



## TO STUDY ABOUT USAGE OF MILLET BY TRIBAL PEOPLE OF BASTAR IN THEIR FOOD CUISINE

**Dr. Dilesh Joshi**

Guest Lecturer, SOS Rural Technology, Shaheed Mahendra Karma University, Jagdalpur, Bastar (C.G), [djsunny3331@yahoo.com](mailto:djsunny3331@yahoo.com)

### Abstract

*This study aimed to investigate the communicational traits of tribal millet farmers in the Bastar Plateau Zone of Chhattisgarh State., India, that influence their level of awareness and use of recommended small millet cultivation practices. Data was gathered during in interviews, with a Hindi interview schedule created. Farmers with little resources have historically farmed millets including sorghum, pearl millet, finger millet, and small millets all across nation. They are labeled "nutri-cereals," which are loaded in minerals like calcium, iron, zinc, potassium, and magnesium as well as essential fatty acids, protein, and fibre. Millets were found to be useful in strengthening mud walls, as a fertilizer for onion fields, disease, and insect-pest control, protecting pulses in storage, baking earthen pots, treating animals and poultry, increasing milk productivity in cattle, treating burns, and many other applications. Identify the Kodo variety they were growing as JK 62, little millet has a low potential for production but is popular among tribes. Only one farmer correctly identified the JK 8 cultivar of little millet. The farmers were aware that they were cultivating the RAU 8 variety of finger millet.*

**Keywords:** Millet, Fatty acid, Armed, Faking

### Introduction

Millet is one of the oldest foods known to humans, and it is possible that it was the first cereal grain used for domestic purposes. It is mentioned in the Bible and was used to make bread at the time. Since ancient times, millet has been a staple diet in Africa and India. It was first planted in China about 2700 BC, where it predominated before rice took over as the main grain.. It is documented that lake dwellers in Switzerland grew the plant during the Stone Age. Today, millet is the world's sixth most important grain, sustaining one-third of the world's population, and is an important part of the diet in northern China, Japan, Manchuria, and various areas of the former Soviet Union, Africa, India, and Egypt. Pradhan *et al.*, (2015) When it comes to rice, small millets may be a better option due to the region's erratic rainfall and dry conditions and other crops fail on a regular basis because it can withstand water stress, drought, and erosion a lot of were upland lands available in this region that could be converted into small millets production by the participation of farmers in seed production programs for farmer economic development. In many of these nations, notably in Africa and the Indian subcontinent, the crop is cultivated on up to 100 million acres in hot, arid regions that are unsuitable for producing other cereals like wheat and

rice. Covering around 100 million acres, the crop thrives in hot, arid conditions that are unsuitable for growing other cereals like wheat and rice. Small millets are traditional crops that are better suited to poor soils. The earlier diet that humans are known to have consumed is millet, which may have been the first cereal grain to be domesticated. One-third of the world's population is today fed on millet, which is also a significant part of the diets of many people in Africa, India, northern China, Japan, Manchuria, various regions of the former Soviet Union, and Egypt. Even though little millets only account for 2.50 percent of the nation's grain production, they are uncommon in Indian agriculture. The significance stems from their ecological niche, in which no other food crop can be grown profitably (Gowda *et al.*, 1997).

5.88 million hectares of it is arable land in the state of Chhattisgarh. Rice is the region's primary crop 248.5 thousand hectares of land (which is 21.18% of India's 1173.5 thousand ha) was occupied by Chhattisgarh under small millets in 2006, with a total production of 52.1 thousand tonnes (which is only 10.22% of the total national production ([www.dacnet.nic.in](http://www.dacnet.nic.in))). Carbohydrates account for approximately 85% of the edible portion of millets, with nearly 20% in the form of non-starch polysaccharides, which are considered dietary fibre components. Millets have a protein content ranging from 6 to 10%, and finger millet protein is high in sulphur amino acids (4.2 g/16 g N). Among cereal food grains, finger millet has the highest calcium content (340 mg/100g). These crops, which have a much longer history of cultivation than major food grains, have historically been regarded favourably, playing an important role in our traditional food culture and farming systems (Gowda and Seetharam, 2007).

