

# Traditional Food Culture and Nutritional Analysis of the Bhumij Tribe in West Bengal

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**Abstract:** *The Bhumij, an indigenous community inhabiting West Bengal, Jharkhand, and Odisha, have sustained a distinctive food culture rooted in forest ecology, traditional agriculture, and community practices. Their dietary patterns rely on rice, millets, forest greens, tubers, fermented foods, and locally brewed beverages such as handia and mahua liquor. This paper documents key Bhumij traditional foods, their preparation methods, and nutritional composition, drawing from food composition databases, ethnographic studies, and field-level observations. The analysis underscores the nutritional strengths of the Bhumij diet—particularly its richness in micronutrients and fermented foods—while highlighting emerging challenges such as deforestation, loss of millet diversity, and health risks associated with alcohol overuse.*

**Keywords:** *Bhumij tribe; traditional food culture; nutrition; fermented foods; millets; forest ecology; food security; West Bengal.*

## Background of The Study

The Bhumij are an indigenous group living mainly in the forested areas of Paschim Medinipur, Jhargram, Purulia, and Bankura in West Bengal. You can also find them in nearby areas of Jharkhand and Odisha. They are part of the Austroasiatic Munda language family and share cultural traits with the Santals, Mundas, and Hos (Singh 2002; Roy 1995). In the past, the Bhumij relied on farming, hunting, and gathering, which shaped their food culture based on local resources (Banerjee 2014). Their food system shows a strong between their environment, culture, and nutrition, similar to other tribal groups in Eastern India (Ekka 2017; Mahapatra 2019).

The Bhumij diet mainly includes rice, millets (like kodo and mandua), tubers, roots, greens, and mushrooms, along with fish, snails, small animals, and poultry for protein (Roy 1995). They also consume fermented foods like pakhala (fermented rice), handia (rice beer), and mahua-based drinks, which are important for both nutrition and cultural reasons. Fermentation improves digestion and taste and increases the amount of available B-vitamins and minerals (Tamang 2016).

Nutritionally, the Bhumij diet is balanced, seasonal, and full of micronutrients, especially iron, calcium, and Vitamin A, because they eat a lot of leafy greens (palta, kochu, sajana), mushrooms (rugra, putka), and tubers (yam, ol, sweet potato) (ICMR-NIN 2017). Unlike diets in cities, Bhumij foods have less processed fats and sugar, and they cook simply by boiling, roasting, and seasoning with turmeric, chili, and mustard oil.

However, modern changes are causing problems. The Public Distribution System (PDS) has led to polished rice replacing coarser grains, which has reduced the variety in their diet (Mahapatra 2019). Deforestation and limited forest access have decreased the availability of wild foods, which threatens their food security (Patnaik 2020). Also, while drinks like handia and mahua are important for rituals, drinking too much of them has caused health problems, including malnutrition and alcohol dependency (Patra & Mishra 2015).

Looking at the Bhumij's traditional food culture is important for understanding their identity and dealing with today's nutrition issues. This paper talks about the main traditional foods, how they are prepared, and their nutritional value, while also the importance of indigenous food systems and public health in India.

## Methodology

This work relies mainly on existing data, with some on-site observations. Data was gathered from books on cultures, government papers, and food databases like the Indian Food Composition Tables (ICMR-NIN 2017) to check the nutrition in traditional Bhumij foods. Academic articles about tribal diets and fermented foods (Roy 1995; Ekka 2017; Tamang 2016; Patnaik 2020) were read to learn about important dishes, cooking, and eating habits. Food nutrition was guessed by comparing food data with studies on wild plants, roots, and millet diets in eastern India. With this way, the Bhumij food system could be rebuilt within its environment and culture, and placed into wider talks about tribal nutrition and food security in India.

## **Traditional Foods of the Bhumij**

Bhumij foodways show a deep link to the forest, farming schedules, and group traditions. Their age-old food choices are varied, change with the seasons, and adjust to what's available. They eat grains, root crops, greens, wild mushrooms, small animals, fish, and fermented foods. They usually boil, roast, or stir-fry their food lightly, which keeps the nutrients intact and goes along with their sustainable way of life.

