Ethnobotany of Minor Millets and Related Grasses from the Tribal Area of Rajasthan

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An ethnobotanical survey of tribal area of Southern Rajasthan was carried out for minor millets and other related wild species of grasses. Ethnobotanical information on this group of plants is based on the exhaustic interviews with local farmers, village headmen, priest and other community leaders. Ethnobotany of 8 minor millets and 18 related wild species of grasses have been given from the study area. Enumeration of these plants with their botanical name, local name, locality of collection, their herbarium number and ethnobotanical uses are given.

Key Words: Ethnobotany, Grasses, Minor millets, Southern Rajasthan, Tribals

The term millets commonly refers to any of the broad range of small seeded cereals and forages. Millets are also referred to as miscellaneous cereals or coarse grains, are members of the family Poaceae. Compared to other cereal grains minor millets can grow in less fertile soils, and survive intense heat and low rainfall conditions. In addition, they require shorter growing season. Under such conditions, minor millets and other related grasses are of immense importance in a state like Rajasthan where famine due to recurrent drought occur rather frequently. There is an old saying in relation of famine about the state *viz* "Teejo Kurio Athwon Akal" which means that the state is bound to be hit by 'Kurio' or state of quasi-famine every third year and by a state of acute or grave famine every eighth year. During famine conditions, the tribals of southern Rajasthan totally depend on minor millets and other related grasses for the food when other cultivated crops have failed.

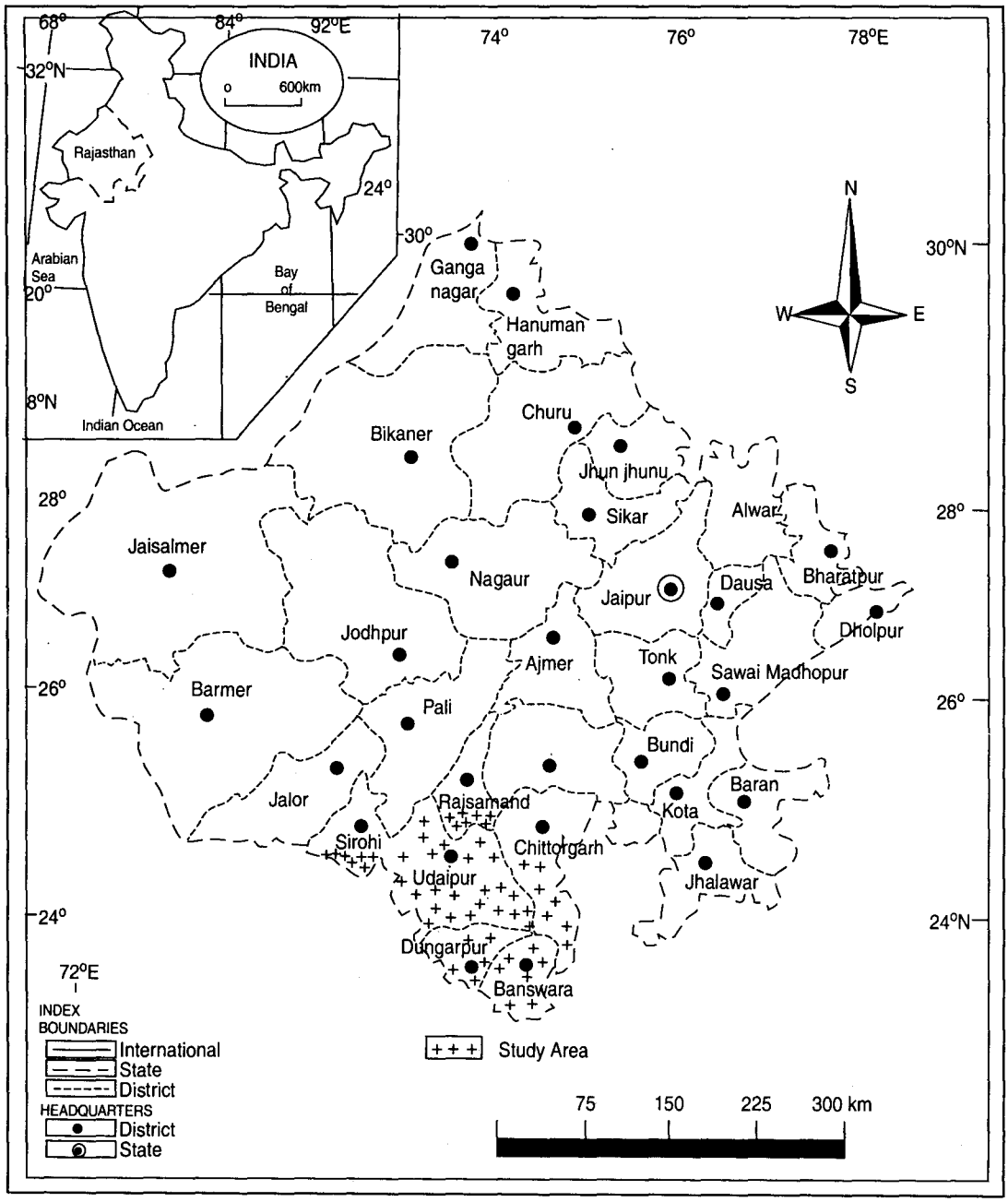
Aravalli hills of Southern Rajasthan are extremely rich in grasses. Being the food of the poorest segment of the society, little attention has been paid on minor millets and to other related wild species of grasses which are very important food of the tribals during difficult period. Considerable work on grasses have been carried out by Caius (1937), Bor (1960), Seetharam (1982, 1983), Katewa and Tiagi (1984), Doshi (1995), Mathur (1996), Sharma (1996), Singatwadia (2000), Katewa *et al.* (2001). A perusal of literature reveals that no ethnobotanical work has been carried out on these group of plants.

