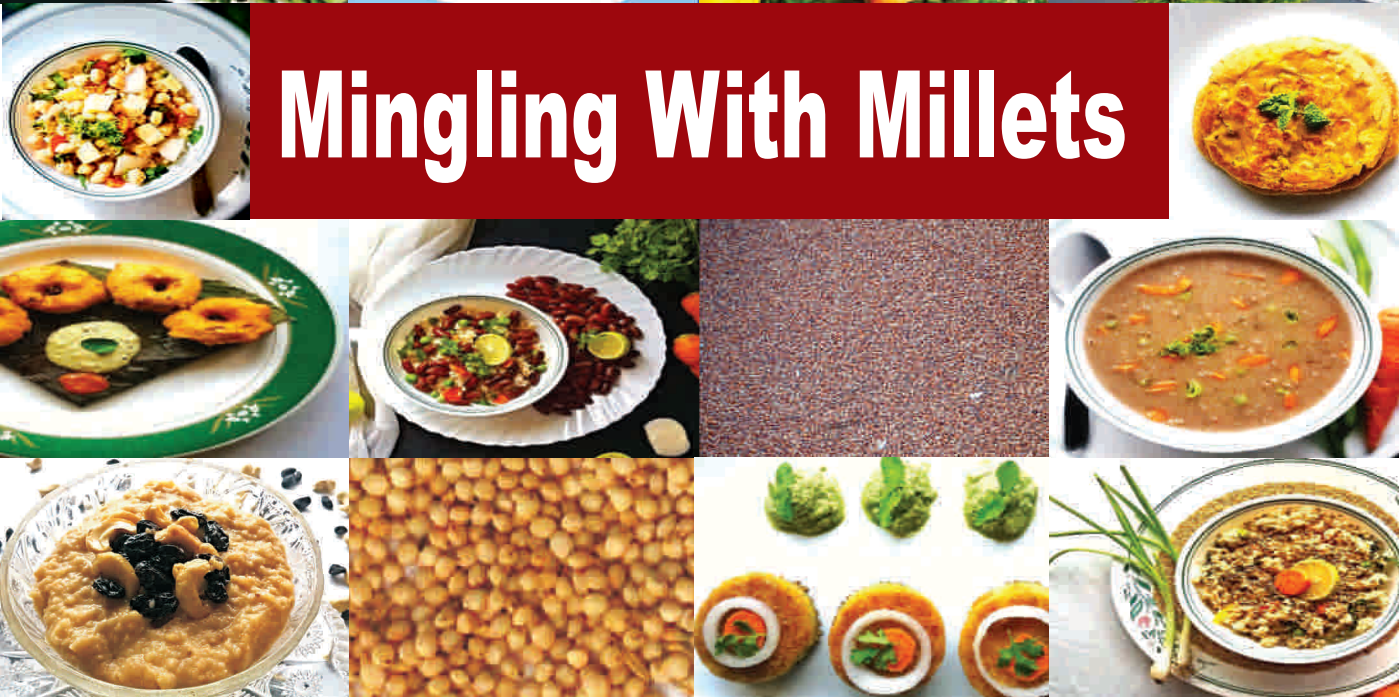




Mingling With Millets



Govt. of India
Ministry of Environment,
Forests & Climate Change



SGP The GEF
Small Grants
Programme

CEE
Centre for Environment Education

NIRMAN
An Initiative For
Sustainable Development



Mingling With Millets

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Translated from *Mandia Jatiya Sashyara Vyanjana Vichitra* (Odia)

Trans-creation by: Bikash Rath

Recipes: The Deccan Development Society (DDS), Dhan Foundation, Watershed Support Services & Activity Network (WASSAN), Anita K. Jena, Shusri S. Das and Kanna K. Siripurapu.

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Global Environment Facility (GEF)

United Nations Development Program (UNDP)

The GEF Small Grants Program (SGP)

Centre for Environment Education (CEE)

A cluster of dried millet spikelets in shades of yellow and orange, positioned in the top right corner of the image.

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Trans-creation by:
Bikash Rath



ACKNOWLEDGMENT

Mingling with Millets is a transcreated version of the original Odia compilation 'Mandia Jatiya Sashyara Vyanjana Vichitra' (published by NIRMAN) that was primarily based on *Making Merry with Millets* (published by DDS) and *Jwar, Kangni, Aur Ragi Ke Saral Vyanjan* (published by WASSAN) but also referred to recipes provided on websites like www.padhuskitchen.com, <http://verygoodrecepies.com>, www.sharmispassions.com, www.wholefoodsmarket.com, and southindianvegrecepies.com though at the same time emphasis was given to make the recipes Odisha-specific so that it can be adapted given its cultural background, and this is what made it distinguished. Also referred were the recipe folder 'Ragi Special'(published by Seva Jagat), the research report 'Ragi-A Rediscovery' by Bikash Rath (sponsored by RCDC), as well as the great Odia lexicon Purnachandra Bhashakosha. The present book has however additionally referred not only to many of the original English sources but also to some new sources for research inputs(such as that on the dough quality of ragi flour), and we are thankful to all these authors/publishers for their contribution in popularizing millets. We are also grateful to Radha Rao Tadivalasa (Radha's Relish) for providing beautiful images and Mr. Bikash Rath for trans-creation for this publication. And finally, our special thanks are due to the GEF-UNDP Small Grants Programme for the financial support to bring out this publication.

FOREWORD

Almost a century ago the so-called civilized masses of the plane areas of Odisha could not think of millets in their food chain, unless required for occasional therapeutic or religious purposes; and their attitude towards this group of grains was not much positive. It was supposed to be a tribal food, and of a relatively inferior category. In other parts of the country the situation was not exactly the same for while in the western states like Rajasthan major millets like Jowar & Bajra used to retain their importance in the mainstream food practice, Ragi had the same status in some of the south Indian states. However, what was common in almost all the states was that the minor millets were usually confined to tribal pockets.

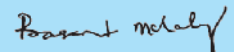


During the last two decades of public awareness on the nutritional importance of millets has increased not only because of scientific discoveries to that effect but also due to the efforts of the millet-promoting civil society organizations. Ragi has revived special attention because of its anti-diabetic and other properties, and the health conscious people have started using the same. Accordingly, ragi-based biscuit is also being marketed though still not commonly available or purchased partly because of want of awareness and partly because of the cost. That millets are gluten-free glad and has marked their importance at international level too.

Unfortunately, the millets are on a rapid decline in their very cradle, i.e. the tribal areas. Worst affected are the minor millets. This is partly because the tribals are focusing more on rice and cash crops, thanks to various development interventions; and partly because of other internal and external factors such as their new generation being least interested in such traditional hill food. They hardly understand that the so-called developmental changes are actually depriving them of their food-& nutritional security. At the same time many of the millets have certain limitations which was also a cause of their not being mainstreamed in the conventional food chain. For instance, making a flat cake (*chakuli*) from ragi flour is much difficult than that from wheat flour or rice flour. Smell is another factor. Fortunately,

government agencies/institutions like the Indian Institute of Millets Research, and civil society organizations like the Millet Network of India(MINI), Deccan, Development Society(DDS), WASSAN, and DHAN Foundation, etc. have been doing commendable work to mainstream and popularize millets by introducing new recipes that would make the millet products more palatable and adaptable. Their interventions are based on two strategies: 1) making popular or common food items from millets, such as *pakoda*; and 2) for this purpose, mingling them with appropriate ingredients such as wheat flour, gram flour(*besan*), rice, and so on so as to overcome their limitations. And this has really worked so far the product quality is concerned though mainstreaming millets is still a distant dream.

In this book, we have also made an attempt to compile several such useful millet-based recipes. The first such compilation by NIRMAL was published in Odia almost a year ago, and now we are happy to bring out its English version with some additional information. Our objective is not only to popularize millets for health & nutritional security of the people, but also revival of their cultivation so that the supply can be maintained, the traditional cultivators are encouraged & incentivized, and the indigenous seed diversity is preserved. A good news to mention here is that recently the Odisha government has launched the Millet Mission in 7 tribal districts of the state, and one of the objectives of the programme is inclusion of millets in the state nutrition programmes such as MDM and PDS. NCDS and WASSAN are already supporting this initiative, and the corporate giant NALCO has also expressed interest to partner this Mission under its Corporate Social Responsibility. So, off late, the advocacy of the civil society organizations for more than a decade for government action on millet promotion seems to be yielding good results. If TRIFED and its state agencies can take up marketing of various millets (grains) in packaged form and with assured quality, then that would greatly add to the initiative creating more confidence in the millet value chain. We look forward to more such interventions in future, and welcome comments & suggestions from our readers and well-wishers for further improvements in the present publication.