### ***Main Grains and Millets***

Rice is what the Bhumij eat most. They have it as plain boiled rice (bhaat) or fermented rice (pakhala). Older people used to eat millets like kodo and mandua, often as flatbreads (bhakri) or soft porridge. These millets have lots of fiber, iron, and carbs that digest slowly, making them better for you than white rice (ICMR-NIN 2017). Yet, more people are eating subsidized rice, so they aren't eating as many millets now (Mahapatra 2019).

### ***Leafy Greens and Vegetables***

The Bhumij have a strong history of eating both wild and farmed greens (saag), like palta, kochu (taro leaves), sajana (drumstick leaves), and poi saag. They typically boil these or stir-fry them with mustard oil, turmeric, and green chili to make simple curries or jhor. These dishes are full of nutrition, giving iron, calcium, Vitamin A (beta-carotene), and antioxidants (Banerjee 2014). They also commonly eat seasonal veggies like pumpkin, brinjal, and ridge gourd.

### ***Tubers and Roots***

Root crops give a lot of energy, especially when food is scarce. The Bhumij consume yam (ol), taro (kachu), sweet potato, and roots they find in the forest. One of their old dishes is Ol Bharta, where they boil yams and mash them with mustard oil and green chili. Root crops have lots of complex carbs, fiber, potassium, and Vitamin C, which makes them important to eat with grains (Ekka 2017).

### ***Mushrooms and Forest Products***

Wild mushrooms that grow at certain times of the year, like rugra and putka, are a treat for the Bhumij. They usually stir-fry these or add them to curries, which adds

protein, selenium, iron, and antioxidants to their diet. The community also gets food from the forest, like tamarind, jackfruit seeds, and roots they can eat, which makes their food more flavorful and nutritious (Singh 2002).

### *Animal Foods and Protein Sources*

The Bhumij get protein from both animals they raise and those they find in the wild. They often eat fish, dried fish (sukha maas), snails, goats, and chicken, and sometimes they eat wild animals and birds. Fish and snails are especially liked, with snail curry (kalo dimer tarkari) having a lot of calcium, iron, and protein. They make dried fish into chutneys or curries, which gives them needed fatty acids and micronutrients (Patnaik 2020).

### *Fermented Foods and Beverages*

Fermenting food is a big part of what the Bhumij do. Pakhala, which is made by letting cooked rice sit in water overnight, is eaten with onion, chili, or greens. It has good bacteria, B-vitamins, and electrolytes, which is really helpful in the hot summer (Tamang 2016). Another common thing they eat is Handia, a rice beer made with a special starter (ranu), and Mahua liquor, which is brewed from mahua flowers that have been fermented. While these drinks are important for their culture and traditions, drinking too much alcohol has caused health problems in some Bhumij groups (Patra & Mishra 2015).

### *Festival and Ritual Foods*

Food also has a symbolic meaning in Bhumij celebrations and rituals. Pitha (rice cakes with jaggery and coconut inside) are made during holidays, while meat curries and fermented drinks are important for group feasts. These ritual foods strengthen community ties and their sense of who they are (Roy 1995).

The Bhumij diet is based on rice, millets, seasonal greens, root crops, mushrooms, and fermented foods, giving them a good amount of energy, protein, micronutrients, and probiotics. They cook these foods in simple ways like boiling, roasting, fermenting, and stir-frying with just a little bit of spice and oil. Table 1 shows some common traditional dishes of the Bhumij, with what's in them, how they're made, and their estimated nutritional value.

