room temperature, overnight for 6 to 8 hours.

Preparation:

- Once the mixture gets fermented, add the ingredients- curd & chopped mango.
- Add 1 layer of fermented oats and 1 layer of curd & 1 layer of fruit (mango) and sprinkle some chia seeds on top.
- Serve the fermented dish topped with mango.

Nutritional Value (per serving)



Energy
158.50 Kcal



Protein
5 g



Carbohydrates
25.54 g



Fat
4.01 g

Name of the Potential Probiotic Microorganism:

Lactobacillus fermentum PC1 with proven probiotic properties was used to ferment oats with added honey to develop a probiotic beverage with enhanced bioactive ingredients.

Bacteriocins are bioactive proteinaceous antimicrobial substances produced by some strains of *Lactobacillus*, *Lactococcus*, *Pediococcus*.

Health benefits:

- Disorders that can be prevented by fermented oat beverage includes Lactose intolerance, Irritable bowel syndrome, Inflammatory bowel disease, Diarrhoea, Constipation, High cholesterol, Low immunity, Colorectal cancer, Respiratory tract infections, *Helicobacter pylori* infection, Flatulence.
- It helps in improvements in antioxidant capacity and phenolic compounds and no significant decrease of β -glucan when oats is being added with honey.

Gundruk Sadheko



Swayam Yuktha R

Preparation Time	- 5 mins
Sun-Drying	- 1 day
Fermentation Time	- 1 week
Serving Size	- 3

Gundruk is made in the area of Darjeeling, India from leafy greens that are crushed and packed tightly into a container and kept in a dark warm place for fermentation. Gundruk is dark brown or black and very different from the leafy green that are used commonly. It has a strong, fermented smell and a varying degree of sourness.

Ingredients:

For Gundruk:

- Mustard greens cut in 2-inch length - 150 g
- Radish, thinly sliced and cut in 2-inch. length - 150 g
- Cabbage, cut in 2-inch. length - 150 g
- Spinach, torn into 2-inch. pieces - 150 g

Marinating:

- Finely chopped red onion - 50g
- Finely chopped tomatoes - 50g
- Garlic, finely minced - 1 Tbsp
- Ginger, finely minced - 1 Tbsp
- Fresh red chilli, finely minced - 1
- Lemon juice - 1 Tbsp
- Oil (any variety) - 2 Tbsp
- Salt and pepper to taste

Nutritional Value (per serving)



Energy
154 Kcal



Protein
10 g



Carbohydrates
21 g



Fat
3 g

Preparation:**Gundruk Preparation:**

- In a large mixing bowl, add all vegetables; rinse and drain.
- Spread out the vegetables evenly on a large tray and allow sun drying for a day, turning frequently, to reduce the moisture.
- The vegetables would have wilted a bit.
- Collect and put in a large bowl.
- Pack the vegetables into a large, thick sterilized jar and pack it compactly
- Tighten the lid and let stand for two days in a warm place.
- After the two-day period has elapsed, open the lid and pour out the liquid collected on top of the vegetable mixture of the jar.
- Press down the mixture again with a wooden spoon and close the lid.
- Allow fermenting for another 3-5 days.
- At the end of the fermentation process, the vegetable would have developed acidic flavors.
- Store in refrigerator.

Grundruk Marination:

- In a mixing bowl, combine three cups of freshly fermented gundruk and all the other marinating ingredients.
- Toss well to incorporate all ingredients.
- Cover and refrigerate before serving.
- Serve it as a condiment.

Name of the Potential Probiotic Microorganism:

Gundruk: Lactobacillus fermentum, Lactobacillus plantarum, Lactobacillus casei, Lactobacillus casei subspecies pseudoplantarum, and Pediococcus pentosaceus

Health benefits:

- As well as being rich in lactic acid, gundruk is said to aid milk-production during lactation for mothers.
- *Lactobacillus fermentum* - Decrease the level of blood stream cholesterol (as cholesterol-lowering agents) and to potentially help prevent alcoholic liver disease and colorectal cancer.
- *Lactobacillus casei* - balancing the gut microbiota, improving gastrointestinal dysfunction, preventing infection and cancer, and modulating inflammatory and immune responses.

Panchamirtham



P.G. Bavana Dutt & Dr. Pratima Shastri

Preparation Time - 15 Minutes
Serving Size - 4-5

Ingredients

- Curd 20ml
- Banana 1 (approx. 150gms)
- Ghee 5ml
- Sugar candy 30g
- Dates 30g
- Cardamom 2g

Preparation

- Peel the skin of bananas and cut into thin circles. Add it to a mixing bowl and mash it slightly using hands or a potato masher.
- Add the ingredients- chopped dates, sugar candy, ghee, curd, crushed cardamom, to it.
- Keep the mixture in a closed jar and allow it to ferment for 12 to 15 hours.
- Mix everything together. The tasty panchamirtham is ready to serve.

Nutritional Value (per serving)



Energy
429 Kcals



Protein
3.18 g



Carbohydrates
89.83 g



Fat
6.39 g

Name of the Potential Probiotic Microorganism:

Lactococcus

Health benefits:

- Plantains contain a higher amount of dietary fiber, inulin, resistant starch and source of flavonoids, leucocyanidin, catecholamine, phytosterol, vitamin A, magnesium, potassium, Vitamin B6 along with other different vitamins.
- Studies have indicated that probiotics may alleviate lactose intolerance; have a positive influence on the beneficial bacteria, stimulate gut immunity; reduce inflammatory or allergic reactions; reduce blood cholesterol.