Prasant Mohanty
Executive Director

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Millet photos with local names



**English : Italian Millet/
Foxtail Millet**
Bengali : Kaon
Gujarati : Kang
Hindi : Kakum
Kannada : Navane
Marathi : Kang, Rala
Odia : Kanghu, Kangam, Kora
Punjabi : Kangni
Tamil : Tenai
Telugu : Korra



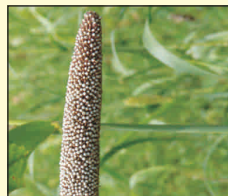
English : Great Millet/ Sorghum
Bengali : Jowar
Gujarati : Jowari, Juar
Hindi : Jowari, Juar
Kannada : Jola
Marathi : Jowari, Jondhala
Odia : Joara, Jona
Punjabi : Jowar
Tamil : Cholam
Telugu : Jonna



English : Little Millet
Bengali : Sama
Gujarati : Gajro; Kuri
Hindi : Kutki, Shavan
Kannada : Same, Save
Marathi : Sava, Halvi, Vari
Odia : Suan, Gurji, Koshla
Punjabi : Swank
Tamil : Samai
Telugu : Samalu



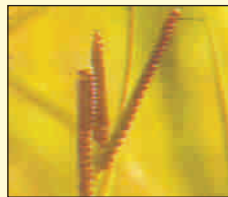
English : Finger Millet
Bengali : Marwa
Gujarati : Nagli, Bavto
Hindi : Ragi, Mandika, Marwah
Kannada : Ragi
Marathi : Nagli, Nachni
Odia : Mandia
Punjabi : Mandhuka, Mandhal
Tamil : Keppai, Ragi, Kelvaragu
Telugu : Ragi Chodi



**English : Spiked Millet/ Pearl
Millet**
Bengali : Bajra
Gujarati : Bajri
Hindi : Bajra
Kannada : Sajje
Marathi : Bajri
Odia : Bajra
Punjabi : Bajra
Tamil : Kambu
Telugu : Sajja



English : Barnyard Millet
Bengali : Shyama
Hindi : Sanwa
Kannada : Oodalu
Odia : Khira/Kheera, Bilasuan
Punjabi : Swank
Tamil : Kuthiraivolly
Telugu : Udal, Kodisama



English : Kodo Millet
Bengali : Kodo
Gujarati : Kodra
Hindi : Kodon
Kannada : Harka
Marathi : Kodra
Odia : Kodua, Kodo
Punjabi : Kodra
Tamil : Varagu
Telugu : Arikelu, Arika



English : Common Millet / Proso Millet
Bengali : Cheena
Gujarati : Cheno
Hindi : Chena, Barri
Kannada : Baragu
Marathi : Vari
Odia : China, Bachari, Bagmu
Punjabi : Cheena
Tamil : Pani varagu
Telugu : Variga



FOXTAIL MILLET

Its Sanskrit name is Kangu dhanya and we shall also call it Kangu. Modern analysis has found this grain very rich in proteins and minerals (particularly iron) compared to other millets. It also contains sufficient Vitamin B-1 & B-2. It provides energy & strength to the body, keeps the digestive system healthy, and also promotes blood formation.

It imparts heat to the body. There is a belief that if you have fever, then consume some Kangu porridge and sleep under the blanket. The fever will go by the time you wake up (DDS, *Making Merry With Millets*).

KANGU PAKODA

Ingredients:

Gram flour : 250 gm
Kangu flour : 500 gm
Cumin seeds : 10 gm
Chili powder : 25 gm
Baking powder : a pinch
Salt to taste
Cooking oil : 500 ml
(minimum requirement 250 ml)



Method of preparation:

Mix all kinds of flour arranged and sieve well to get the fine powder. Add salt, baking powder, chili powder, and cumin seeds to that. Then add water to make the necessary batter, and put small lumps of this batter in the heated oil. Fry the lumps till they turn light brown, and then collect to serve with chutney or sauce.



KANGU DOSA

Ingredients:

Gram (chana dal)	: 2 tablespoonfuls
Kangu grains	: 2 glassfuls
Blackgram(white)	: 1 glassfuls
Fenugreek powder	: a pinch
Salt	to taste
Cooking oil	: 250 ml

Method of preparation:

Soak the clean chana dal and black gram separately for 4 hours and grind the same separately. While soaking kangu, add the fenugreek powder and after 4 hours grind separately. Now mix all the three batters well, and after adding salt to the same leave overnight for fermentation. Next morning add necessary water to that and prepare dosa from the same by spreading thin a large scoop of this batter on a heated large frying pan after putting some oil on the pan.

KANGU VADA

Ingredients:

Blackgram(white) : 250 gm

Kangu : 500 gm

Rava suji(semolina): 2 cupfuls

Coconut : 25 gm

Ginger : 25 gm

Salt to taste

Cooking oil : 500 ml

Curry leaves, coriander leaves, and
green chili: as per taste



Method of preparation:

Soak the kangu and black gram separately for 3-4 hours and grind the same separately to make a coarse batter. Mix them well and mix the finely chopped coconut, leaves, and chili alongwith salt & suji with this mixed batter. Heat oil in a frying pan and deep fry little scoops of this batter till the colour becomes golden brown. This vada can also be used to make *dahi-vada*.

Suji helps to make the vada little crispy. One can replace foxtail millet with ragi for *ragi vada*. Little baking soda can also be added to the batter.

KANGU MURKU

Murku is a crunchy, twisted snack prepared by frying the preferred batter. Usually rice flour and gram flour are used to make this batter, but kangu can also be used for this purpose, as described below:



Ingredients:

Gram flour	: 250 gm
Kangu flour	: 500 gm
Cumin seed	: 10 gm
Chilli powder (optional)	: 25 gm
Sesame seeds (preferably white)	: 25 gm
Salt to taste	
Cooking oil	: 500 ml

Method of preparation:

Mix well the foxtail millet flour with gram flour, and then sieve well the same so as to remove the coarse particles. Add cumin seed, sesame, chili powder, and salt to the same and mix well. Add about 50 ml hot oil to this mixture and mix well again. Then prepare a stiff dough of the same by adding hot water. Now make murkus from this dough by using a murku-maker, and deep fry the same till they turn brown.

KANGU KHICHDI

Ingredients:

Kangu : 500 gm
Mung Dal : 100 gm
Water : 2 litres
Some leafy- and
green vegetables : 50 gm
Onion : 25 gm
Green gram(mung dal): 250 gm
Salt & green chili to taste
Seasoning seeds (mustard & cumin
seeds), curry leaves, ginger-garlic
paste, and some oil (ghee will also
do)

Method of preparation:

Chop the greens (vegetables) finely alongwith onion and chilies separately. Wash Foxtail millet and mung dal separately so as to remove impurities in them. Soak the mung dal for about 30 minutes.

Now heat the oil on a big frying pan (or vessel) and put seasoning seeds, curry leaves, ginger-garlic paste, and chopped onion as well as vegetables. Saute a little after mixing the same, add the soaked mung dal to it, mix well and saute for few minutes. Then add 2 litres of water alongwith salt, cover the pan with a lid and allow to boil for few minutes again. Then remove the lid, add & mix the soaked kangu, and leave again for few minutes for boiling under a lid. Cook the same under a steady fire to attain a firm consistency. Now the khichdi is ready. Foxtail Millet can be replaced by Little Millet to make such khichdi.





KANGU UPMA

Ingredients:

Kangu	: 500 gm
Bengal gram(chana dal):	5 gm
Red gram (Arhar dal)	: 5 gm
Onion	: 25 gm
Red chili (dry)	: 5 gm
Mustard	: 1 spoonful
Oil	: 75 gm
Salt to taste	
Curry leaves (optional):	a little

Method of preparation:

Dehusk the Foxtail millet and make it free from impurities. Heat some oil on a deep frying pan, and then fry mustard in it followed by finely chopped onion & chili(whole), for few seconds alongwith curry leaves(if available). Then put both the dals into it, stir well and fry a little after which add water and leave to boil for some time. Then put Foxtail millet alongwith the salt, stir well, and leave for boiling again till the grains become soft enough to eat. The upma is now ready.