Therefore, in the present paper an attempt has been made to study the ethnobotany of minor-millets and related wild species of grasses from the tribal dominated area of southern Rajasthan (Map 1)

Materials and Methods

An ethnobotanical survey of tribal dominated and other rural populated area of the southern Rajasthan was carried out repeatedly in different seasons. The information was recorded about minor millets and related grasses from the study area. The information is based on the interviews with the tribals. Before actually launching into the field work, rapport was established with one or two persons preferably the chief, guidance sought and contact was then established with other tribals of the locality. The linguistic fluency, personality and social standing are crucial for establishing rapport between the participant involved. The local informants were the farmers working in the field, village headmen, priests and other community leaders. Generally two types of interviews were taken of individuals and of groups. For individuals persons were selected at random on the way or entering a hut finding out knowledgeable individuals from the village or village priest, our purpose explained and interviews taken.

To determine the authenticity of information collected during fieldwork, repeated verification of data from different time was done. Thus only the specific and reliable information cross checked with many informants has been incorporated in the present study. All the collected specimens are deposited in the herbarium of the Laboratory of Ethnobotany and Agrostology, Department of Botany, College of Science, ML Sukhadia University, Udaipur (India) for authentication of information and further reference. Number of voucher specimens are also provided. The ethnobotanical information about the minor millets and related grasses are given alphabetically by mentioning their botanical name, local name (if available), ecology, ethnobotany, flowering and fruiting.



Map 1: Distribution of local land races in the study area

Enumeration

(A) Minor Millets

Brachiaria ramosa (Linn.) Stapf. EA* 28

Local name – Kuri **Locality:** Dungarpur

Ecology – An annual grass, common in rainy season on hills, plains etc.

Ethnobotany – *Chapattis* made from the grains flour are eaten by the tribals during famine. Sugar is mixed in grain flour and cooked with milk. This delicious preparation locally called 'Kheech' is eaten by the tribals. The grass is good fodder for cattle. According to tribals, there is no effect of termites/ pests on seed up to 30 years. The ash of the plant is used as an ointment on burns.

Fls. and Frts. – August–September

Echinochloa crusgalli (Linn.) P. Beauv. EA 88

Local name – Batt **Locality** – Banswara

Ecology – It grows on light soils. It is also cultivated with rice.

