

The study of endangered and threatened food species of family Poaceae from Coal Region District Umaria (M.P.)

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Abstract

Coal region is located in south eastern part of Madhya Pradesh covering five districts namely West katni, East Shahdol, North Sidhi and Rewa South Sihora. Floristic survey was carried out in the Coal region. It was found that the area under study has eight species of various milleta which are threatened or critically endangered. Main reasons responsible for shrinking of the population are over grazing, plugging old grassland, clearing of forest for agriculture, megaprojects and felling of plants for fire wood, felling of trees for leaf.

Umaria district is located to the North East of Madhya Pradesh. Mathematically the coordinates of the District extend from 23°38' to 24°20' North and 80°28' to 82°12' East. It has geographical area of 4548 sq.km. The greatest length of the district is about 150 km. from north to south and the greatest width is about 60km from east to west. The population of the district on the basis of 2011 census is 644,758. Out of which about 83% population resides in rural areas. The district has extensive forests. About 42% of the total area is covered by forests only. The District is rich in minerals. The most important mineral found in the district is coal and as a result 8 mines are being operated by South Eastern Coalfield Limited in the district.

The famous Bandhavgarh National

Park (Tala) and Sanjay Gandhi Thermal Power Station Mangthar (Pali) are located in the district.

Umaria was formerly the headquarters of the South Rewa District and thereafter the headquarters town of the Bandhavgarh tehsil. It is situated at a distance of about 69 Km. from Shahdol, the parent district. Metalled roads connect the town with Katni, Rewa Shahdol *etc.*, on which regular buses ply. Umaria is also a railway station on the Katni-Bilaspur section of the South-Eastern Railway. It is a natural impregnable fort and stands on a hill, at an altitude of about 2430 metres above sea-level. The Bamnia hill is also a part of the fort, because it is enclosed by a rampart. The fort is on the Rewa-Umaria road, at a distance of about 41Km from Umaria Town. The

Table-1. List of Endangered and Threatened food species

S.No.	Simple Name	Botanical Name
01	Barley (Jao)	<i>Hordeum vulgare</i> L.
02	Barnyard Millet (Sanwa)	<i>Echinochloa frumentacea</i> Link
03	Finger Millet (Ragi / Nachni)	<i>Eleusine coracana</i> L.
04	Foxtail Millet (Kangni/ Kakum)	<i>Setaria italica</i> (L.) P. Beair
05	Kodo Millet (Kodo)	<i>Paspalum scrobiculatum</i> L.
06	Little Millet (Samai)	<i>Panicum sumatrense</i> Roth ex Roen & Schult
07	Pearl Millet (Bajra)	<i>Pennisetium glaucum</i> (L.) R. Br.
08	Proso Millet	<i>Panicum miliaceum</i> L.

headquarters town of the Umaria district and Bandhavgarh tehsil, formerly Umaria was the headquarters of the South Rewa District. It is situated at a distance of about 69 km from Shahdol. Near the railway station stands a Siva temple, known as the Sagara temple. It was an old shrine, recently remodeled. Its main gates are still intact with beautiful stone statues, carved in Khajuraho models. Near about is Jwalamukhi temple, about 6.5km away from the town, there is another temple, with similar carvings of the Khajuraho pattern. It is known as the Mariwal temple. Umaria is famous for its coal-mines, which were opened in 1881 by the Government of India and transferred to the Rewa Darbar in the same year, mainly to meet the requirements of railway at Katni. For the preparation of the manuscript relevant literature¹⁻⁶ has been consulted.

A systematic plant survey and collection were carried out in rainy season by well planned schedule. All habitats from various ecological niches of the study area were surveyed carefully. Plant collection was carried out by standard method. Plant specimen were

identified with the help of Flora of Madhya Pradesh. Some of the endangered plants of the family Poaceae from Umaria are described below .

1. Barley :

Barley (*Hordeum vulgare*), a member of the grass family, is a major cereal grain grown in temperate climates globally. It was one of the first cultivated grains, particularly in Eurasia as early as 10,000 years ago. Barley has been used as animal fodder, as a source of fermentable material for beer and certain distilled beverages, and as a component of various health foods. It is used in soups and stews, and in barley bread of various cultures. Barley grains are commonly made into malt in a traditional and ancient method of preparation.