Kesar Piyush



Swayam Yuktha R

Preparation Time - 20 minutes
Serves - 2-3

Piyush recipe is a thick, creamy sweet beverage made with shrikand, yogurt and milk. It is a summer cooling drink. Piyush, which translates roughly to honey, is a creamy, thick and aromatic summertime beverage which is a staple in Gujarati diets.

Ingredients:

- Shrikand - 150 g
- Probiotic yogurt - 100 g
- Few Saffron Strands, soaked in hot water
- Milk - 100 ml

- Sugar - 2-3 Tsp
- Cardamom Powder - 1/2 Tsp

For Garnish

- Few Saffron Strands
- Pistachios, chopped

Method

- Whisk probiotic yogurt, milk, shrikand, cardamom powder, nutmeg powder and sugar in a mixing bowl.
- . Pour into small clay pots (matkas) and refrigerate for 2-3 hrs.
- Garnish with saffron and sliced pistachios and serve.

Nutritional Value (per serving)



Energy
306 Kcal



Protein
11.26 g



Carbohydrates
31.27 g



Fat
15.15 g

Name of the Potential Probiotic Microorganism:

Streptococcus thermophilus and *Lactobacillus delbrueckii subsp bulgaricus* and *Lactic Acid Bacteria*

Health benefits:

Helps to alleviate :

- Diarrhea and constipation
- Irritable bowel syndrome
- Weight and body composition
- Yogurt is a nutrient-dense food that is concentrated in energy, It is an excellent source of calcium, vitamin D (in fortified yogurts), magnesium, vitamin B-12, and riboflavin.
- Fermentation may increase the bioavailability of nutrients in yogurt, including vitamin B-12, calcium, and magnesium.
- Yogurt and fermented milk products have positive effect on digestive system health, preventing and reducing the duration of gastrointestinal infectious diseases and antibiotic-associated diarrhea and are also implicated in the control of serum cholesterol, especially of low-density lipoprotein (LDL), and on.

Akhuni Chutney



Afreen Rihana Habibullah

Preparation Time	- 5 to 10 mins
Cooking Time	- 15 mins
Sundrying	- 3-4 days
Serving size	- 2

Akhuni or most commonly called as Axone is a traditional popular staple dish from Nagaland. Akhuni is a fermented soybean paste or cakes which has a strong, pungent smell to enhance the flavour of the dish. Akhuni can be made into chutney, pickles, smoked meat and stew based dish.

Ingredients

- Akhuni paste - 15 g
- Tomato - 50 g
- Ginger - 3 g
- Green chilli - 2 no.

For Akhuni Paste:

- Wash the soya beans and soak it for about 20-30 mins.
- Boil the soya beans in water in an open vessel or pressure cooker till they are tender but still firm enough to hold its shape.
- Then pour the boiled soya bean into a bamboo basket while they are still hot to drain off the water.
- Pound the cooked soya bean into a paste.
- Cover it with banana leaf and sundry for about 3-4 days.
- This paste will last for months. You can keep it on an airtight container in the fridge.

Nutritional Value (per serving)



Energy
72 kcal



Protein
5.8 g



Carbohydrates
4.37 g



Fat
3.17 g

To Prepare Akhuni Chutney:

- Dry roast the green chillies over the stove in a shallow saucepan. Do not forget to punch holes before roasting them.
- Then roast the tomato grill over the stove. Keep turning to make sure it is cooked well from the inside as well. Once done, peel the tomato and keep it aside.
- Cut the ginger into flat slices so that it can be mashed easily.
- Use a mortar pestle to mash all the ingredients to a fine paste.
- Start with the roasted green chilli and salt. Mash the chilli to a fine paste. Then add the roasted and peeled tomatoes. Now, add the ginger and mash it.
- Add the axone paste at the end and mash & blend it well with the rest of the ingredients; make sure they are all mixed evenly with each other.
- Serve immediately.

Name of the Potential Probiotic Microorganism:

Akhuni :

- *Mainly Bacillus spp. (Bacillus circulans, B. licheniformis, B. sphaericus, B. subtilis, and B. thuringiensis)*
- *Rhizopus, Mucor hiemalis or Actinomucor elegans, LAB like Lactobacillus bulgaricus, Streptococcus thermophilus, Leuconostoc, and Pediococcus.*

Health benefits:

- Protection against enteric pathogens in the intestine
- Inhibitory response towards cancer
- Immuno stimulatory and anti-inflammatory activity
- Anti-obesogenic effect towards hyperlipidemia
- Prevention of osteoporosis
- Glycemic friendly
- Antioxidant property

Mishti Doi



Sulaksha, Pranali Lambole & Merin Alexander

Serving size - 3

Mishti Doi (fermented sweetened yogurt) which is very popular dessert and traditionally prepared in West Bengal households, is just an upscale version where the yogurt is sweetened with caramelized sugar or date palm jaggery.

Mishti Doi is made from two healthy ingredients which are curd and date palm jaggery. Curd is rich in probiotic bacteria that act like internal healers. They are good for health and are known to aid digestion.