KANGU CHOCOLATE

Ingredients:

Kangu flour: 1/4th of a cup (one can replace kangu with ragi flour or soan flour too)

Dark chocolate available

in the market : 150 gm

Red gram (Arhar dal) : 5 gm

Onion : 25 gm

Hard butter : 1 spoonful

Cashew nuts or

almonds : 1/4th of a cup

Instant coffee : a pinch



Method of preparation:

Roast the Foxtail millet flour for 2 minutes in a pan and keep separate. Heat the finely cut pieces of the nuts for about 30 seconds in a microwave oven and keep aside. Now make small pieces of the dark chocolate, and leave the same in a pot inside the oven after adding the coffee granules and butter, so as to melt. Once the liquid is ready, remove the pot from the oven, add the Foxtail millet flour and nut-pieces to the same when hot, and stir well. Now pour this mixture in the chocolate-making-mould or little cups/pots and keep refrigerated for few minutes so that the mixture assumes a solid form to make chocolates. If the taste is not so palatable, then quantity of kangu flour can be reduced or some palatable material such as Amul powder may be added to the mixture.



LITTLE MILLET

It is known as *shyamaka* or *shyamala* in Sanskrit. We shall call it *soan* for our convenience here, based on its popular local name in Odisha.

It is the opposite of kangu in the sense that it keeps the body cool, and hence is quite useful in summer. However, soan too is rich in protein, minerals, and fibre. It is a good option for those who want to avoid fatty foods. It is also useful for diabetic patients because of its capacity to control blood sugar.

Ayurveda says it counters phlegm & bile, but may lead to rheumatic problems.

SOAN PORRIDGE (KHEER)

Ingredients:

Soan flour	: 500 gm
Water	: 3 litres
Jaggery	: 500 gm
Fennel seeds (preferably fine)	: 50 gm
Copra	: 100 gm
Nuts (may be cashew, almonds, or the like)	: 100 gm
Salt to taste	



Method of preparation:

Roast the nuts properly and powder the little millet (soan). Mix powdered fennel seeds with that. Now mix the jaggery well in 1 litre water, and keep the solution aside after adding & mixing the salt.

Take a big vessel and boil 2 litres of water in that. Put the soan flour in that slowly in phases while stirring well continuously so as to avoid formation of lumps. Then add the jaggery solution to that, stir well again, and leave on a slow fire for few minutes. Now the kheer is ready for adding the powdered mixture of nuts & fennel seeds. Mix this powder well and serve.

Bay leaf can be added while boiling the little millet flour or even at the time of adding jaggery solution. Pure ghee can be added after the kheer is ready for a better flavor.

SOAN IDLI



Ingredients:

Soan grains	: 2 glassfuls
Blackgram(white)	: 1 glassful
Salt to taste	

Method of preparation:

Clean/wash the little millet and blackgram separately, and soak for 4 hours in separate vessels. Then grind them well separately, mix together, add the salt, and leave overnight for fermentation. Next morning mix the batter again, and using an Idli-maker steam for about 20 minutes to make the Idli.

A little baking powder may be mixed with the Idli batter so as to make it softer. Some people have also used ENO powder as a substitute for this purpose though regular use of such softening agents is not healthy and advisable.

SOAN CUTLET

Ingredients:

Cooked soan : 1 cup
(it can be substituted with kodo millet or barnyard millet)
Oil : 2 table-spoons
Chopped onion : 1/3rd of a cup
Chopped garlic : 2 table-spoons
Green chili : 1 piece (chopped)
Finely chopped ginger : 1 table-spoon
Finely grated carrot : half cup
Turmeric powder : a pinch
Linseed
(Flaxseed/Alsi) powder : one & half cup
Curd : 2 table-spoons
Finely chopped
coriander leaves : 2 table-spoons
Salt and black-pepper
powder : to taste
A little oil for frying



Method of preparation:

First let us understand how to prepare cooked 'rice' from millets. Millets like soan and kodo, etc. are to be cleaned & washed well followed by boiling in water three times in quantity. When it boils, slow down the fire and put the vessel under a lid for 10 minutes. Then turn off the gas stove and leave the product for 20 minutes. Now it's ready, and can be used like boiled rice alongwith other foods to eat.

Coming to the cutlet, mix the linseed power with the curd and keep aside. Alternatively, one can take an egg for this.

Heat little oil in a deep frying pan, and fry the chopped onion, chili, garlic, and ginger in the 1st phase. When the onion starts looking transparent, put grated carrot, salt, black-pepper powder, and turmeric powder in it, stir well, and covering with a lid leave to cook under a slow fire. Monitor regularly in phases by removing the lid and sprinkling some water to the mixture being cooked so as to soften the carrot. Once it softens, put the cooked little millet alongwith coriander leaves and mix well in the pan. Then leave it to be cooked for few seconds. Now add either an egg (the liquid inside it) or the linseed-curd mixture depending upon your choice to be a vegetarian or not, stir well, and leave to cool it down so as to be handled comfortably. Now use this little millet to make cutlets and fry in the heated oil in the pan till the colour turns golden brown. Now it's ready to serve with sauce.

The background of the slide features a close-up photograph of Pearl Millet (Bajra) plants. The image shows numerous green, elongated seed heads (panicles) growing from the plants, which are densely packed and fill the upper and lower portions of the frame. The lighting is bright, highlighting the texture of the grain heads.

PEARL MILLET

Bajra, called Vajra or Varjari in Sanskrit, contains sufficient Beta-Carotene, the micro-nutrient which is otherwise available in capsular form for consumption by health-conscious people. It is not only nutritious, but is also cooling and energetic for the body. Its grains are bigger in size than most millet-grains, and this gives an advantage to make puffed Bajra.



BAJRA RICE

Ingredients:

Bajra	: ½ cup
Water	: 1 ½ cup
Salt to taste	

Method of preparation:

First decide what to use for cooking the Bajra rice. It is easier if a pressure cooker is used. If a vessel is to be used, then that will require little more efforts.

Clean the dehusked Bajra well, and fry on a dry pan by stirring repeatedly till it is hot enough to touch. Then collect the same in a pot, wash properly with water, and leave aside for 15-20 minutes after removing the water.

Put the Bajra grains in the pressure cooker alongwith 1 ½ cup water, and cook till you get three whistles. Medium fire is preferable for this.

If it is a vessel, then first crush the washed Bajra to make coarse flakes. Boil 2 cups of water in the vessel, and put the flakes in the same. Leave to be cooked on a medium fire with stirring at regular intervals.

Add salt while adding the Bajra to water, if required. You can also add chopped green vegetables to the same.

BAJRA PURI

Ingredients:

Bajra flour	: 1 kg
Gram flour	: 2 cups
Sesame seeds	: 50 gm
Carom seeds (Ajwain)	: 20 gm
Chili powder(optional)	: 50 gm
Oil	: 750 ml
Salt to taste	



Method of preparation:

Mix the two flours and sieve well so as to remove the coarse grains. Add the carom seed, sesame seed, sal, and chili powder to that and mix well again. Then add hot water to this mixture so as to make the dough and make puris out of it as usual.



BAJRA SATTU

Ingredients:

Bajra	: 50 gm
Green gram dal (mung dal)	: 20 gm
Sesame seeds	: 10 gm
Sugar (preferably Patanjali Bura sugar):	20 gm

Method of preparation:

Clean the Bajra and after dehusking fry dry followed by pounding to make a powder. Dry-fry sesame seeds and green gram(dal) separately and powder the same. Mix all these powders well along with sugar powder, keep in an air-tight bottle or jar. This pearl millet-mix can serve as a nutritious *sattu* (fried-grain flour) to be eaten with milk or water. Jowar *sattu* can be prepared in the same way. One can substitute chana dal for mung dal, and can add other ingredients like Patanjali Whole Milk Powder (with no added sugar) for better taste. Adding milk powder makes it eatable with water and also convenient to use while traveling. Non-diabetic people can add common milk powders like that from Amul. Skimmed milk powder doesn't have added sugar, but is tasteless; so not preferable.

GREAT MILLET

Sorghum is an easily digestible food ingredient enriched in protein, iron, calcium, and energy. It is known as *Jaba dhanya* in Sanskrit. Ayurveda says it is energetic and cooling for the body, but increases the formation of gas & stool.

We shall call it Jowar for convenience.