Ethnobotany – The grains are eaten by tribals either making *chapatti, khitchdi* or *raab* (local preparation). The plant is used in disease of spleen and for checking haemorrhage by the tribals. Extract of whole plant is taken orally in nostril haemorrhage by the tribals.

Fls. and Frts. – August–October

*EA = Ethnobotany and Agrostology Herbarium.

Echinochloa frumentacea Link. EA 417

Local name – Batti **Locality** – Salumber

Ecology – It is grown in moist area.

Ethnobotany – According to tribals it is the quickest growing of all millets. It is grown as a subordinate crop of sorghum and maize by the tribals. Grains are either cooked in water like rice or parched or boiled with milk and sugar by the tribals. The grains are useful in biliousness and constipation.

Fls. and Frts. – August–September

Eleusine coracana (Linn.) Gaertn. EA 418

Local name – Maal **Locality** – Chotta nala

Ecology – An annual and cultivated grass of southern Rajasthan

Ethnobotany – Tribals of southern Rajasthan cultivate this grass and grains are eaten during summer months. According to tribals the nutritive value of grains of this grass is higher than that of rice and equal to that of wheat. Grains can be safely stored for a period of 30-40 years. Grains may also be malted and flour of malted grains is used as nourishing food for infant by the tribals. The grains are used in diabetes by the tribals. The leaf extract is given to woman in childbirth and the plant is reported to be diaphoretic, diuretic. The plant is used in leprosy, liver disease, measles, pneumonia and small pox by the tribals.

Fls. and Frts. – September–November.

Panicum miliaceum Linn. EA 374

Local name – Cheena **Locality** – Chotta nala, Jhadol

Ecology – An annual grass. It is only minor millet which is cultivated during summer months in the southern Rajasthan. The grains are very slippery and shinning.

Ethnobotany – The flour of grains is used for making *chapattis, raab* (local preparation) etc. The grains can be stored safely for many years.

Fls. and Frts. – April-June

Paspalum scrobiculatum Linn. EA 360

Local name – Kodra Locality – Banswara

Ecology – A perennial grass, commonly found near ponds, tank etc. or near marshy places.

Ethnobotany – The grains are used as food by the tribals of Rajasthan. According to tribals it requires more water and is more nutritious as compared to other millets. It contain poisonous narcotic constituent in younger stage, which cause vomiting and vertigo. Paste of whole plant is used for skin diseases and is effective on boils and sores. Mature grains are used to cure diarrhoea.

Fls. and Frts. – August-September

Setaria glauca (Linn.) P. Beauv. EA 422

Local name – Hamli **Locality** – Bili kheda, Banswara

Ecology – An annual grass, very common in protected grassland area.

Ethnobotany – The grains are mixed with the grains of maize to make the chapatis during scarcity of food grains. Powder of grains is mixed in the urine of goat and about two teaspoonful of it is taken orally with water for about a week to cure syphilis.

Fls. and Frts. – September–October

Setaria italica (Linn.) P. Beauv. EA 423

Local name – Kangni **Locality** – Banswara

Ecology– An annual grass, cultivated or growing in gardens at shady places.

Ethnobotany– According to tribals the grains are said to posses heating properties and when taken alone sometimes cause diarrhoea, so the grains are powdered and mixed with flour of cultivated cereals to make the *chapatis*. The straw is thin and considered a good fodder. It is generally fed to cattle without chaffing. The straw makes a good hay when cut in flowering stage. The straw is used for thatching and bedding. The grains are

astringent, diuretic and laxative and are useful externally in rheumatism.

Fls. and Frts. – June–November

(B) Other Related Grasses

Acrachne racemosa (Heyne) Ohwi. EA 14

Local name–Phundale ghass **Locality**–Banswara, Salumber

Ecology – An annual grass, mostly found along the margin of cultivated land.

Ethnobotany – The tribals use the grains during famine condition and also as fodder for the cattle.

