

Millets –History, Origin and Nutritive Values

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Millets are sometimes referred to as "nutri-cereals" due to the abundance of vitamins, minerals, amino acids that include sulphur, and phytochemicals. Millets are among the earliest foods that humans have discovered and consumed. They were staple foods in many Asian and African households, particularly in India, Nigeria, and Niger. They may have been among the first cultivated crops being grown in the "Hoe Age," preceding the "Plow Age."

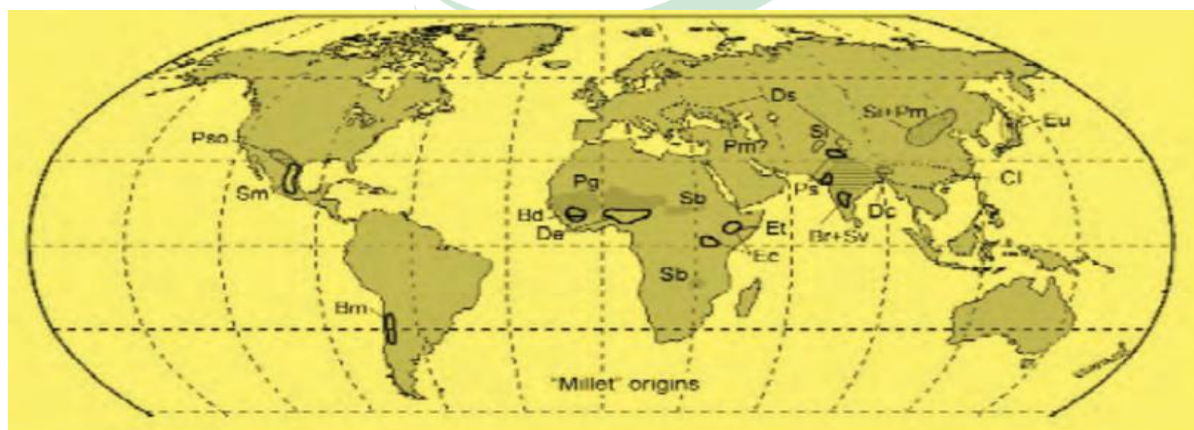


Fig. 1 The map of likely centres of origin for millets.

Millets abbreviated: Pso: *Panicumsonoran*; Sm: *Setaria cf. macrostachya*; Bm: *Bromus mango*; Bd: *Brachiariadeflexa*; De: *Digitariaexilis*; Pg: *Pennisetumglaucum*; Sb: *Sorghum bicolor*, including Southern African zone where the race kafir may be an independent domesticate; Ec: *Eleusinecoracana*; Et: *Eragrostistef*; Ds: *Digitariasanguinalis*; Pm: *Panicummiliaceum*, a separate Western origin remains unconfirmed; Si: *Setariaitalica*; Ps: *Panicumsumatrense*; Br: *Brachiariaramosa*; Sv: *Setariaverticillata*; Dc: *Digitariacruciata*; Cl: *Coix lachrymal-jobi*; Eu: *Echinochloa crus-galli var. utilis*. The striped zone in India indicates the broader Indian millet zone within which several domestications remain to be better localized (*Paspalumscrobiculatum*, *Echinochloacolonum*, *Setariapumila*), in addition to possible multiple domestications of *Brachiariaramosa*. Source Weber and Fuller (2007)

Millets grow well in dry and rain-fed areas. Millets such as sorghum, pearl millet, finger millet, Foxtail millet, common millet, little millet, barnyard millet, and Kodo millet are used for human consumption in most developing countries, but their use in developed countries has primarily been limited to animal feed. Its importance continued until wheat and rice cultivation were perfected. Due to urbanization, industrialization, and the "green revolution," millets were discarded and instead wheat and rice were promoted. Before the green revolution, 40 percent of the cultivated grains were millets (contributing more than rice and wheat). However, since the revolution, the production of rice has doubled and the production of wheat has tripled. This led to the loss of indigenous crops like millets. This led to a sharp decline in millet production and changed the food habits of the population, which led to a loss of importance both in farming and in consumption. Poor dietary habits such as non-millet-based cereals (rice and wheat) consumption are one of the major contributing factors to rising malnutrition in India. In addition to being nutritionally poor, these cereals have a high glycemic index, which leads to an increase in the blood glucose level, resulting in hyperglycemia. Nowadays, millet is gaining popularity among consumers. With increasing awareness of several lifestyle diseases, their causes, and consequences, there is an increase in demand for nutritious foods such as millets to address the public health challenge of global burden.