Ingredients:

- Milk (Full Cream) - 3 cups
- Sugar - 2 Tbsp
- Brown Sugar - 2 Tbsp
- Water - 1 Tbsp
- Curd/Yogurt/Misti Doi - 2 Tsp
- Few Dry Fruits

Nutritional Value (per serving)



Energy
318 kcal



Protein
22 g



Carbohydrates
37 g



Fat
9 g

Preparation:

- Place a heavy bottom saucepan on high heat. Pour in milk, stir, and bring to a boil. Reduce heat to medium. Add 6 tablespoons sugar and stir vigorously to prevent milk from charring. Continue cooking, stirring often, till the milk has reduced to half its quantity. This should take about 30 minutes.
- Make the sugar syrup (caramel): Place a heavy saucepan over medium heat and add the remaining 6 tablespoons sugar and 2 tablespoons water. Once the sugar begins to melt, swirl the pan occasionally till the sugar melts completely and turns a deep caramel brown. Be careful not to let the sugar burn.
- Add the caramel into the reduced milk and continue to stir until it dissolves completely in the milk. Bring to a boil and continue stirring for about another 3 minutes. Remove from heat and set aside to cool till it is warm to the touch.
- Add yogurt and whisk lightly to mix. Transfer into 4 small earthen pots and let them rest overnight undisturbed. Keep slightly warm by placing in a covered casserole dish or swathing in cloth.
- The morning after, refrigerate the set mishti doi. Serve chilled with added fruits and nuts.

Name of the Potential Probiotic Microorganism:

Contains beneficial bacterial cultures such as lactobacillus acidophilus and Bifido bacterium.

Health benefits:**Helps to alleviate :**

- Yogurt is a nutrient-dense food that is a good source of dairy protein, calcium, conjugated linoleic acid, and other key fatty acids.
- Yogurt fermented food matrix provides health benefits by enhancing nutrient absorption and digestion
- Yogurt consumption has been associated with reduced weight gain and a lower incidence of type 2 diabetes, whereas fruits have established effects on reducing the risk of cardiovascular disease.

Mesu Dip

(Fermented Bamboo Shoot)



Sulaksha

Preparation Time - 6 mins
Cooking Time - 10 mins
Serving size - 2

Description

Bamboo shoot fermentation (the “green gold”) is a traditional process carried out in different communities of the North-Eastern region of India. It is a traditional dish commonly prepared in state of Manipur and Sikkim in the form of pickle. They are eaten as curry, pickle or soup in different communities.

Ingredients:

- Blanched bamboo shoot - 100 g
- Garlic cloves, crushed - 15 g
- Chili powder - 5 g
- Brown mustard seeds - 10 g
- Mustard oil - 1tbsp

Instruction:

- Place all the ingredients in a bowl and mix until well combined.
- Spoon into a sterilized jar. Cover the opening with a piece of muslin (cheese cloth), then secure the lid.
- Store in a cool dark place for at least 6 hours, until pickled to your liking;
- The fermented bamboo shoots will keep for up to 4 weeks(7-12 days).
- During this time, the flavor will keep getting stronger, and the shoots more tender.
- Once mesu is prepared take the required amount make them into chutney serve as a dip or flavor to dish.

Nutritional Value (per serving)



Energy
41.48 kcal



Protein
2.3 g



Carbohydrates
3.64 g



Fat
2.34 g

Name of the Potential Probiotic Microorganism:

Lactobacillus brevis, *L. plantarum*, *L. curvatus*, *Leuconostoc citreum*, and *Pediococcus pentosaceus*

Health benefits:

- Antioxidant, Anti-Cancer, Anti-Aging, Anti-Free Radical, Prevents Cardiovascular Diseases, Improves Digestion, Anti-Microbial Activity due to the Presence of Different Glycosides, Flavones.
- Bamboo shoots are considered as nutraceuticals, because these have low fat, high edible fiber content, and vitamins such as vitamin C and vitamin E.
- It also plays important role in function of thyroid and pituitary glands which are involved in producing and regulating hormones in the body.

Ragi Koozh



Sripriya Shaji & A. Adithi Arya

Preparation Time - 7-8 hrs
Cooking Time - 15 mins
Serving size - 2

Ingredients

- Sprouted Ragi flour - 1 Cup
- Water - 3-5 Cups
- Cooked Rice - 2 Tbsp
- Homemade Curd - $\frac{3}{4}$ Cup
- Salt
- Onion finely chopped - $\frac{1}{2}$
- Green chilli

Instructions

- Mix the Ragi flour in 3 cups of water. Cover and let it fermented overnight (7-8 hours). The next morning the ragi batter would have turned sour.
- In a pot, boil about 1 cup of water with a pinch of salt. Once it starts boiling, pour in the fermented Ragi mix into the water. Add the rice as well. Keep stirring the mix until it becomes thick.
- Check the texture of the porridge. If it is sticky then you need to continue cooking it. Now let this mixture cool.
- Then simply whisk the above mixture with curd, water, salt. And garnish with chopped onion and some chillies.