Fls. and Frts. – July–September

Alloteropsis cimicina (Linn.) Stapf. EA 13

Local name – Basanti ghass **Locality** – Banswara

Ecology – An annual grass, common in the rainy season to moist and shady places.

Ethnobotany – The grains are used as famine food by the tribals. It is also used as fodder. Root paste is used in toothache.

Fls. and Frts. – August–September.

Apluda mutica Linn. **EA 12**

Local name – Bhangtu, Gunderi **Locality**–Jhadol

Ecology – An annual grass commonly found in hedges by the tribals and amongst bushes.

Ethnobotany – It is considered as a good fodder. The grains are also used as famine food by the tribals. Poultice of whole plant is used to cure mouth sores of cattle. It is also given to cattle with small fishes to cure flatulence. The grass is tied in compact bundles, which are used for thatching of tribal huts.

Fls. and Frt. – August-September

Brachiaria reptans (Linn.) Gard. et. C.E. Hubb. EA 27

Local name – Soraya **Locality** – Jhadol

Ecology – An annual grass, often found in cultivated growing fields with slender creeping stem rooting at lower nodes. An excellent soil binding grass.

Ethnobotany – Grains are used as famine food by the tribals. It is also used as fodder.

Fls. and Frts. – July–September

Cenchrus ciliaris Linn. EA 54

Local name – Dhaman **Locality** – Salumber

Ecology – A perennial grass.

Ethnobotany – This grass is considered to be the most nutritious fodder grass by the tribals. It increases the quantity of milk in milch cattle. Grains are used as famine food by the tribals during severe famine conditions.

Fls. and Frts. – August–October.

Coix lacryma-jobi Linn. EA 41

Local name–Garelo **Locality**–Gorana Dam, Sayara

Ecology – An annual grass, common in wet places along streams and ditches.

Ethnobotany – The false fruits known as jobs tears are used as beads for making necklaces by the tribals. Boiled grains are eaten by the tribals. Boiled grains are also eaten to cure dysentery. Grains of this grass are mixed with the grains of *Zea mays* and used for making porridge by the tribals. The leaf extract is given orally in urinary complaints.

Fls. and Frts. – August–September.

Dactyloctenium aegyptium (Linn.) P. Beauv. EA 65

Local name – Malicha **Locality** – Jhadol

Ecology – An annual grass of cultivated field and along roadsides, preferring sandy substratum.

Ethnobotany – The grains are ground to flour by the tribals for making chapatis during scarcity of food. Powder of grains is taken orally with water by the tribals in stomachache.

Fls. and Frts – August–October

Echinochloa colonum (Linn.) Link. EA 90

Local name – Sama **Locality** – Chittorgarh

Ecology – An annual grass, common in waterlogged areas frequently occuring in ditches etc. with muddy soil, often partially under water.

Ethnobotany – It is valued as a quick growing fodder grass by the tribals. It is relished by cattle at all stages and its nutritive value is enhanced when in grain stage. The grains are eaten as rice by the poor tribals. Boiled grains are also eaten by women during the fast of 'Sama pancham'

Fls. and Frts. – August–September

Eleusine indica (Linn.) Gaertn. EA 83

Local name – Chitki **Locality** – Jhadol

Ecology – Annual, common in wet places on the margin of cultivated field.

Ethnobotany – Grains are used as famine food by the tribals and also used as fodder

Fls. and Frts. – July–October.

Haecklochloa granularis (Linn.) O. Ktze. EA 96

Local name – Majri Hankli **Locality** – Bansi

Ecology – An annual grass of rare occurrence, restricted to moist places in open grassland.

Ethnobotany – It is a good fodder grass and used as scarcity food by the tribals.

Fls. and Frts. – September-December

Ischaemum rugosum Salisb. EA 419

Local name – NA **Locality** – Dungarpur

Ecology – An annual grass, growing in wet marshy places especially in rice field.

Ethnobotany – It is used as forage. It is a serious weed in many crops, particularly in rice field. It also provide suitable material for compost. In times of food scarcity the grains are eaten by the tribals.

Fls. and Frts. – September–October.