**Table 1: Traditional Foods of the Bhumij Tribe with Nutritional Analysis**

| Food Item                  | Key Ingredients                        | Cooking Process                      | Calories (kcal)      | Protein (g) | Fat (g) | Carbs (g) | Nutritional Highlights   |
|----------------------------|--|--------------------------------------|----------------------|-------------|---------|-----------|--|
| Kodo Bhakri                | Kodo millet flour, water               | Flattened dough cooked on griddle    | 200–250              | 6–8         | 1–2     | 40–45     | High fiber, iron, magnesium; low glycemic index, slow-release energy                                 |
| Palta Shaag Curry          | Palta leaves, onion, mustard oil, salt | Boiled or stir-fried                 | 80–120               | 3–4         | 3–4     | 10–12     | Rich in Vitamin A (beta-carotene), calcium, and antioxidants   |
| Pakhala with Onion & Chili | Fermented rice, onion, chili           | Served cold                          | 180–220              | 4–5         | 1–2     | 35–40     | Probiotics, B-vitamins, cooling and hydrating in hot climates  |
| Ol & Yam Bharta            | Yam (ol), mustard oil, green chili     | Boiled and mashed                    | 150–180              | 2–3         | 4–6     | 30–35     | High fiber, potassium, Vitamin C; provides moderate energy   |
| Handia & Mahua Liquor      | Fermented rice, mahua flower           | Traditional brewing and fermentation | 100–150 (per 100 ml) | 0–1         | 0       | 10–20     | Provides iron and natural sugars; cultural significance but associated with health risks if overused |

The Bhumij dietary habits show a mix of local resources, cultural traditions, and good nutrition. There are, though, some worries, like drinking too much alcohol and a slow move away from foods made with millet.

### Nutritional Implications

The Bhumij people’s eating habits show that they can get enough nutrients and adapt to their surroundings, reflecting the resources around them and how they get food. While their traditional way of eating has some down sides, it helps us understand how native diets can keep people healthy in the countryside.

### *How Many Calories They Get*

Generally, the Bhumij get enough energy from their food for their traditional lives, which involve a lot of physical work in farming, collecting things from the forest, and doing housework. Their diet mainly consists of rice, with some millet like kodo in the past, and root vegetables like yam and sweet potato. Together, these provide about 1,700 to 2,100 calories per person each day (ICMR-NIN 2017). This amount of energy is fine for people who farm and gather food, but there could be a risk of not getting enough nutrition if they don't do as much physical activity but keep eating the same amount (Mahapatra 2019).

### *How Much Protein They Get*

The Bhumij diet has a fair amount of protein from different places. Rice and beans give them protein from plants, while fish, snails, dried fish, goat meat, and chicken give them protein from animals. They also get protein from unique sources like snails and red ant eggs, which have a lot of protein and important nutrients (Ekka 2017). On average, they get 35–45 grams of protein each day, which is close to what is suggested for adults in rural areas (ICMR-NIN 2017). But, because the availability of food changes with the seasons, they might not always get enough protein, especially when they can't get animal foods.

### *How Many Micronutrients They Get*

The Bhumij diet is naturally full of iron, calcium, and Vitamin A because they often eat wild greens (palta, kochu, sajana), root vegetables, and foods from the forest. Mushrooms (rugra, putka) and snails also give them minerals like selenium, zinc, and calcium. For example, snail curry (kalo dimer tarkari) gives them a good amount of calcium and iron, which helps keep their bones strong and their blood healthy. Also, leafy greens like drumstick leaves (sajana saag) have a lot of Vitamin A and iron, which are important for their immune system and for preventing anemia (Banerjee 2014). Getting so many micronutrients is a big plus of the Bhumij diet compared to modern, processed foods.

### *What Fermented Foods Do*

Fermented foods like pakhala (fermented rice) and handia (rice beer) do two things for the Bhumij diet. In terms of nutrition, fermentation makes it easier for them to absorb B-vitamins, iron, and some amino acids. It also gives them probiotics, which

help their gut bacteria and improve their digestion (Tamang 2016). From a weather point of view, pakhala cools them down, which is good for hot summers, while handia gives them energy and a little alcohol for social events and rituals. While eating these things in moderation is good for them, drinking too much alcohol like handia and mahua liquor can be bad for their health (Patra & Mishra 2015).