JOWAR FLAT CAKE

Ingredients:

Sorghum flour : 250 gm

Jaggery : 125 gm

Oil and water : as required

Method of preparation:

Prepare the jaggery solution by dissolving it in normal water or boiling in water. If impurities like dust particles are deposited at the bottom of the vessel, then carefully strain the solution. Then add this solution in required quantity to a vessel containing the Sorghum flour so as to prepare a dense batter. Take big scoop of this batter and spread on the oiled surface of the pan (as in case of making omelet) so as to make the flat cake known as *chakuli pitha* in Odisha. Kangu and ragi can be used similarly to make flat cakes.

JOWAR LADDU

Ingredients:

Puffed Sorghum : 1 kg
Jaggery : 750 gm
Cardamom powder : 10 gm
Water: as required



Method of preparation:

Clean & wash the sorghum grains properly and soak overnight. Strain next morning and shade-dry for about 30 minutes. Dry-fry in a hot pan (preferably a *kadai*) to make sorghum pops in 5 minutes.

Dissolve jaggery in water, strain the solution in case impurities are found; and then boil this solution on a low fire for about 20 minutes with continuous stirring. When it becomes sticky, bring down the pot from the stove and add the sorghum pops alongwith cardamom powder with continuous stirring so as to make a mix that is dense enough to put into the laddu shape. Then take little oil in the hand and make your palm oily with that so as the make the laddus conveniently.

FINGER MILLET

The name ragi is recognized in Sanskrit which also calls it *manda*. Finger millet is the key to the millet world and also the brand ambassador for the same. It has been an essential part of the tribal identity for millennia, playing a central role in their food culture and even socio-religious and socio-economic practices.

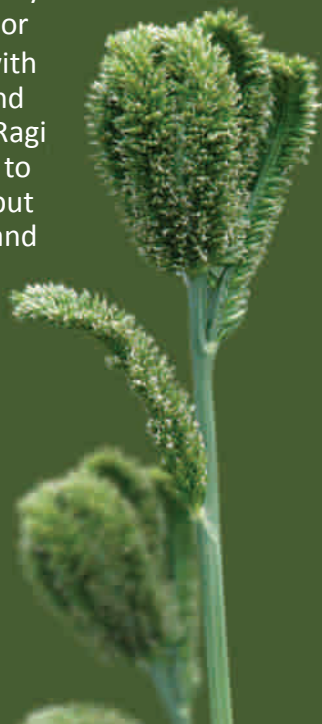
Ayurveda finds this millet very useful in the sense that it helps to counter the problems caused due to the imbalance of all the three vital components of the health system: *vata*, *pitta*, and *kapha*. It is also a blood-purifier, energetic, and cooling for the body.

Modern research has found it very rich in calcium. Also good amounts of minerals and fibres are found in ragi which is easily digestible.

A study by Bikash Rath for RCDC has found that many indigenous ragi-based recipes in the tribal areas of Odisha have either degenerated completely or but rarely used now.

This study has highlighted how some of these tribal recipes actually corresponded to the concept of the modern soup. For instance, *ambidi* or *amlia* is a product for which a paste of chili, garlic, and onion is mixed with that of some leguminous grain (like pigeon pea) along with some tamarind extract (or tomato extract) as well as salt, and allowed to boil in water. Ragi flour is then added slowly to this solution with continuous stirring so as to prevent formation of lumps. Since the purpose is not to make a dough but to prepare a soup hence the quantity of ragi flour is taken accordingly, and after boiling for few more minutes the product is left for cooling for consumption as a soup. There is another traditional recipe in which a soup of ragi, rice, and various pulses & beans is prepared making it highly proteinous. *Landa* on the other hand is fermented product from sprouted ragi (Ragi: A Rediscovery, 2015, RCDC, Bhubaneswar).

Ragi is the major millet in the central-Indian and southern states. It has several indigenous varieties too some of which are no more available.



RAGI IDLI

Ingredients:

Idli rice (or sunned rice)	: 1 cup
Blackgram (white)	: 1 cup
Finger millet flour	: 2 cups
Fenugreek seeds	: ½ spoon
Salt to taste	



Method of preparation:

Clean/wash the rice, soak for 4-5 hours, and then adding some water grind to a slightly coarse batter. Wash the blackgram separately and soak with fenugreek seeds for about 4 hours followed by wet-grinding to a soft & fine batter.

Now mix the two alongwith the salt as well as the finger millet flour, and then use a mixer-grinder to ensure that all ingredients in this ragi-mixed batter are thoroughly mixed. Take care that the new batter should be neither too thick nor too thin. Collect this batter in a big vessel and use both hands to manually mix it further. Then leave to ferment for 7-8 hours. It is to be noted here that after fermentation the volume almost doubles, hence the vessel to be used should be chosen accordingly. The fermented batter is to be used in an Idli- maker to make the idlis.

Semolina can be substituted for rice flour. In that case, ragi flour 1 cup, semolina 1 cup, ½ cup wheat flour, and a little curd can be mixed to prepare an idli batter.



RAGI LADDU

Ingredients:

Finger millet flour	: 250 gm
Jaggery	: 125 gm
Ghee/oil	: 4 spoonfuls
Cashew/almonds	: as per requirement

Method of preparation:

Take a thick-plated kadai (or deep frying pan) and dry-fry the finger millet flour in it till the aroma comes. Add the crushed/powdered jaggery(dry) to it and mix thoroughly followed by adding the ghee/oil as well as the nuts. Stir properly to prepare a good mix. The jaggery will melt making the mixture sticky. Now take little oil/ghee in the hand and make your palm oily with that so as to make the laddus conveniently.

To ensure that the mixture becomes properly sticky, more jaggery can also be added if necessary. The laddu thus prepared can be preserved well for about two weeks in an air-tight container since no water is added.

RAGI HALWA

Ingredients:

Finger millet flour	: 500 gm
Water	: 3 litres
Jaggery	: 500 gm
Fennel seeds	: 50 gm
Nuts(cashew/almonds):	50 gm
Ghee/oil	: as required
Copra	: 100 gm
Cardamom seed powder:	a pinch



Method of preparation:

Dry-fry or roast the nuts and then make a powder of that. Also powder the fennel seeds. Crush the jaggery, dissolve in 1 litre water and strain to remove impurities.

Heat the ghee in the pan and saute the finger millet flour with that for 5 minutes. Then boil 2 litres of water in a big vessel, and slowly add the sauteed finger millet flour with continuous stirring so as to prevent formation of lumps. Then add the jaggery solution alongwith fennel seed powder, nut powder, cardamom powder and small pieces of the copra; stir properly, and cook on low fire for few minutes. Then let it cool sufficiently and serve. Jaggery can be substituted with sugar(200 gm) whereas in place of 500 gm finger millet flour semolina 250 gm and equal quantity of finger millet flour can also be used. Nuts can be used in their original form too.



RAGI ROTI

Ingredients:

Finger millet flour : 500 gm

Water : as per requirement

Method of preparation:

Make a soft dough of the finger millet flour, and knead the same into lemon-size balls. Sprinkle some ragi flour on a wooden board, put a ragi ball on it, gently press the same, and pat into a round roti. Please note that the dough quality of wheat flour should not be expected from the finger millet flour, and hence caution should be exercised. In case the ragi-flour is too inconvenient to use, then a blending with wheat-flour and/or bajra/jowar flour can be used to make the dough. It is because of this limitation that instead of rolling the ragi-ball to the shape of a roti, one has to pat it rather. Put the roti on a heated iron pan with even flame, and after it starts getting roasted sprinkle some water over the roti and continue roasting both sides till it is ready to eat.

While making the dough chopped green vegetables can be mixed or sugar/jaggery can also be mixed to change the taste.

¹The dough-quality of wheat flour is due to its gluten (related to the term 'glue') content which makes it elastic and also convenient to be used in bread-making. Millets on the other hand lack gluten which is why they can't make that kind of dough. To make use of millets in bread-making for their nutritional advantages as well as gluten-free nature, blending with wheat flour is required which can at best be 20% or so (millet flour : wheat flour should be 2:8) unless gluten is artificially added. Without adding gluten the blending proportion can't be increased for millets as that would substantially affect the dough quality adversely. Such a blend is called 'composite flour'. (Singh & Mishra, Millet-Wheat Composite Flours for Bread, *Journal of Ready to Eat Food*, April-June 2014, http://jakraya.com/journal/pdf/2-jrefArticle_2.pdf). It may be mentioned here that gluten is a natural protein found in wheat and many other crops, and most people have no problem with it; but few are allergic to gluten and are advised to adopt gluten-free diet like that from millets.