Panicum paludosum Roxb. EA 420

Local name – NA **Locality** – Sitamata wild life sanctuary

Ecology – A perennial grass with spongy culm often seen growing in submerged water, common on margin of slow flowing streams and puddles.

Ethnobotany – It is used as fodder or famine food by the tribals.

Fls. and Frts. – August–September

Paspalidium flavidium (Retz.) A. Camus. EA 421

Local name – NA **Locality** – Banswara

Ecology – An annual grass of marshy places.

Ethnobotany – The grains are used as food by most of the tribals of the area. It is also used as fodder by the tribals.

Fls. and Frts. – August–October

Setaria paniculifera (Steud.) Fourn. **EA 424**

Local name – NA **Locality** – Banswara

Ecology – A perennial shade loving grass of hilly tracks, usually indicate damp, humus–impregnated soil.

Ethnobotany – The grains are used as famine food during period of food scarcity.

Fls. and Frts. – September–October

Setaria tomentosa (Roxb.) Kunth. EA 426

Local name – NA **Locality** – Dungarpur

Ecology – An annual grass, very common in moist habitats and shady places.

Ethnobotany – The grains are used as famine food in the period of food shortage.

Fls.and Frts. – August–October

Setaria verticillata (Linn.) P. Beauv. **EA 94**

Local name – Jhetudi ghass **Locality** – Jhadol

Ecology – An annual grass, commonly found in sandy clay soil, particularly along irrigation channels, dam-sides and waste places. It is a weed of the garden in shady and neglected places. This species can very easily recognized by its readily sticking spikes to once clothing.

Ethnobotany – It is good fodder grass for the cattle. The grains are eaten by tribals as famine food.

Fls. and Frts. – August–October

Sorghum halepense (Linn.) Pers. EA 425

Local name–Baruri ghass **Locality**–Kodiyat, Udaipur

Ecology – A perennial grass, grow as a wild around and inside the cultivated field.

Ethnobotany – According to tribals this grass is very poisonous in the early stage of growth, which is fatal to cattle. Extract of whole plant is taken orally along with pinch of common salts in fever by the tribals.

Fls. and Frts. – October–January

Urochloa panicoides P. Beauv. EA 427

Local name – NA **Locality** – Kodiyat

Ecology – A tufted annual grass, common in cultivated fields.

Ethnobotany – A very good fodder grass for the cattle. The grains are collected during shortage of food.

Fls.and Frts. – August–September

Results and Discussion

From the ethnobotanical survey it was noted that the tribals of southern Rajasthan, in addition to cultivation of *Zea mays* (as staple crop), also cultivate the traditional minor millets for consumption during the summer months especially when there is shortage of food due to famine. Tribals cultivate minor millets either singly or with *Zea mays*. The crop of minor millets mature within 2-3 months after sowing. All the minor millets except *Panicum miliaceum* are cultivated on the onset of monsoon while *Panicum miliaceum* is cultivated in the end of February or beginning of March. The crop of *Panicum miliaceum* is harvested in the month of June. Though the minor millets are cultivated in a very small area but nutritionally they are considered far superior by the tribals in comparison to other cereals like wheat, rice, maize etc. as one chapati of these minor millet is sufficient to quench the hunger of tribals for whole day. According to tribals out of 8 cultivated minor millets, *Paspalum scrobiculatum* is considered as the most nutritious minor millet. The area of cultivation of these minor millets is shrinking because of division of land in to nuclear families from joint families.

From the ethnobotanical survey it was noted that the tribals consume the minor millets either mixing with other cereals or by boiling the grains. The health, vitality and longevity enjoyed by the tribals have been attributed by them, especially by the elders, to these minor millets and other related wild species of grasses. This belief was substantiated, as some of the grasses used as food have medicinal value.

Due to modernization and urbanization, food habits of tribals have changed. The area of cultivation of minor millets is decreasing year by year. The number of other related wild species of grasses is also decreasing due to overgrazing and recurrent droughts. So the documentation and conservation of these plants is assuming great significance in the light of the food problem likely to be faced in the near future.

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