Millets: taxonomy, common names, and regions of origin

Species	Common name	Region of origin
<i>Brachiariaramosa</i> (L.) Stapf. (syn.	Browntop millet, pedda-	South India

Urochloaramosa (L.) R. D. Webster)	sama	
Digitariaexilis (Kippist) Stapf.	Fonio, acha, fundi	West Africa
DigitariaiburuaStapf.	Black fonio, iburu, hungry rice	West Africa
Echinochloacolona (L.) Link ssp. frumentacea (Link) (= E. frumentacea Link).	Sawa millet	Peninsular India
Echinochloa crus-galli (L.) P. Beauv. (syn. E. esculenta (A. Braun)	Barnyard millet	Japan
Eleusinecoracana (L.) Gaertn	Finger millet, ragi	East African highlands
Eragrostistef (Zucc.) Trotter	Tef	Ethiopian highlands
Panicummiliaceum L. ssp. miliaceum	Proso millet	China
Panicumsumatrense Roth. exRoem. &Schult. Subsp. sumatrense (syn. P. miliareaut. pl.)	Little millet, samai	India, especially peninsula
Paspalumscrobiculatum L.	Kodo millet	India
Pennisetumglaucum (L.) R. Br (= P. americium (L))	Pearl millet	West African Savannah
Setariaitalica (L.) P. Beauv ssp. italica	Foxtail millet	China
S. verticillata (L.) P. Beauv	Bristley foxtail millet	South India
Sorghum bicolor (L.) Moench ssp. bicolor	Sorghum, jowar	African Savannahs

Source Weber and Fuller (2007)

Vernacular Names of Millets

English	Sorghum	Pearl Millet	Finger Millet	Little Millet	Kodo Millet	Foxtail / Italian Millet	Barnyard Millet	Proso Millet
Hindi	Jowar	Bajra	Mandua	Kutki	Kodon	Kangni / Kakum	Sanwa / Jhangon	Barre
Sanskrit	-	-	Nandim	-	Konda	Kangun	Shyama	China

			khi / Madhuli		ra	i		
Kannada	Jola	Sajjai	Ragi	Same	Harka	Navane	Oodalu	Baragu
Tamil	Cholam	Kambo oo	Kelvarag u	Samai	Varag u	Tenai	Kuthirava ali	Panivara gu
Telugu	Jonna	Sajjalu	Ragulu	Samal u	Arikel u / Arika	Korra / Korralu	Udalu / Kodisama	Varigalu / Varigulu
Malayalam	Cholam	Kambo oo	Moothar i	Cham a	Varag u	Thina	-	Panivara gu
Marathi	Jowari	Bajri	Nachni	Sava	Kodra Rala	Kang	Shamul	Vari
Gujarati	Juar	Bajri	Nagli / Bavto	Gajro Kuri	Kodra	Kang	Sama	Cheno
Bengali	Juar	Bajra	Mandua	Kang ani	Kodo	Kaon	Shamula	Cheena
Punjabi	-	Bajra	Mandhu ka / Mandhal	Swan k	Kodra	Kangni	Swank	Cheena

Source: Indian institutes of millet research, IIMR (2017)

Nutritional composition of millets

S.No	Millets	Carbohydrates (g)	Protein (g)	Fat (g)	Energy (Kcal)	Ca (mg)	P (mg)	Iron (mg)
1	Sorghum	72.6	10.4	1.9	349	25	222	4.1
2	Pearl millet	67.5	11.6	5.0	361	42	296	8.0
3	Finger millet	72.0	7.3	1.3	328	344	283	3.9
4	Kodo millet	65.9	8.3	1.4	309	27	188	0.5
5	Proso millet	70.4	12.5	1.1	341	14	206	0.8
6	Foxtail	60.9	12.3	4.3	331	31	290	2.8

	millet							
7	Little millet	67.0	7.7	4.7	341	17	220	9.3
8	Barnyard millet	65.5	6.2	2.2	307	20	280	5.0

Source : Indian Food Composition Tables, NIN – 2017

Micronutrients content of millets

S.No	Millets	Iron (mg)	Thiamine B1(mg)	Niacin (mg)	Riboflavin B2 (mg)	Zinc (mg)
1	Foxtail millet	2.8	0.59	0.11	3.20	2.4
2	Little millet	9.3	0.26±0.042	1.29±0.02	0.05±0.008	1.3
3	kodo millet	1.7	0.29±0.054	1.49±0.08	0.20±0.018	0.7
4	Barnyard millet	18.6	0.33	4.20	0.10	1.4
5	Pearl millet	11	0.25±0.044	0.86±0.10	0.20±0.038	3.1
6	Finger millet	3.9	0.37±0.041	1.34±0.02	0.17±0.008	2.3

Source : Indian Food Composition Tables, NIN – 2017