RAGI BISCUIT

Ingredients:

Finger millet flour	: ½ cup
Wheat flour	: ½ cup
Powdered sugar	: ½ cup
Table-butter(refrigerated)	: Little less than ½ cup
Baking powder	: 1 spoonful
Vanilla essence	: 1 spoonful
Milk	: 2 table -spoonfuls



Method of preparation:

Dry-fry the finger millet flour till the aroma emerges, and then leave to cool. Now mix wheat flour and baking powder with this finger millet flour properly, and sieve to remove the coarse particles. The table-butter is to be finely sliced or grated, and the slices are to be mixed with the ragi-mixed flour manually by rubbing between the palms till the consistency is attained. Rubbing with finger tips is more preferable as palm-rubbing may impart more heat causing the butter to melt. Now mix the sugar-powder and Vanilla essence(alternatively cardamom powder) with that followed by milk so as to make a soft dough, and refrigerate it for 15-20 minutes.

Sprinkle some wheat flour on a wooden board or steel plate, put the refrigerated dough on it, and roll upto a medium thickness (neither thin nor thick). Then make pieces of it with the desired shape of your chocolate. Like, by pressing the bottle-caps circular shapes can be created. Designs can be made on these shapes by gently pressing a fork or the like. You can also use a biscuit-maker for this purpose after applying little butter on the moulds (if necessary).

These raw biscuits can be baked in many ways: in a pressure cooker(without putting the whistle), in a microwave oven, and so on. Microwave oven may be quite convenient for many, but it has to be preheated upto 180 degree for about 15 minutes first. After the preheating is over(the timer automatically stops), put the raw biscuits in a tray and place inside the oven for baking. Heat the oven again upto 180 degree for 20-25 minutes. When the biscuits assume a brown colour, stop baking and allow them to cool. Storing in an airtight container can keep its quality intact for about 5-6 days. Other millets can also be used for making biscuits in a similar manner.

RAGI SOUP

Ingredients:

Finger millet flour (finely sieved)	: 2 tablespoonfuls
Table-butter	: 1 spoonful
Beet	: 4-5 Nos.
Carrot	: 1 (small)
Boiled green peas	: 1 tablespoonful
Capsicum	: 1/4 th
Powdered sugar	: a pinch
Black pepper powder, salt, and finely chopped coriander leaf	: to taste



Method of preparation:

Chop the vegetables (excluding peas) finely, and then saute on a pan with little butter, one by one with a gap of 1 minute each. This should be followed by frying (without adding any more oil or butter) the vegetables till they become crispy. Now add the boiled peas, salt, and a cup of water and boil for a minute.

In the meantime take 2 tablespoon water in a big cup, mix the finger millet flour with that, and slowly pour this solution into the vessel boiling the vegetables with continuous but slow stirring. After two minutes add the black pepper powder to the soup thus prepared and garnish with coriander leaves to serve..



RAGI VITA

Ingredients:

Finger millet flour (finely sieved)	: 4 tablespoonfuls
Boiled milk	: 2 cups
Water	: ½ cup
Sugar	: 2 spoonfuls
Cardamom powder	: ½ spoonful
Powder of almonds or cashew	: 1 tablespoonful

Method of preparation:

This has been adapted from Sharmilee J.'s Badam-Ragi-Malt Recipe, but because it looks like the energy drink Bournvita hence we have named it Ragi-vita.

Dry-fry the finger millet flour till the aroma emerges. Take ½ cup milk and properly mix 1 tablespoon of this flour with that. Keep it aside. Now boil rest of the milk, add to it sugar as well as the ragi-milk solution(kept in the cup) alongwith ½ cup water with stirring so as to avoid lump formation. When it becomes a little denser, mix the cardamom powder and nut-powder(almonds/cashew) and serve.

Otherwise, prepare any popular energy drink and mix some ragi flour with that so as to prepare an easy-to-make Ragi-vita.

RAGI ARISHA

Arisha is a traditional and popular pancake of Odisha made from rice flour & jaggery. It can be preserved as a dry food for many days.

Ingredients:

Finger millet flour	: 500 gm
Rice(sunned) flour	: 200 gm
Almonds/cashew(chopped)	: 100 gm
Jaggery/sugar	: 500 gm
Black pepper powder	: 10 gm
Oil	: ½ litre



Method of preparation:

Boil the sugar/jaggery in some water till the solution becomes sticky to touch. Keep it boiling on slow fire, and then mix the finger millet flour, rice flour, almonds/cashew pieces, and black pepper powder thoroughly in this syrup by putting them one by one, or mixing all before adding to the syrup. Adding slowly alongwith stirring helps prevent lump formation whereas mixing all the ingredients(except sugar/jaggery) before adding to the syrup is convenient.

Now turn off the gas, and let the mixture cool a little so that small balls can be pinched out of it without risk. Then make the palms oily, take a ball, and make it flat (like a cookie). Continue the process till the whole mixture is used.

Heat oil in a deep frying pan or kadai, and fry the arisha cakes(both sides) therein till the colour changes to deep brown. Excess frying may make it darker and unpleasant to taste, so care needs to be taken.



RAGI NAMKEEN

Ingredients:

Finger millet flour	: 500 gm
Rice(sunned) flour	: 100 gm
Gram flour	: 100 gm
Ground nut	: 200 gm
Black pepper powder	: 25 gm
Asafoetida (Hing)	: a pinch
Oil	: ½ litre
Salt to taste	

Method of preparation:

Mix all kinds of flour first, and adding some water prepare a thick batter of the same. Mix hing, salt, and black pepper powder well in that batter.

Heat oil in a deep frying pan or kadai, and make sev (small pieces of crunchy noodles) from the batter using a sev-maker. Pressing the batter in the sev-maker over the heated oil will release the raw noodles which will then be fried. Also fry the ground nuts separately. Then mix the fried ground nuts with the sev to make the namkeen. One can add more ingredients like fried chana dal to enrich the mixture.

A close-up photograph of Indian Barnyard Millet (Echinochloa polystachya) against a blurred green background. The image shows several green, elongated seed heads (panicles) with small, light-colored grains. The stems are thin and green. The lighting is bright, highlighting the texture of the grains.

INDIAN BARNYARD MILLET

This variety of millet seems to be corresponding to what is known in Sanskrit as *uddala*, *avipriya*, and *trunavija*. Its special advantage lies in the fact that it blends easily in any composite food, that too without affecting the taste in any way. Thus it can be termed as a relatively 'safe' millet so far palatability is concerned in a recipe that has something else as the major ingredient and wants to use the millet only for its nutritional advantage.

This millet is said to be beneficial for patients of heart, diabetes, and obesity. Ayurveda says that it is easily digestible; cooling & energetic for the body; stimulates digestive fire and also counters bile & phlegm, but can cause rheumatism.

For our convenience we shall term it as kheera here.