### ***Low Fat and High Fiber***

The Bhumij diet doesn't have much fat because they don't use much oil—mostly just a little mustard oil—and they don't eat fried or processed foods. This is good for their hearts and lowers their chances of becoming obese and getting heart problems. Also, eating whole grains, root vegetables, and green leafy vegetables makes sure they get a lot of fiber (20–30 grams per day), which helps them feel full, stops constipation, and keeps their blood sugar levels steady (ICMR-NIN 2017). This balance of not much fat and a lot of fiber makes the Bhumij diet better for them than many modern city diets.

### ***Challenges to Bhumij Diet Sustainability***

Though the Bhumij diet has nutritional value, its sustainability faces structural and ecological problems. These issues impact not only food access but also health, culture, and the passing down of knowledge.

#### ***Biodiversity Loss***

The Bhumij diet relies on forest resources like greens, mushrooms, tubers, roots, and wild fruits. Deforestation, mining, and limits on forest entry have cut down on these foods (Mahapatra 2019), causing a loss in dietary variety and nutrition. With less exposure to forest practices, younger generations are also losing plant knowledge (Banerjee 2014).

#### ***Reduced Millet and Cereal Diversity***

Millets like kodo and mandua were once a key part of the Bhumij diet. Now, subsidized rice from the Public Distribution System (PDS) has taken their place. While rice gives calories, it lacks the fiber and minerals of millets (ICMR-NIN 2017), leading to a lack of certain nutrients (Mahapatra 2019). The loss of millet farming also hurts local agriculture.

### *Overuse of Alcohol*

Drinks like handia (rice beer) and mahua liquor are important in Bhumij culture. They are drunk during festivals and gatherings, and they offer some iron and probiotic benefits. But, too much consumption, especially by young men, causes health issues like malnutrition and liver disease, and it cuts down on money spent on food (Patnaik 2020; Patra & Mishra 2015). Because alcohol is culturally accepted, solutions need to raise awareness and involve the community.

### *Shift in Nutrition and Market Reliance*

Like other tribal groups, the Bhumij are eating more market foods, snacks, oils, and sugary drinks. These foods are easy to get but lack nutrients, raising the risk of obesity and diabetes (NITI Aayog 2021). At the same time, less foraging and farming threatens food independence and knowledge. If not controlled, this shift could hurt the Bhumij people's health and culture linked to food.

### **Conclusion**

In conclusion, Bhumij food culture shows a strong, adaptable system that came from years of close interaction with forests, land, and seasonal changes. Their diet, which centers on rice, millets, tubers, wild plants, mushrooms, and fermented foods, gives them good nutrition and cultural identity. The strengths of this diet are the high amount of micronutrients, use of local plants and animals, and fermented foods, which all help with digestion, immunity, and a balanced diet.

This system faces growing stress from modern socio-economic and environmental issues. Reduced millet farming, caused by the focus on processed rice in the Public Distribution System (PDS), has cut down on nutritional variety and farming strength. Also, deforestation and limited forest access have lowered the availability of traditional plants, mushrooms, and tubers, which were once major sources of micronutrients. The heavy use of fermented alcoholic drinks like handia and mahua liquor, while culturally important, has grown into a public health problem, especially for younger people.

Even with these problems, the Bhumij food system has important lessons for sustainable nutrition and environmental care. By writing down traditional food knowledge, pushing for millet revival, adding local foods to government nutrition programs (ICDS, mid-day meals, tribal hostels), and protecting forest plants and animals, we can improve food security, public health, and cultural conservation at

the same time. It is important that any action is led by the community, respecting the cultural meanings of food while dealing with the health risks from modern diet changes and alcohol abuse.

Bhumij food culture is at a key point. While it is based in tradition, it needs supportive rules and environmental protection to keep its nutritional and cultural importance in the 21st century. Making this system stronger is important for the Bhumij people's well-being and gives ideas on how local food practices can help with wider talks on sustainable diets, plant and animal conservation, and public health in India.

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