Nutritional Value (per serving)



Energy
310 kcal



Protein
8.5 g



Carbohydrates
55 g



Fat
5 g

Name of the Potential Probiotic Microorganism:

Bacillus cereus, *Streptococcus lutetiensis*, *Lactobacillus plantarum*, *Lactobacillus fermentum*

Health benefits:

- Finger millet contains rich amounts of protein, mineral nutrient as compared to other major cereals like wheat, rice, and sorghum.
- With the process of fermentation 15 lactic acid microorganisms were identified. These recipes are nutrient dense with good protein, high calcium and also gut friendly

Mango Flavored Fermented Palm Sap



Shrihari k k

Preparation Time - 10 mins
Fermentation - 1 day
Serving size - 4

Ingredient:

- Palmyra sap 500 ml
- Calcium carbonate 5g
- Mango 100 g

Preparation:

- Add 5grams of calcium carbonate into a 5 liter mud pot.
- Then collect the palm sap in that liter mud pot.
- Leave it aside for a day so the probiotics start to ferment the sap.
- Next day, collect 500ml of fresh fermented sap.
- To the 500ml sap add and mash 100 grams of mango.
- The yummy Mango flavoured fermented palm sap is ready.

Instruction:

- Collect the sap accurately after 1 day of fermenting
- Maintain the fermented sap at appropriate temperature.
- Do not add artificial sweeteners.

Name of the Potential Probiotic Microorganism:

Potential microorganisms, Four probiotics LAB bacteria, *Lactobacillus plantarum* group, *Enterococcus faecium*, *Pediococcus acidilactici*, *Pediococcus pentosaceus*

Health benefits:

- Contains calcium which helps in strengthening the bones and teeth.
- Rich in thiamine, nicotinic acid, vitamin B complex, Vitamin A and C.
- Contains minerals like zinc, potassium and iron.
- Probiotics bacteria facilitates good bacteria density in stomach which improves digestion and produces vitamin B12.

Nutritional Value (per serving)



Energy
40.21 kcal



Protein
0.56 g



Carbohydrates
8.26 g



Fat
0.55 g

Vellarika Kaalan



Ms. Devikrishna Kurup & Ms. Sumaiya Shaikh

Preparation time - 10 mins
Cooking time - 20 mins
Serving size - 4

Ingredients

- Cucumber - 200 g
- Chilly powder - 1 Tbsp
- Turmeric powder - ½ Tbsp
- Green chillies - 2 nos
- Few Curry leaves
- Water as required
- Curd beaten - 3/4 cup
- Salt
- Coconut - 1 Tbsp
- Mustard seeds - ½ Tbsp
- Fenugreek seeds - ½ Tbsp
- Dry red chillies -

Instructions

- For preparing vellarika kalan, first take a vessel and boil water.
- Add turmeric powder, chilly powder, green chillies, curry leaves and cucumber.
- Remove from flame when the cucumber pieces are done and allow it to cool.
- Add curd and salt to it.
- Heat this mixture again and add little water.
- Stir continuously, do not boil.
- Heat oil in a pan, splutter mustard seeds, red chillies and fenugreek seeds.
- Add this to the curry and remove from flame.
- Serve hot with rice.

Nutritional Value (per serving)



Energy
220.96 kcal



Protein
7.01 g



Carbohydrates
12.66 g



Fat
15.81 g

Name of the Potential Probiotic Microorganism:

LAB (*Lactic acid producing bacteria*).

Health benefits:

- Numerous studies suggested beneficial therapeutic effect of (LAB) bacteria in the yogurt on the gut health. (LAB) bacteria can protect against enteric infection and inhibit chemically Carcinogens induce tumorization in the gastrointestinal tract. (Mazahreh, Ayman & Ershidat, Omer. 2009.)
- Home-made curds possess a spectrum of LAB that had the potential to exert probiotic effects in individuals consuming the curd.
- These microbes had properties that predicted their ability to survive passage in the upper gut and to modulate gut mucosal innate immune reactions and, therefore, it is likely they have the potential to significantly influence health status. (Balamurugan, et al. 2014).
- Therefore, High consumption of curd can inhibit diarrhea, infection from other bacteria, colon cancer, lactose intolerance and inflammatory bowel disease .

Madra



Sakina Hussain Rangwala

Preparation Time - 20 mins
Cooking Time - 20 mins
Serving size - 3

Ingredients

- Rajma (kidney beans) - 100 g
- Curd - 1/2 cup
- Cloves - 2
- Green cardamom - 2
- Tej patta - 1
- Cinnamon, stick - 1/2
- Cumin seeds - 1tbsp
- Asafoetida (hing) - 1tbsp
- Turmeric powder - 1tbsp
- Cumin powder - 1tbsp
- Garam Masala - 1tbsp
- Kashmiri red chilli powder - 1tbsp
- Coriander Powder - 1tbsp
- Salt as required
- Ghee - 1tbsp

Nutritional Value (per serving)



Energy
483.32 kcal



Protein
22.50 g



Carbohydrates
51.80 g



Fat
20.68 g

Instructions

- Rinse rajma with water a couple of times. Then soak rajma beans in enough water for 8 to 9 hours or overnight.
- Next day drain all the water and rinse the rajma in running water. Drain the extra water. Place the rajma beans in a pressure cooker.
- Add the following whole spices – cinnamon, cloves, tej patta and green cardamoms. Add water. cover with lid and pressure cook on medium flame for 15 to 16 whistles.
- In a bowl, take curd and whisk it till smooth. Making madra recipe Heat ghee or oil in a pan. Add cumin seeds. Let the cumin seeds crackle in the hot oil. Switch off flame and add asafoetida (hing). Next add the beaten curd. quickly begin to stir the curd as soon as it is added. Stir curd non-stop.
- Mix till curd and ghee is mixed very well. Then keep pan on stove top on a low flame and continue to stir non-stop. If stirred non-stop, curd won't split. After some minutes, the ghee starts separating from the curd mixture. Continue to stir till all ghee is separated and a layer of ghee floating at the sides and on few places at the top of the curd mixture is seen.
- Then add the following spice powders one by one – turmeric powder, cumin powder, garam masala powder, kashmiri red chilli powder and coriander powder. Mix well. continue to stir for one minute. Drain all the water from the rajma and add the cooked rajma beans in the curd gravy. Season with salt as per taste. Mix well.
- Simmer the madra gravy on a low flame. Keep stirring occasionally. The gravy will begin to thicken. Overall simmer for 11 to 12 minutes. When the madra gravy has thickened, then switch off flame. Our delicious Probiotic rich traditional dish 'Madra' is ready!