KHEERA - MUSHROOM BIRYANI

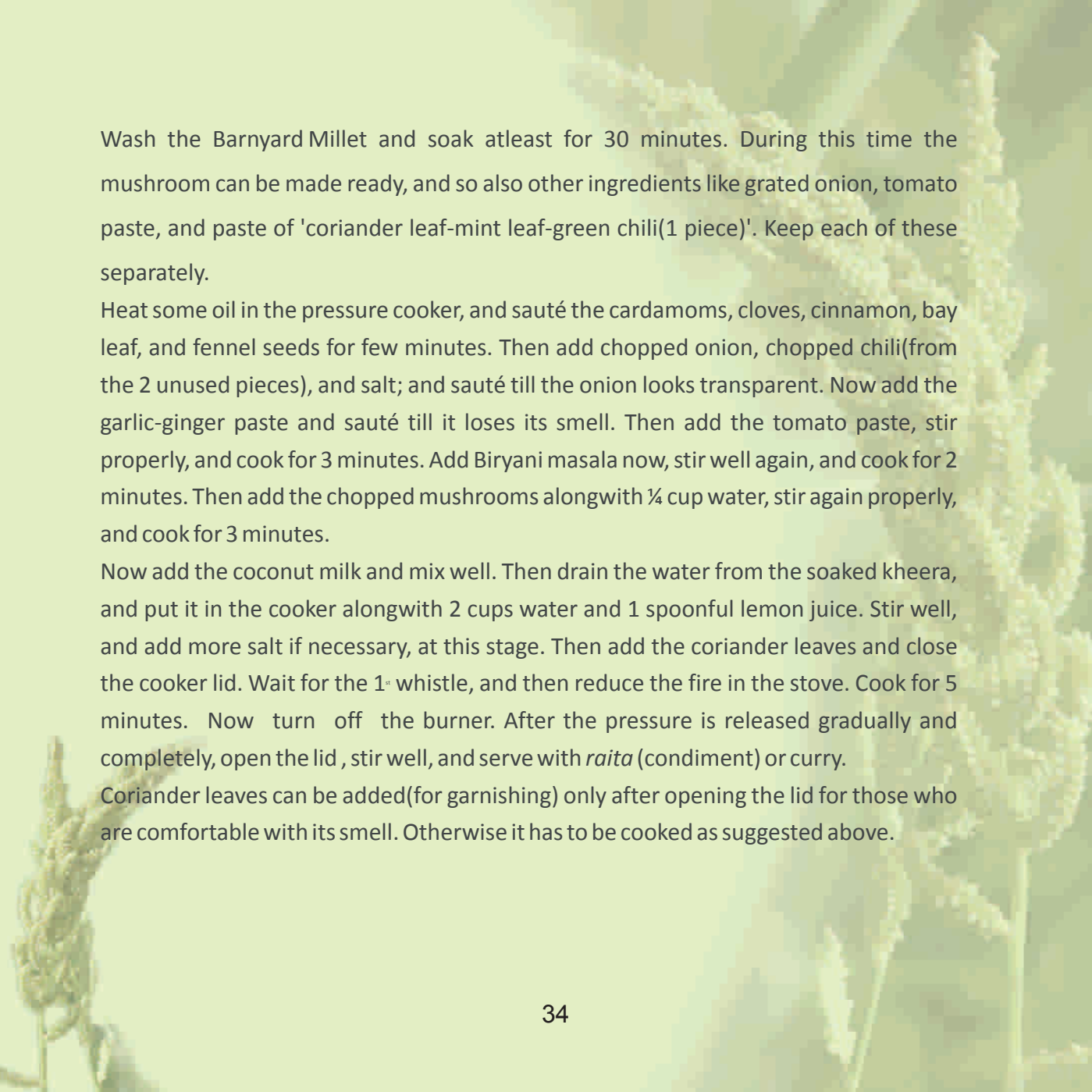
Ingredients:

Barnyard Millet	: 1 cup
Mushroom	: 200 gm
Onion (Big)	: 1
Tomato	: 2
Garlic-ginger paste	: 2 spoonfuls
Coriander leaves	: ¼ cup
Mint leaves	: ¼ cup
Green chili	: 3
Coconut milk	: 1 cup
Lemon juice	: 1 spoonful
Biryani masala (spice)	: 1 tablespoon
Water	: 2 cups + 1/4 th cup (for mushroom)
Salt	: to taste
Oil	: 3 tablespoonfuls
Cinnamon	: 1 flake
Fennel seeds	: ½ cup
Cardamom(whole)	: 3
Cloves	: 4
Bay leaf	: 1

Method of preparation:

Peel the mushroom, and keep in turmeric(a pinch)-mixed water for some minutes. This helps in a number of ways, like removing finer impurities. Collect it from the water, and chop properly followed by sauteing in a pan. This is better than the raw mushroom though the latter can also be just washed and chopped to add.



The background of the page is a soft-focus photograph of Barnyard Millet stalks. The stalks are light green and yellowish, with small, round grains visible. They are arranged in a way that creates a sense of depth and texture, filling the entire background.

Wash the Barnyard Millet and soak atleast for 30 minutes. During this time the mushroom can be made ready, and so also other ingredients like grated onion, tomato paste, and paste of 'coriander leaf-mint leaf-green chili(1 piece)'. Keep each of these separately.

Heat some oil in the pressure cooker, and sauté the cardamoms, cloves, cinnamon, bay leaf, and fennel seeds for few minutes. Then add chopped onion, chopped chili(from the 2 unused pieces), and salt; and sauté till the onion looks transparent. Now add the garlic-ginger paste and sauté till it loses its smell. Then add the tomato paste, stir properly, and cook for 3 minutes. Add Biryani masala now, stir well again, and cook for 2 minutes. Then add the chopped mushrooms alongwith ¼ cup water, stir again properly, and cook for 3 minutes.

Now add the coconut milk and mix well. Then drain the water from the soaked kheera, and put it in the cooker alongwith 2 cups water and 1 spoonful lemon juice. Stir well, and add more salt if necessary, at this stage. Then add the coriander leaves and close the cooker lid. Wait for the 1st whistle, and then reduce the fire in the stove. Cook for 5 minutes. Now turn off the burner. After the pressure is released gradually and completely, open the lid , stir well, and serve with *raita* (condiment) or curry.

Coriander leaves can be added(for garnishing) only after opening the lid for those who are comfortable with its smell. Otherwise it has to be cooked as suggested above.

KHEERA - MUSHROOM- CHICKEN CURRY

This has been adapted from a western recipe 'Chicken, Millet, and Mushroom One Skillet Meal', with a revised list of ingredients so as to be acceptable to the Indian culture. Wine has been replaced with lemon juice though grape juice would be a better substitute. Even fruit vinegar can also be substituted. Some of the spices originally mentioned have also been substituted to suit the local conditions.

Ingredients:

Oil : 2 table-spoonfuls
Skinless chicken thigh pieces: 8 (one can try
with mutton too)
Big onion (to be chopped finely) : 1
Chopped garlic : 3 cloves
Button mushroom : 250 gm
(washed and chopped)
Barnyard Millet (well-washed): 1 cup
(other millets can be tried)
Chicken-curry masala, coriander leaves, mint
leaves, bay leaf, and salt : to taste
Lemon juice solution
(juice : water = 1:1) : ½ cup



Method of preparation:

Heat oil in the pan/kadai and cook the chicken adding salt & masala till the color becomes golden brown. Collect the cooked chicken separately.

Now put the chopped mushroom, Barnyard Millet, and chopped onion in the same pan/kadai, stir well, and sauté for 5 minutes. Then add chopped garlic and cook the mixture for 1 minute. Then add salt, curry masala, bay leaf and lemon juice along with necessary quantity of water so that the mixture will remain submerged. Stir well and leave for boiling. Then cover with the lid and reduce the fire. After 25 minutes open the lid, add the coriander leaves (curry leaves can be a substitute), stir slowly, and leave to cook for approximately 10 minutes more under the lid till the chicken is cooked well. It is now ready to serve.

One can take vegetables in place of mushroom, or can take only Barnyard Millet and chicken as major ingredients to make the curry.

Dr. Axe suggests to take coconut oil for cooking this item. If it is not possible to cook all the thighs at a time, then make it in phases. 1 tablespoon oil may do for 4 thigh pieces. One can even use other parts of the chicken in case thigh pieces are difficult to arrange.

MISCELLANEOUS

WHITE CHICKPEA SALAD WITH MILLETS



Ingredients:

Millets (Jowar/Soan/Bajra/Kangu: take any one)	: 1 cup
Olive oil	: 1 spoonful
Garlic (finely chopped)	: 2 cloves
White chickpeas(kabuli chana or chhole)	: 25 gm
Capsicum	: 1 (finely chopped)
Paneer: 1 cup(grated)	
Black pepper powder	: ½ spoon
Salt to taste	
Coriander leaves	: little

Method of preparation:

First prepare the millet-rice by cooking (see the procedure for soan cutlet). Then cook the chickpeas. Now heat little oil in the pan, and sauté the garlic and capsicum pieces. After 2 minutes add paneer, cooked millet, and cooked chickpeas; and mix thoroughly by stirring. Turn off the burner, then mix the pepper powder followed by garnishing with coriander leaves. Now it is ready to serve.

BEANS SALAD WITH MILLETS

Ingredients:

Milletts (Jowar/Soan
/Bajra/Kangu: take any one) : 1 cup
Olive oil : 1 spoonful
Carrot : 1 (grated)
Tomato : 1(chopped)
Red Kidney Beans
(*rajma*) : 15 gm
Garlic : 3 cloves(finely chopped)
Onion : 1 (finely chopped)
Lemon juice : 1 spoonful
Black pepper
powder : ½ spoon
Salt to taste
Coriander leaves: little



Method of preparation:

First prepare the millet-rice by cooking. Then cook the beans. Now heat little oil in the pan, and sauté the garlic, onion, tomato, and carrot. After 2 minutes add the cooked millet and cooked beans; and mix thoroughly by stirring. Turn off the burner, then mix the lemon juice and pepper powder followed by garnishing with coriander leaves. Now it is ready to serve.