## Material & Methods

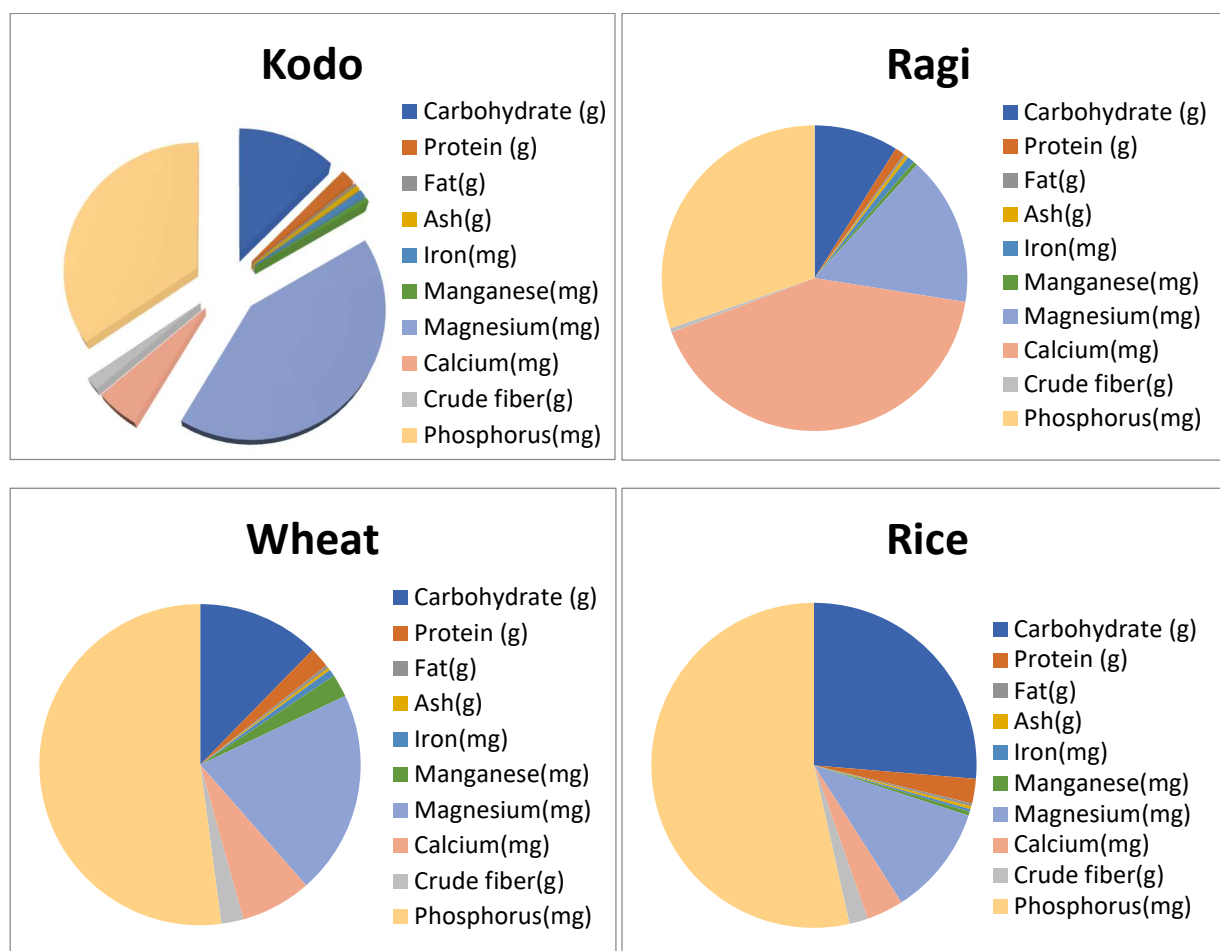
The research was carried out in Chhattisgarh's Bastar Plateau Zone. It was specifically chosen for this agroclimatic zone since it has the most little millets. Only three important small millet crops, namely little millet, Kodo millet, and finger millet, were purposefully chosen for this study because they had the most area under coverage when compared to other millets. The Bastar Plateau Zone, which encompasses the districts of Bastar, Dantewada, Narayanpur, and Bijapur, has a total of 25 blocks. Only 9 blocks, or one-third of the total, were chosen for the research based on the largest area under the selected small millets. A total of 18 villages—2 from each of the 9 designated blocks—were chosen for data collection based on the area covered by small millets in those blocks. From the total number of small millet growers in each village, 15 farmers (growing at least two of the three small millet crops) were chosen at random as respondents for the study. As a result, a total of 270 farmers (18x15 = 270) were considered as respondents for data collection.