Name of the Potential Probiotic Microorganism:

Lactobacillus acidophilus, Lactococcus lactis, Lactococcus lactiscremoris etc

Health benefits:

- Probiotics can help reduce cholesterol levels and that *L. acidophilus* may be more effective than other types of probiotics.
- They may help prevent and reduce diarrhea.
- Reduce abdominal pain in IBS patients.
- May be useful in preventing vaginal disorders, such as vaginosis and vulvovaginal candidiasis.
- Can boost the immune system and thus help reduce the risk of viral infections.
- Probiotics reduce the amount of an antibody called immunoglobulin A, which is involved in allergic reactions, in the intestines.

Yogurt Bites



Jaya Adwani

Ingredients

- Greek Yogurt - 2 cup (90g each)
- Kiwi fruit - 1 big
- Banana - 1
- Peanut butter - 1 Tbsp
- Cocoa powder - 1 tsp

Method

- Whisk the yogurt properly or blend it in mixer with one pulse.
- Mash the kiwi with spoon and mix in yogurt.
- Mash the banana, add cocoa powder and peanut butter. Mix this with another cup of blended yogurt.
- Pour the mixture in silicon moulds and keep in deep freezer for 4-5hrs.
- Demould cautiously.
- Your 2 flavours of yogurt bites are ready.(green and brown).

Instructions

Bites melt quickly at room temperature so consume immediately after demoulding.

Nutritional Value (per serving)



Energy
384.86 kcal



Protein
12.64 g



Carbohydrates
47.08 g



Fat
16.22 g

Name of the Potential Probiotic Microorganism:

Lactobacillus

Health benefits:

- Yogurt is the product of milk fermentation by lactobacillus group of bacteria, these bacteria increase the good bacteria i.e gut flora of the intestine.
- They boost the digestive health by reducing the symptoms of bloating, diarrhoea and constipation.

Curd Sattu Lassi



Mrs. Nilima Joshi

Preparation time - 4 min
Serving Size - 2

Ingredients

- Sattu - 1/2 cup
- Fresh home made curd - 1 cup
- Chilled water - 1cup
- Roasted cumin powder - 1/2 Tbsp
- Black salt or chat masala - - 1/2 Tbsp
- Salt - 1/2 Tbsp
- Flax seed powder - - 1/2 Tbsp
- Green chilli ginger paste - - 1/2 Tbsp
- Few mint leaves and few coriander leaves

Method

- Take sattu in a bowl.
- Add cumin powder.

- Add black salt & table salt and of water.
- Add curd and mix well with a whisk so that there are no lumps.
- Add the remaining water to thin down the drink.
- Taste and adjust seasoning.
- Garnish with chopped mint leaves.
- Serve cold.

Instructions

- Use home made fresh curd.
- Make homemade Sattu by using 1cup roasted wheat, 1/2 cup roasted chana, 1/4 teaspoon jeera and cardamom. Grind everything and store the powder in airtight container, for future use.
- You can use readymade sattu powder too

Nutritional Value (per serving)



Energy
267.50 kcal



Protein
16.74 g



Carbohydrates
31.29 g



Fat
8.38 g

Name of the Potential Probiotic Microorganism:

Homemade curd contains several species of the *Lactobacillus* like *L. fermentum*, *L. acidophilus*, *L. confusus*, and *Leconostoc lactis* is also present in curd prepared at home.

Health benefits:

- It is high in fibre, protein and energy.
- Sattu drink is a complete breakfast or meal.
- It is rich in iron, manganese, and magnesium, and low on sodium. Hence it keeps the body cool in summer and provides instant energy to work.
- It is rich in soluble fibre and helps rejuvenate the digestive system and keep it healthy.
- Sattu keeps the body cool and hydrated and is perfect to keep the body protected from sunstroke in summer
- It has got high satiety value as it contains wheat & chana.
- Boost immunity.
- Improves gut health.

Ragi Ambli or Fermented ragi millet porridge



C. Kalpana & Dt. Rachna Dalal

Preparation time - 10 mins
Cooking time - 1 hr
Serving Size - 1

Ingredients:

- Finger millet/red millet powder - 3 Tbsp
- Water - 2 cups
- Cumin powder - 1 Tsp
- Big garlic clove - 1
- Salt to taste
- Buttermilk/curds - 3/4 cup

Nutritional Value (per serving)



Energy
248.94 kcal



Protein
8.62 g



Carbohydrates
35.47 g



Fat
8.06 g

Preparation Method:

There are many ways you can make this drink. Here's how I prepare it.