MIXED SALAD WITH MILLETS

Ingredients:

Millets (Jowar/Soan/Bajra/Kangu:
take any one) : 2 cups
Carrot : 1 (grated)
Tomato : 1 (finely chopped)
Maize seeds : ½ cup
Cucumber : 1 (finely chopped/grated)
Capsicum : 1 (finely chopped)
Cashew nuts : few
Garlic clove : 1 (finely chopped)
Lemon juice : 1 spoonful
Black pepper
powder : ½ spoon
Olive oil : 1 spoonful
Salt to taste
Coriander leaves: little



Method of preparation:

Cook the millet-rice first. Then heat some oil in the Kadai/pan and saute' garlic, onion, tomato, carrot, capsicum, and maize seeds for few minutes. After the sauteing is over, put the millet-rice alongwith cucumber, cashew and lamon juice in the kadai and mix well. Now sprinkle the pepper powder followed by garnishing with coriander leaves to serve.

MILLETS SOUP

Ingredients:

Olive oil : 1 spoonful or as required
Onion : 1 (finely chopped)
Garlic cloves : 3 - 4 (finely chopped)
Bay leaves : 2

Millets (Kangu/Soan/Bajra/Jowar:
take any one) : 1 cup
Beans, carrot, maize seeds : 2 cups
(finely chopped)
Black pepper powder : ½ spoon

Salt to taste

Coriander leaves: 2 spoonful
(finely chopped)



Method of preparation:

It has three phases. In the 1st phase cook the millet rice and keep aside. In the 2nd phase boil the beans, carrot, and maize seeds and keep them separately. In the third phase heat some oil in a pan, saute bay leaves, garlic, and onion on low fire; then add tomato to that and saute for 2 minutes; and finally mix rest of the items (cooked-millet rice and boiled vegetables) with this properly, add some water & salt, and keep the mixture boiling for few minutes so as to make the soup. Then serve it with pepper powder (sprinkled) and coriander leaves.

CUCUMBER SALAD WITH MILLETS



Ingredients:

Millet (Jowar/ Soan
/Bajra/Kangu: take any one) : 2 cups
Olive oil : 1 spoonful
or as required
Cucumber : 1 (cut into thin circular
pieces)
Paneer : ½ cup (grated)
Onion : 1 (finely chopped)
Lemon juice : 2 spoonfuls
Black pepper
powder : ½ spoon
Salt to taste
Coriander leaves : little (chopped)

Method of preparation:

First prepare the millet-rice by cooking. Then take a vessel, and mix this rice with onion, paneer, cucumber, salt and the olive oil properly. Then dress the salad with lemon juice, sprinkle the black pepper powder, and garnish with coriander leaves. Now it is ready to serve.

Here olive oil is used more as a dressing material because of its special flavour, but if there is a preference to cook the onion first then that can also be done with some olive oil, as in the previous two recipes. Accordingly the total quantity of oil to be taken is to be decided. On the other hand, pepper powder can be mixed with the item instead of just sprinkling over it.

PALAK PARATHA WITH MILLETS

Ingredients:

Spinach(palak) : 1 bundle
(as available in the local market)

Millet(Ragi/Kangu/Bajra/Soan) flour : 2 cups

Oil/butter: as required

Salt to taste



Method of preparation:

First discard the roots as well as the unsuitable leaves from the palak bundle, then wash the leaves properly followed by chopping finely. The chopped leaves are to be boiled for 5 minutes with some water followed by grinding to make a paste.

Now take the millet flour alongwith the palak paste and salt with little water, and knead to make a dough. Pinch small balls from this dough, press the ball gently, and pat into the roti shape. Please note that this is not exactly the kind of dough wheat flour can make, so rolling into the roti or paratha shape is hardly possible unless you add adequate quantity of wheat flour to it. The roti is to be baked on a *tava*(iron pan) with oil or butter to make the paratha.

One can substitute mint leaves for spinach, in case so preferred though the taste would vary substantially.

ALOO PARATHA WITH MILLETS

Ingredients:

Potato : 2
Millet (Ragi/Kangu/Bajra/Jowar/Soan:
take any one) flour : 2 cups
Onion paste : 1 spoonful
Garlic paste : 1 spoonful
Ginger paste : 1 spoonful
Oil : as required
Coriander leaves : little
Salt to taste
Green chili : 1 (finely chopped)
Garam masala powder, turmeric powder,
cumin seeds : a pinch

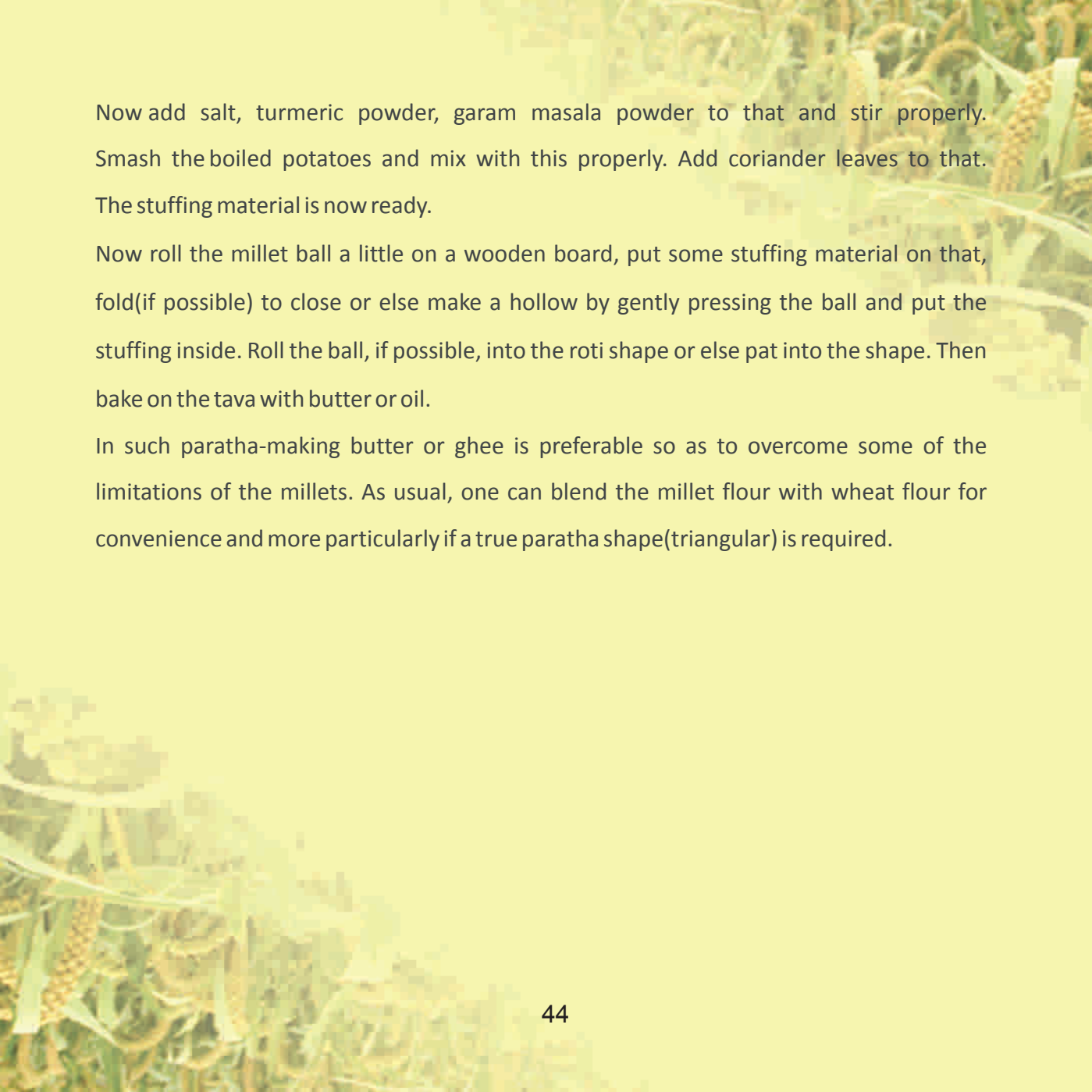


Method of preparation:

First wash the potatoes followed by boiling and peeling. Keep aside.