2. Barnyard millet :

Barnyard millet (*Echinochloa crusgalli*, *E. colona*) is important in the tropics and subtropics of India.

3. Finger millet :

Finger millet (*Eleusine coracana*), known as ragi in India, is another important

staple food in Eastern Africa and in Asia (India, Nepal). It has a slightly higher water requirement than most other millets and is found in cooler, elevated regions up to 2000 metres above sea level. The plant carries several spikes or “fingers” at the top of the stem. The grain is small (1-2 mm in diameter).

4. Foxtail millet :

Foxtail millet (*Setaria italica*) is also adapted to moderate climates. It produces long, cylindrical or lobed, bristly, condensed panicles. China ranks first in the production of foxtail millet in the world. It is grown there for both food and feed. The crop is also grown in India, Indonesia, the Korean peninsula, and some parts of southern Europe. It is not grown to any extent in Africa outside the eastern highlands. Prior to the availability of sorghum-sudan grass forage hybrids, foxtail millet was an important temporary pasture species.

5. Kodo millet :

Kodo millet (*Paspalum scrobiculatum*) is harvested as a wild cereal in Western Africa and India, where it grows abundantly along paths, ditches and low spots. The species was domesticated in India about 3000 years ago.

6. Little millet :

Little millet (*Panicum sumatrense*) is widely grown in India, Nepal, Pakistan, Sri Lanka, eastern Indonesia and western Myanmar.

7. Pearl millet :

Pearl millet (*Pennisetum glaucum*, *P. typhoides*, *P. typhoidum*, *P. americanum*) is

the most widely grown of all millets. It is also known as bulrush millet, babala, bajra, cumbu, dukhn, gero, saje, sanio or souna.

Pearl millet is a traditional crop in Western Africa, particularly in the Sahel; in Central, Eastern and Southern Africa; and in Asia, in India and Pakistan and along the southern coast of the Arabian Peninsula. Pearl millet has been recently introduced as a grain crop in the southeastern coastal plain of the United States, where it has been used as summer forage. Pearl millet can be grown on poor, sandy soils in dry areas that are unsuitable for maize, *Sorghum* or finger millet. It is a summer cereal grass with large stems, leaves and heads. It is more efficient in its utilization of moisture than *Sorghum* or maize. The grain grows in condensed panicles (spikes) 10 to 150 cm in length. Pearl millet has the highest yield potential of all millets under drought and heat stress.

8. Foxtail millet :

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There are several other “minor” millets, some of which are of regional importance.

Teff (*Eragrostis tef*) is a very small-seeded grass that is cultivated for grain in the Ethiopian highlands, where its production exceeds that of most other cereals. It tolerates heavy soils with poor drainage characteristics. Several of its relatives are highly valued forage grasses in the world's arid zones.

White fonio (*Digitaria exilis*), Black fonio (*Digitaria iburua*), and Guinea millet (*Brachiaria deflexa*) are minor cereals of dry areas in sub-Saharan Western Africa. White fonio is cultivated throughout much of this region, except Liberia. It is a very important crop in southern Mali, northeastern Nigeria, extreme southern Niger, western Burkina Faso, eastern Senegal and northern Guinea. Black fonio is found in isolated pockets in the Jos-Bauchi plateau of Nigeria and the northern parts of Togo and Benin. Guinea millet cultivation is confined to the Fouta-Djallon plateau of Guinea and Sierra Leone. There are several other "minor" millets, some of which are of regional importance.

Many plant species are facing threats for their existence due to anthropogenic influences and other reasons. In Madhya Pradesh 8 plant species of family Poaceae are considered as threatened. Present investigation observed 8 threatened plant species belonging to Poaceae family which are threatened due to many reasons. Some plant specimens were reported only from study area totally disturbed and fragile. *In-situ* conservation, *ex-situ* conservation strategies have been suggested. Tribals or local people should be encouraged for regeneration and plantation of these food species in their natural habitats.

Following suggestions have been

proposed to conserve the rich biodiversity of Coal region.

1. GIS locations of the all threatened and noteworthy plants should be earmarked and conserve them in their natural habitats.
2. Collection of assessed threatened medicinal plants should be banned from forest. Cultivation of these plants can fulfil the demand of local trader diversity of plant. Most of the threatened food species are restricted to these areas. These unique and rich plant diversity should be protected.

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