- Heat a cup of water. Bring it to boil.
- Add cumin powder, salt, finely sliced/chopped garlic to it.
- Once it comes to a boil, let it simmer for a minute so that the cumin & garlic flavour gets infused into the water.
- Meanwhile, dissolve 3 tablespoons of finger millet powder in another cup of water, such that there are no clumps.
- Add dissolved finger millet into the boiling water & mix well.
- Stir the mixture at frequent intervals so that it doesn't stick to the bottom of the vessel as it continues to cook.
- Bring it to a boil, then simmer it for 3-4 minutes so that rawness of finger millet powder goes off & it cooks through. You know it by tasting. The raw taste of finger millet powder should be gone.
- The mixture will thicken as it cooks. Keep stirring occasionally.
- Add curds/buttermilk & give it a good mix. (Dilute it further if you wish to. Add another 1/2 - 3/4 cup of water & boil it for a minute.)
- Remove it from heat & serve hot, once it cools down or serve it chilled.
- These red millets are gluten free too. So, this drink makes up for a great gluten free diet.

Name of the Potential Probiotic Microorganism:

Lactobacillus plantarum, Lactobacillus fermentum

Health Benefits

- Yogurt is the product of milk fermentation by lactobacillus group of bacteria, these bacteria increase the good bacteria i.e. gut flora of the intestine.
- They boost the digestive health by reducing the symptoms of bloating, diarrhea and constipation.
- A very cooling drink commonly used in districts of Karnataka and as it is rich in calcium and potassium, excellent for Bone Health

Name of the Potential Probiotic Microorganism:

Lactobacillus

Health benefits:

- Yogurt is the product of milk fermentation by lactobacillus group of bacteria, these bacteria increase the good bacteria i.e. gut flora of the intestine.
- They boost the digestive health by reducing the symptoms of bloating, diarrhoea and constipation.

Lakshmi Chaaru



Ravada Hemanth Kalyan

Preparation time - 6 days
Cooking time - 10 mins
Serving Size - 2

Lakshmi chaaru is a traditionally fermented beverage also called as probiotic liquid. Fermented foods are rich in probiotic bacteria so by consuming the fermented foods

we are adding beneficial bacteria and enzymes to our overall intestinal flora, the main advantage of this Lakshmi chaaru is that it does not lose any nutrients on fermentation, even by fermentation the nutritive value is increased by useful microorganisms tremendously. This recipe is recommended to all the age especially for those who are suffering with digestion problems.

The overall acceptability of the product is excellent. This is the special chaaru famous in Godavari districts of Andhra Pradesh and in Telangana remote areas passed on by generations.

Nutritional Value (per serving)



Energy
367 Kcals



Protein
9.5gm



Carbohydrates
0.7 gm



Fat
8.06 g

Ingredients:

- Rinsed rice water
- Liquid starch [water after the cooked rice]
- Brinjal – 1 or 2
- Onion - 1
- Ladies finger - 3
- Green chillies - 3
- Tamarind
- Turmeric
- Red chilli powder
- Salt
- Curry leaves
- Coriander leaves

Method

- [DAY-1] Rinse rice with water & Remove water for first time
- Rinse rice with water for second time then drain the water and store it in clay pot.
- Boil the rice with more water and collect the liquid starch.
- Save the liquid starch with rinsed water in same clay pot & keep a lid to just cover the pot.
- [DAY-2] Repeat the process; Again, save rinsed rice water and liquid starch then mix with the day1 portion in clay pot
- [DAY-3&4] Just repeat the process same as DAY-2.
- Keep the liquid pot in room temperature for 1day to allow the fermentation.
- [Day-6] The thick fermented portion will be settled down in the pot then the top lite water should be removed.
- There will be a formation thin starch layer, remove it during the removal of top water.
- Fermented probiotic liquid is ready to cook, boil the liquid in medium flame then add chopped vegetables such as brinjals, onion, ladies finger, green chillies then allow it for boiling for 3minutes.
- At that time of boiling, take a lemon size of tamarind in 1teacup of water to collect the tamarind juice and add that juice in boiling fermented liquid .
- Add 1tablespoon of turmeric, red chilli powder & required salt in it then stir it well to mix all properly then add curry leaves & coriander leaves.
- Boil for 2more minutes then the probiotic liquid or Lakshmi chaaru is ready to serve.

Name of the Potential Probiotic Microorganism:

Lactobacillus, Bifidobacterium & Bacillus

Health benefits:

- During the process of liquid fermentation, the probiotics developed improves the digestion and keeps our gut healthy
- Helps to control diarrhoea and its severity
- By lowering the low-density lipoproteins [LDL] these probiotics keeps our heart healthy
- By inhibiting the growth of harmful bacteria, it may help to boost our immune system
- Helps to treat irritable bowel syndrome [IBS]

Note: When the pot was full during adding the liquid starch or rinsed rice water in each day then before adding that remove top lite water from the clay pot then add this liquid starch or rinsed water in it, after again the thick part settled down remove top lite water next day before adding liquid starch, repeat the process.

Apple & Soy Fusion Yogurt Drink



Sheik Aalya Afreen & K. Pavani

Preparation time - 10 mins
Cooking time - 20 mins
Serving Size - 4

Soy yogurt also referred to as soya yogurt is a yogurt-like product made with soy milk. Apple & Soy Yogurt is a soy yogurt with the goodness of apple. Soy yogurt is made by fermenting soymilk with friendly bacteria, mainly *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. The process is similar to the production of yogurt from cow milk. Soy milk does not contain lactose but other sugars such as stachyose and raffinose are fermented by the bacteria. It is both probiotic and prebiotic food and hence called a "Symbiotic".