Make a dough of millet flour with salt and water. Prepare small balls of this dough.

Heat oil in a pan and sauté the chili with cumin seeds first. After a minute add garlic- & ginger paste and continue sautéing. After another minute repeat the process for onion.



Now add salt, turmeric powder, garam masala powder to that and stir properly. Smash the boiled potatoes and mix with this properly. Add coriander leaves to that. The stuffing material is now ready.

Now roll the millet ball a little on a wooden board, put some stuffing material on that, fold(if possible) to close or else make a hollow by gently pressing the ball and put the stuffing inside. Roll the ball, if possible, into the roti shape or else pat into the shape. Then bake on the tava with butter or oil.

In such paratha-making butter or ghee is preferable so as to overcome some of the limitations of the millets. As usual, one can blend the millet flour with wheat flour for convenience and more particularly if a true paratha shape(triangular) is required.

THE MILLET TRADITION: GLIMPSES OF THE RAGI DYNAMICS

(In this complementary page created especially for this book, Bikash Rath has presented a photo feature on various aspects of the traditional ragi-related dynamics in southern Odisha based on his professional exposures courtesy RCDC and NIRMAN. This dynamics is more or less the same or similar for many other millets.)



Top: Different indigenous varieties of ragi earheads (raw crop)

Middle: Different varieties of indigenous ragi (grains)

Bottom(left to right): Winnowing, dehushing, dry-grinding, and *mandesimba*: a traditional ragi-based soupy gruel

SOME USEFUL TIPS

1. The recipes given in this publication are basically intended to popularize millets by making them more palatable and adaptable in the modern life style. You can however change the specified proportion of ingredients in any particular recipe as per your own preference and/or interest. For instance, the proportion of wheat flour and ragi flour in making chapatti can be 5:1, 5:1.5, and so on.
2. The specified proportion suggests only the preferable ratio of various ingredients and not exactly the quantity of each of the same. So one can increase the quantity by maintaining the specified ratio.
3. Spoonful should refer normally to the teaspoon unless the table-spoon is mentioned, but one can still consider a little more based on one's preferences. Similarly, cup-measure or glass-measure should respectively refer to the standard tea cup or glass commonly used though in this case too the preference can determine the actual quantity to be taken without adversely manipulating the proportion ultimately.
4. Wheat flour should normally mean 'whole wheat flour'.
5. The recipes provided are only indicative, and we encourage our readers to be innovative by thinking and trying beyond these indicative recipes.
6. Each millet has its own limitations & advantages according to which one has to take precautions while cooking the same. For instance, when boiled too much ragi would assume a flabby form which may create some problem for a particular recipe whereas it may be useful for a different recipe. Ragi imparts a chocolate colour to wheat flour which can be useful in making cakes. So one has to learn the extent to

which a particular millet should be fried, boiled, soaked, or mixed for best results; and this usually comes from the experience.

7. Pre-soaked millet would require less water for boiling in a pressure cooker than a fresh one which may require about 2.5 times water to be added to it in the cooker.
8. Millets need to be dehusked to remove their outermost layer which is hard to digest by humans. The dehusked grains are called 'rice' which can be cooked like common rice. Before dehusking the grains are to be cleaned properly and washed. Method of dehusking this washed(moistened) millet at home has been explained for Foxtail Millet at <https://www.youtube.com/watch?v=CtHMj39MoJQ>. To brief, leave aside the freshly moistened millet for 15 minutes, and then put in a mixer jar running it at short intervals few times. Once the husk is seen separated from the grain, collect the millet on a winnow, spread evenly, and blow away whatever husk is available on the top. Then winnow a little till more husks come to the surface, and blow. Repeat this process till almost all the husks are removed. The alternative method is to pound the moistened millet using a wooden mortar to remove the chaff followed by win-nowing (Emery, C., **The Encyclopedia of Country Living**). Too much moisture may lead to grinding of the millet with the husk, so this has to be avoided.
9. Where the adverse impacts of a millet according to Ayurveda have been mentioned, it may not necessarily be immediate (except for cases like flatulence). For instance, rheumatic disorder may develop only after long term use. In this connection it may be mentioned that cooking with other ingredients may reduce such adversities.

10. Most of the recipes(that involve cooking) require 20 to 30 minutes, but this doesn't include the time required for washing, cutting, grinding and other such pre-cooking preparations.
11. Copra is good where preservation is required without frying; otherwise fresh coconut meat/kernel can be used.
12. Due to substantial decrease in the traditional cultivation of many millets such as Little Millet, Foxtail Millet and Indian Barnyard Millet their market availability has also become quite difficult. Fortunately some south-Indian organizations are working for market availability of these millets and even millet-based food products like nodules are available which can be accessed through internet.
13. Millets used to be an essential part of subsistence agriculture not only in tribal belts but also in certain coastal pockets(as in Odisha) where the land was otherwise not suitable for rice cultivation. Accordingly, their cultivation also used to be organic. Commercial cultivation as well as modern agro-techniques have however not hesitated to use chemical fertilizer & pesticides in millet cultivation, and hence are causing a loss of traditional sanctity for these crops. This is likely to be applicable(though not necessarily in each & every case) more for those few millets which are extensively cultivated in different parts of India whereas the minor millets are likely to be still organic in nature.
14. The Indian Institute of Millets Research, Hyderabad has developed technologies for millet-based fast-foods and other products like millet vermicelli, pasta, bread, and pizza.
15. Organizations like the Deccan Development Society and 'Earth 360' are working for the promotion of millet cultivation.

Comparative Table on Nutrition from Millets
(adapted from *Millets: Future of Food & Farming*)

Crop / Nutrient	Protein(g)	Fiber(g)	Minerals(g)	Iron(mg)	Calcium(mg)
Pearl millet	10.6	1.3	2.3	16.9	38
Finger millet	7.3	3.6	2.7	3.9	344
Foxtail millet	12.3	8.0	3.3	2.8	31
Proso millet	12.5	2.2	1.9	0.8	14
Kodo millet	8.3	9.0	2.6	0.5	27
Little millet	7.7	7.6	1.5	9.3	17
Barnyard millet	11.2	10.1	4.4	15.2	11
Rice	6.8	0.2	0.6	0.7	10
Wheat	11.8	1.2	1.5	5.3	41

Health Benefits of Millets

Millets are anti acidic

Millets are gluten free

Millets detoxify body

Niacin (vitamin B3) in millet can help lower cholesterol

Prevents breast cancer

Helps to prevent type 2 diabetes

Effective in reducing blood pressure

Helps to protect against heart diseases

Aids in treating respiratory conditions such as asthma

Helps to optimize kidney, liver and immune system health

Reduces risk of gastrointestinal conditions like gastric ulcers or colon cancer

Eliminates problems like constipation, excess gas, bloating and cramping

Millet acts as a prebiotic feeding microflora in your inner ecosystem

(adapted from http://millets.res.in/millets_info.php,

courtesy the Indian Institute of Millets Research, Hyderabad)

ABOUT NIRMAN

NIRMAN is a grassroots organization registered as an NGO and working in the districts of Nayagarh, Kandhamal, Rayagada, Deogarh and Jajpur in Odisha for improving the livelihood of tribals & marginal farmers through conservation of biodiversity, natural resource management, and sustainable agriculture. It took up the promotion of SRI paddy cultivation with the realization that this practice can ensure a higher yield with low inputs, and afterwards succeeded in its field experimentation on applying the same principle for sugar cane, which was first of its kind. It has continued its endeavour for conservation of indigenous seeds, revival of millet cultivation, and promotion of kitchen gardens with a simultaneous effort on better implementation of the Forest Rights Act for ensuring the land rights of tribals & marginal farmers alongwith securing the rights of the forest protecting communities as a result of which 69 villages of Rayagada district and 5 in the Kandhamal districts have been able to receive entitlements on community forest resource rights. The present book is a part of NIRMAN's continuous endeavour to mainstream millets in our food

Please contact our Bhubaneswar office for purchase of various millets and organic jaggery. We shall be happy also to assist you in taking up millet cultivation and processing. Please visit our website for more information on our work, and any query relating to that is solicited. For a precise and timely response please e-mail us.

Solicited contribution : Rs.130/- or \$2. Any other support to promote millets is welcome.



Govt. of India
Ministry of Environment,
Forests & Climate Change



SGP The GEF
Small Grants
Programme

CEE
Centre for Environment Education

NIRMAN
An Initiative For
Sustainable Development