## Results & Discussion

**Table 1. Nutrient composition of millets according to their optimum moisture content**

S.no.	Nutrients	Kodo	Ragi	Wheat	Rice
1	Carbohydrate (g)	67.23	74.02	72.63	79.24
2	Protein (g)	9.9	8.23	12.25	7.36

3	Fat(g)	1.5	1.8	1.8	0.8
4	Ash(g)	2.9	2.8	1.6	0.9
5	Iron(mg)	5.1	6.2	4.1	0.8
6	Manganese(mg)	3.4	3.6	13.5	1.2
7	Magnesium(mg)	229	131	121	33
8	Calcium(mg)	28	345	42	11
9	Crude fiber(g)	9.1	3.8	13.2	5.6
10	Phosphorus(mg)	189	251	307	161



**Fig. 1. Millet nutrient composition based on optimal moisture content**

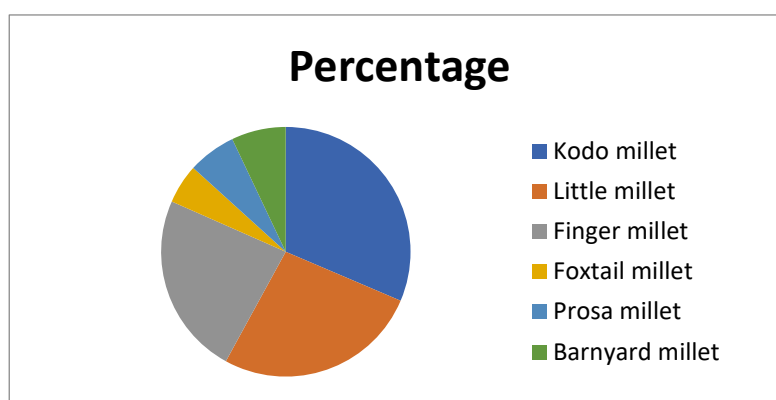
According to Chandra *et al.*, (2018) Millet can be used in a variety of ways and is an excellent substitute for rice and other starchy grains. Milling, malting, baking, fermenting, and a combination of methods for product development are the most commonly used processing technologies for Finger millet. These products are either in use or have been demonstrated as a means of increasing finger millet consumption. However, few scientific studies on their preparation and meaningful popularization on a large scale have been conducted, but technologies

developed for value added products are widely accepted among farming communities and recognized by various research institutes.

**Table 2. Respondents' area under various small millets**

Crops	Frequency	Percentage	Area (ha)	Percentage
Kodo millet	189	70.23	28.12	6.21
Little millet	230	85.44	19.02	5.26
Finger millet	163	61.53	25.49	4.67
Foxtail millet	09	4.26	3.26	1.01
Prosa millet	21	9.06	6.54	1.23
Barnyard millet	08	4.68	3.06	1.40
Total	620	235.2	85.58	19.78

Data on the frequency and area of various millet crops as reported by respondents have been collected, compiled, and presented in Table 2 and Figures 2. Little millet, one of the three primary small millets, was grown by roughly 85.44% of respondents on 5.26% of the total cultivated area in the Kharif season. 70.23% of them farmed kodo millet on around 6.21% of the land, while 61.53% farmed finger millet on roughly 4.67% of the cropped area. The remaining three small millets, foxtail millet, proso millet, and barnyard millet, were grown by 17% of respondents on slightly more than 1% of the Kharif cultivated area. Thus, millets covered 19% of the Kharif cultivated land, and every farmer was growing more than two millet crops on their land. Although the area under millets is smaller, a greater proportion of farmers cultivate them. Even on a small plot of land, they are growing millets for domestic consumption and also we came to know that this village person use this millet in their religious ceremonies and make sweets like anarsa also they make drinks like paje from ragi millets.



**Fig. 2. Area percentage under various small millets**

**Table 3. Respondents' millet usage patterns**

S. no.	Usage	Frequency	Percentage
--------	-------	-----------	------------

1	Kodo millet straw combined with mud to create a very strong termite resistant walls	128	48.05
2	Bunt kodo millet straw is used as a fertiliser in the onion field to increase yield.	108	30.69
3	Finger millet husk mixed with green and pigeonpea to protect them from pests during storage	90	34.26
4	Potters prefer kodo millets straw for baking pots.	88	33.22
5	Kodo millet straw provides immediate relief for cattle tympani disorder.	20	08.05
6	Spreading kodo straw in paddy fields aids in the control of leaf folder and blast.	14	5.46
7	Mixing millet grain into cattle feed can help increase milk productivity while lowering feed costs.	13	5.08
8	The application of a thick paste of finger millet flour is an effective medicine for reducing burning sensations and promoting wound healing.	10	4.44
9	Finger millet grain is wrapped in cloth with ash and salt and tied around the neck as <i>Taabiz</i> .	07	2.22
10	Millets as Gaadi festival prasaad, if thrown on a mango or tamarind tree that hasn't fruited in a year, will start fruiting.	06	1.95