Ingredients

- Soy milk - 1 L
- Thickener (Corn starch) - 5g
- Yogurt Starter culture - 125g
- Apple - 100g

Cooking Method:

- Before beginning of the process, sterilize all the materials you use to avoid contamination.
- Mix corn starch with a little milk and whisk until it's a smooth slurry.
- Add soy milk and slurry to a large pan and over low-medium flame for about 15 minutes.
- Next remove the pan from stove and allow the milk to cool down.
- Peel, cut apple into pieces and boil them. Grind the boiled apple to a smooth paste.
- Once milk has cooled, add the yogurt starter, apple paste and stir until completely mixed.
- Transfer into a container and incubate overnight in warm environment.

Name of the Potential Probiotic Microorganism:

Lactobacillus bulgaricus, *Streptococcus thermophilus*

Health benefits:

- Two sugars, Stachyose and Raffinose act as probiotic and stimulate growth of *Bifidobacterium* in large intestine.
- *Lactobacillus* species help prevent and reduce symptoms of acute diarrhea
- It can help treat and prevent vaginal infections

Nutritional Value (per serving)



Energy
113 kcal



Protein
5.9 g



Carbohydrates
17.4 g



Fat
3.1 g

Kanji Vada



K. Mounika & K. P. Kaveri

Preparation time	- 10 mins
Fermentation	- 2 days
Cooking time	- 20 mins
Serving Size	- 5

Ingredients:

Vadas

- Spilt green gram soaked - 1 cup
- Green chillis - 2
- Red chillis - 2
- Hing- ¼ Tbsp
- Coriander seeds, coarsely powdered- 1 Tbsp
- Freshly chopped coriander - 2 Tbsp.
- Salt to taste
- Oil for deep frying

Kanji

- Mustard seeds coarsely ground- 3 tbsp.
- Red chilli powder- 1 tsp.
- Salt to taste

Method

- To make the kanji combine the coarsely ground mustard seeds, chilli powder and salt and add 1 liter of water and allow it to ferment for 2 days.
- Drain the green gram and ground to a fine paste without water.
- Transfer the paste into a large bowl and add hing and coriander seed powder.
- Heat oil in a wok and add tablespoon of batter into the oil, deep fry. Drain the vadas in a colander.
- Soak the fried vadas into the kanji water for an hour and serve.

Name of the Potential Probiotic Microorganism:

Potential probiotic strains *Lactobacillus plantarum* and *Lactobacillus bulgaricus*

Health benefits:

- Rich in Vitamins including B12 is a good source of protein and probiotics Helps in increasing beneficial bacteria in the gut.

Nutritional Value (per serving)



Energy
453 kcal



Protein
23.88 g



Carbohydrates
52.59 g



Fat
16.35 g

Panitenga



K. Mounika & K. P. Kaveri

Preparation time	- 15 mins + 3/4 days fermentation
Cooking time	- 5 mins
Serving Size	- 4-5

Ingredients:

- Black mustard seeds - 100 g
- Thekera pulp (Garcinia pulp) - 1/2 cup
- Banana leaf
- Salt to taste
- Brown sugar – a pinch

Method:

- Wash black mustard seeds and dry completely.
- Grind mustard seeds in a blender without water or minimal water.
- Mix all the ingredients and make dough.
- Strengthen the banana leaf by heating on fire.
- Now wrap the dough with banana leaf and tie it with a string. Keep it aside in a airtight container for 3-4 days for fermentation.
- Add chopped green chilies and one tbsp. of mustard oil in it and serve.

Nutritional Value (per serving)



Energy
511 kcal



Protein
20.02 g



Carbohydrates
17.42 g



Fat
40.20 g

Name of the Potential Probiotic Microorganism:

Amylomyces rouxii, *Rhizopus sp.*, *Lactobacillus plantarum*, *Lactobacillus brevis*, *Saccharomyces cerevisiae*, *Meyerozyma guilliermondii*

Health benefits:

- Improves beneficial bacteria in the gut.
- The presence of Probiotics strains improves the integrity of the intestinal barrier, which may prevent gastrointestinal infections, IBS, and IBD- irritable bowel syndrome and Irritable bowel disorders.
- It helps in improvements in antioxidant capacity and phenolic compounds.

Tam-um



K. Mounika & K. P. Kaveri

Fermentation time - 3-4 days
Cooking time - 25 mins
Serving Size - 1

Ingredients:

- Mustard greens-2 bunches or 3/4th kilo
- Cooked rice – 100 g
- Peeled garlic cloves- 10-12
- Fresh red chillis- 10
- Crystal salt- 2 tbsp

Method:

- The cooked rice to be soaked in water until the rice is completely immersed overnight.
- Chop the mustard greens after washing thoroughly into bite size pieces.
- In a glass bottle or jar layer the mustard greens and add garlic cloves and chillis.
- Now add the soaked rice water without the rice into the jar
- With a wooden ladle press the greens so the greens are fully submerged in the rice water
- Cover the glass jar with a muslin cloth and close the lid
- Keep it in a dark area in the kitchen and let it ferment for three days.
- When the greens have turned a dull green, store in the refrigerator and use it for 3 months.
- Can be used with rice or any other cereal dishes as an accompaniment

Name of the Potential Probiotic Microorganism:

Lactobacillus Casei & *L. Pantarum*, *Weissella cibaria*

Health benefits:

- Studies have indicated that probiotics may alleviate lactose intolerance.
- Have a positive influence on the beneficial bacteria, stimulate gut immunity; reduce inflammatory or allergic reactions; reduce blood cholesterol.

Nutritional Value (per serving)



Energy
65 kcal



Protein
4 g



Carbohydrates
10 g



Fat
1 g

Raw Papaya Pickle



K. Mounika & K. P. Kaveri

Serving size	- 10
Preparation Time	- 2 days
Cooking Time	- 20 min

Ingredients:

- Raw papaya- 1 Kg
- Chilli powder- 1 Tbsp
- Mustard Oil- 125 ml
- Mustard seeds powder/ Rai- 1.5 Tbsp
- Fenugreek powder- 1.5 Tbsp
- Salt to taste
- Asafoetida- 1/4 tsp
- Turmeric powder- 1 tsp
- Lemon juice- 3 Tbsp

Method:

- Wash and peel the raw papaya. Cut it into small cubes.
- Heat the pan and add mustard oil. Then add asafoetida/heeng and mustard seed, let it splutter. Now add chilli powder, salt, rai powder/mustard seed powder and fenugreek powder.
- Keep the mixture aside and let it cool.
- Once cool, pour it over raw papaya pieces. Mix well.
- Now add lemon juice and mix well.
- Pour it in a sterilized airtight jar and let it ferment for 2-3 days in a warm place. Keep it in the refrigerator after fermentation is complete.
- Serve it as a condiment along with meals.

Name of the Potential Probiotic Microorganism:

Organism- *Lactobacillus plantarum*

Health benefits:

- It may help in preventing or treat conditions like eczema, seasonal allergies, irritable bowel syndrome (IBS), high cholesterol, and inflammatory bowel disease (IBD).

Nutritional Value (per serving)



Energy
35 Kcal



Protein
0.18 g



Carbohydrates
5.25 g



Fat
1.5 g

Madiya Pej



Varsha Hirwani

Preparation time - 5 mins
Cooking time - 15 mins
Serving size - 1

Ingredients:

- Ragi flour - 1 Tbsp
- Buttermilk/Water 1 and 1/2 cup
- Cooked Rice - 1 Tbsp.
- Salt to taste

Method:

- In a pan fry roast the ragi flour till the raw smell goes away
- Add hot water little by little and mix them well.
- Let them boil and thicken a little
- Add Rice and cook for few minutes.
- Turn of the flame and serve this soupy porridge with buttermilk.
- Add water and heat again if it thickens, it is consumed like a soup.

Nutritional Value (per serving)

 **Energy**
103 kcal

 **Protein**
4.47 g

 **Carbohydrates**
13.93 g

 **Fat**
3.31 g

Name of the Potential Probiotic Microorganism:

Lactobacillus bulgaricus

Health benefits:

- It is healthy and beneficial for the body. It is a rich source of energy, amino acids, calcium, iron, glucose, protein and fiber.
- In addition buttermilk/curd enhances the probiotic value of product.
- It has medicinal value; it can be used for the prevention of malnutrition and diabetes.

Contributed by

Recipe	Contributor
Kali Gaajar Ki Kaanji	Tanuja. R
Akhuni Pickle	Surbhi Rajpoot
Panta Payesh	Pratiksha Mehta & Addya Gupta
Chaddannam	Kadaliyamma I.M & Shree Varshini Kannan
Pularisi Koozh	P.G. Bavana Dutt
Gundruk Sadheko	Swayam Yuktha R
Panchamirtham	P.G. Bavana Dutt & Dr. Pratima Shastri
Kesar Piyush	Swayam Yuktha R
Akhuni Chutney	Afreen Rihana Habibullah
Mishti Doi	Sulaksha, Pranali Lambole & Merin Alexander
Mesu Dip	Sulaksha
Ragi Koozh	Sripriya Shaji & A. Adithi Arya
Mango Flavored Fermented Palm Sap	Shrihari k k
Vellarika Kaalan	Ms. Devikrishna Kurup & Ms. Sumaiya Shaikh
Madra	Sakina Hussain Rangwala
Yogurt Bites	Jaya Adwani
Curd Sattu Lassi	Mrs. Nilima Joshi
Ragi Ambli or Fermented ragi millet porridge	C. Kalpana & Dt. Rachna Dalal
Lakshmi Chaaru	Ravada Hemanth Kalyan
Apple & Soy Fusion Yogurt Drink	Sheik Aalya Afreen & K. Pavani
Kanji Vada	K. Mounika & K. P. Kaveri
Panitenga	
Tam-um	
Raw Papaya Pickle	Varsha Hirwani
Madiya Pej	

Compiled and edited by

Dr. Sreemathy Venkatraman

Clinical Dietitian, Trustwell Hospital and IAPEN member.

Supported by

Ms. Monideepa Talukdar

Assistant Director, FSSAI

Ms. Vijeta Singhari

Consultant, GAIN



सत्यमेव जयते

GOVERNMENT OF INDIA

Connect with FSSAI



FSSAI



@fssaiindia



www.fssai.gov.in



FSSAI

एफएसएसएआई
fssai

भारतीय खाद्य सुरक्षा और मानक प्राधिकरण
Food Safety and Standards Authority of India
स्वास्थ्य और परिवार कल्याण मंत्रालय
Ministry of Health and Family Welfare

FDA Bhawan, Kotla Road, New Delhi-110002