\*Data based on multiple response

Apart from food, millets are used for a variety of other purposes in tribal life. A little less than half of those polled used straws. The kodo millet was used to make the mud walls. They revealed that if kodo straw is combined with mud and then the wall is constructed made, the resulting mud wall is extremely strong, and it is termite-resistant, which is a problem in the Bastar region (Table 3)

Almost 40% of those polled indicated that they burn the kodo millet straw and spread the ash in the this results in higher yields in the onion field. Almost one-third of those polled said they mix the husk of finger millet, green gramme, pigeonpea, and store to protect them from pests in storage, and that the potters for baking their earthen pots, they prefer kodo millet straw. They believe that by burning the kodo millet straw, the pots bake more evenly. Almost one-third of respondents said they use the husk of finger millet mixed with green gramme and pigeonpea to protect them from storage pests, and the same number said Kodo millet straw is preferred by potters for baking pots because it results in a better product with more durability.

Nearly 7% of respondents reported that Kodo millet straw provides immediate relief for tympani disorder in cattle, which is a fatal disease in which the animal's stomach swells enormously and the cattle may die if effective treatment is not provided in time, while nearly 6% reported that three to four years old grains of Kodo millet work as medicine for immediate relief in Ranikhet disease of poultry, which is another highly infectious disease. Other uses of small millets reported by respondents include spreading Kodo straw in paddy fields to control leaf folder

and blast diseases (5.46%), and mixing millet grains in cattle feed to increase milk productivity while lowering feed costs (5.08%). Another effective use of millets was that in the case of burns, a thick paste of finger millet flour works as an effective medicine for reducing the burning sensation and is also very effective in promoting wound healing (4.44%). Some respondents also reported that the finger millet grain is wrapped in cloth piece with ash and salt to tie up in neck as *Taabiz* (2.22%), which works as an effective measure to check the bad omen, while others reported that if the finger millet is thrown as Prasaad of Gaadi festival, if thrown on mango or tamarind tree, which has not fruited for years, begins fruiting (1.95%). Mango and tamarind are major trees in Bastar, providing tribal farmers with an alternative source of income, and if the trees do not fruit for years, it is a very sad occasion.

Yadav (1997) investigated the use of Kodo millet as a food source. After milling, it is usually cooked as rice. Madhya Pradesh tribals use Kodo rice to make paye (cooked and fermented Kodo rice). Popped grains are consumed as a snack. In its early stages, the plant is used as green fodder. Stover is mixed with green fodder to make feed. In rural Madhya Pradesh, stover is used to make earthen bins, pots, and local mattresses, as well as a roofing material. The grains' industrial application is still being researched. Kodo plant is a styptic used in inflammation, liver diseases, ulcers, dysentery, and is thought to keep the body warm.

Pradhan *et al.*, (2008) conducted research in Bastar, Chhattisgarh, by surveying and selecting 18 people with diabetes and giving them prepared multigrain flours of ragi and wheat, with ragi accounting for 30 to 70% of the flour. They suggested substituting multigrain flour chapatti for their roti (chapatti). Every third day, capillary blood glucose levels were measured. There was no change in their daily dietary feeds or controlled diet. As people continued to consume the flour, their blood glucose levels fell.

According to Seetharama and Rao (2008), millets are nutritionally superior to other fine cereals such as rice, and provide special health benefits such as high fibre, minerals, and slow digestibility that are well-suited to the diabetes-prone Indian population. Millets are better known as 'nutritious cereals' because of their role as a barrier against food and nutritional insecurity. They are a fantastic dual-purpose fodder crop. The protein content of the majority of these millets is comparable to that of many pulses. Millets contain more protein, fibre, minerals, vitamins, and other nutrients that are typically lacking in Indian diets. Jowar has 8 times the fibre of rice, ragi has 40 times the calcium of rice, and bajra has 8 times the iron and 5 times the riboflavin and folic acid of rice.

**Table 4. Core varieties of millets use in baster reason reported from KVK of jagdalpur**

S.no	Crops	Varieties	Growing %
1	Kodo millet	<b>JK 62</b>	2.07
		Traditional/not identified	97.93
2	Little millet	<b>JK 8</b>	1.00
		Traditional/not identified	67.98

		Os Kosara	12.28
		Bade Kosara	11.41
		Rikki Kosara	07.89
3	Finger millet	<b>RAU-8</b>	2.24
		Traditional/not identified	76.02
		Chhota/Saan/Turia/Nani Bitti Madia	10.56
		Bade Madia	05.59
		Laal/ Laad Madia	03.73
		Bakari kaan Madia	01.86

Sahu R. K., (2019) Reported that the most important aspects of core variety. Traditional varieties with low production potential are still used by respondents. Negligible the area is covered by new improved varieties. Millet seed replacement is one option for introducing high yielding varieties and, ultimately, increasing millet production and productivity in the region. In general, farmers are unaware of the names of the millets varieties they are cultivating (Table 4). They simply refer to it as desi or traditional variety. The younger generation is less interested in millet cultivation and prefers more lucrative crops. Traditionally, all of the respondents grew kodo without distinguishing it as a variety.

Almost all of the farmers couldn't name a single kodo variety. They simply called it kodo and did not specify a variety name. Only two farmers were able to identify the variety of kodo that they are growing as JK 62. Little millet has a low production potential but is popular among tribes. It is a short-duration crop that is harvested earlier than rice. Only one farmer correctly identified the JK 8 variety of little millet cultivation. Approximately 68% of those polled said they grow traditional or unidentified varieties of little millet. Almost 12% of them grew the Os Kosara variety, which is harvested in a shorter period of time than others. The majority of farmers believe that this variety does not require much water and can ripen in dewdrops alone. Rikki Kosara is a medium duration spreading spike variety that is grown by 8% of farmers. Bade Kosara is a high-yielding late-season variety. It is grown by 11% of the farmers. Finger millet is the most important crop among the small millets, and much research has been done on it in India. It has many diverse uses, the most important of which is that it is consumed in the summer as 'Pej,' a very soothing and important beverage drink of the tribes. Almost 77% of farmers growing finger millet said they grew traditional or unidentified varieties. Only two of the farmers knew they were growing the RAU 8 variety of finger millet. Almost a quarter of them grew Chhota / Saan / Turia or Nani Bitti Madia. It matured 10-15 days before other varieties. It is typically harvested by hand picking up the spike. Its inflorescence is clustered rather than finger-shaped. The Bakari Kaan Madia variety has the spikes that resemble goat ears, which are grown by 2% of respondents

## Summary

Millet has mineral and micronutrient contents that are on par with many cereal bowls, if not better. Its principal application as food has remained constrained to the area in which it is cultivated and conventional cooking methods. The possibility to offer customers nutritional security exists with millet. By properly processing and adding value, its usage in cities can rise. It is now possible to process and prepare value-added goods that are acceptable to both rural and urban consumers thanks to the development of postharvest processing and value-adding technology. This will boost the profitability of its growers while also generating money and opening up employment chances in rural regions. Respondents still employ conventional cultivars with modest potential for output. A tiny region is covered by new, better types. One way to introduce high-yielding cultivars and consequently boost millet output and productivity in the area is through millet seed replacement. The names of the millets kinds that farmers are growing are mostly unknown. That particular variety can be used to make value-added products like cookies & other snacks that can be sold loose or packed

## References

- Chandra A, Singh A. K., Mahto B., (2018) Processing and Value Addition of Finger Millet to Achieve Nutritional and Financial Security *Int.J.Curr.Microbiol.App.Sci* Special Issue-7: 2901-2910
- Gowda KTK, Chandrappa M, Ashok EG (1997). Sustainable Crop Production and Cropping System Research in Finger Millets. National Seminar on Small Millets - Current Research Trends and Future Priorities as Food Feed and in Processing for Value Addition. Extend Summary ICAR and Tamil Nadu Agricultural University, 22.
- Gowda KTK, Seetharam A. (2007) Food Uses of Small Millets and Avenues for Further Processing and Value Addition. Project Coordination Cell, All India Coordinated Small Millets Improvement Project, ICAR, UAS, GKVK, Bangalore.
- Pradhan, A., Nag, S.K., Tomar, N.S. and Sharma, R.L. (2015). Ragi controls diabetes. *Kurukshetra*, 56 (9): 47-48.
- Sahu, R.K.(2010). Study on technological gap, yield gap and utilisation pattern of small millets among the tribals in the Bastar Plateau Zone of Chhattisgarh. Ph.D. Thesis, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur, C.G. (INDIA).
- Sahu, R. K. (2019) Cultivation patterns of small millets in the tribal belts of Chhattisgarh state: An in-depth study *Journal of Pharmacognosy and Phytochemistry* 2019; 8(12): 2538-2543
- Seetharama, N. and Rao, R.K.V. (2008). Millets: the harbingers of nutritional security in dry provinces of India. *Intensive Agric.*, January-June, 34-37.



Yadav, H.S. (1997). Retrospects and prospects of Kodo millet in Indian agriculture. National Seminar on Small Millets - Current Research Trends and Future Priorities as Food, Feed and in Processing for Value Addition Extend Summary (ICAR) and Tamil Nadu, Agricultural University, pp.7-9.