

DOCUMENTATION AND CONSERVATION STRATEGY APPLIED TO SOME RARE PLANTS OF PHARKIYA REGION OF KOSHI BELT (BIHAR)

S.C.R. Chandel*, Umesh Kumar*, R.P. Upadhyaya** and Birendra Kr. Mishra**

Key words : Pharkiya region, Famine Food, Chichor, Kysoor, The Musahar, Germplasm.

The Pharkiya Region of Koshi Belt, which is gifted with a rich biodiversity, is a highly neglected region of North East Bihar in India. The present communication deals with the ethnobotanical study of two tuber bearing sedges called 'Chichor' and 'Kysoor' in the local language. These two plant species have been recognized as 'Famine Food'.

From ethnobotanical point of view we have targeted extremely poor ethnic community 'The Musahars', who are enlarged as landless labourers community. During the scarcity of cereal food they used Chichor and Kysoor as famine food.

Chemically the tubers of Chichor (*Cyperus palustris*) and Kysoor (*Scirpus grossus*) are rich in carbohydrates in addition to some proteins, fats, fibres, ash and water.

INTRODUCTION

This is by and large an ethnobotanical study involving two tuber bearing sedges called *Cyperus palustris* (Var. Chichor) and *Scirpus grossus* (Var. Kysoor). These two plant species have been recognized as the 'Famine Food' and well documented in "A statistical Account of Bengal, Vol. IV by W.W. Hunter (1877) and Bihar & Orissa District Gazetteers (Monghyr) authored by L.S.S. O'Malley, 1925". But unfortunately very scanty information on these two plant species is available despite the fact that they are vitally important for the survival of marginalised community of 'Musahars' or rat catchers, and that too in the seasons or at the time of scarcity. In the words of Lackwood : "When I saw 500 persons chichor hunting in a single marsh, I knew that there was famine in the land". According to W.W. Hunter : "A man may collect about a six pound a day, with average luck and labour, and they are usually ground into a kind of flour and made into bread or cakes, but are also eaten raw". These sedges have been rightly described as "Famine Thermometers". A party was digging up the underground creeping stem of water lily or the sedge bulbs called 'Chichor' in the vernacular, which are eaten to give flavour to the snails and crabs meat.

According to Vartak (1981) the tubers of *Scirpus grossus* are sweet, starchy, highly nutritious and also eaten uncooked by some tribals in India. The crops have also found a mention as an Ethnobiological, information in the *Arthasashtra* of Kautilya.

OUR EFFORTS

With a combined effort of researchers, teams have been visiting the areas where endemic germplasm are found. These areas cover parts of the districts of Khagaria and Saharsa which are characterised by ever changing topography and land profile due to the presence of many perennial rivers. Some of these rivers shift their banks very swiftly, cutting the margins and ultimately inundating their areas across. The soil

composition is sandy, sometimes loamy and almost persistent annual floods leave cover of fertile silts behind.

Geographically the area is tough terrain with a comparatively thin human habitation and mostly occupied by socio-economically backward ethnic groups. The region as a whole is called "Pharkiya region". We have been able to collect and study the present growth behaviour and utility of certain indigenous species. During our course we finally selected two germplasms for our study, viz., *Cyperus palustris* and *Scirpus grossus*.

THE HISTORY OF PHARKIYA REGION

Historically, it is said that during the times of Emperor Akbar, Raja Todarmal had been entrusted with the duty of making the survey of the entire area but he failed to do so because of the thatching grasses and shifting of the path of rivers. He advised that this area should be excluded. In other words, he adopted the policy of "Farak-Kiya" (to separate) and that is why the area since then is known as "Pharkiya Pargana or Belt or Region locally".

Geographically, this region has saucer-shaped depression and flooding of the area during rainy season is an annual feature on account of outburst of water from the seven major rivers- The Ganga, Burhi Gandak, Bagmati, Kamla, Koshi, Kareh and Ghaghri.

This Pharkiya region is situated between latitudes 25°15'-25°50'N and longitude between 86°20'-86°54'E. This region is characterised by alluvial soil. The average maximum and minimum temperature lies between 36.6°C and 20.9°C. The atmosphere is very humid in rainy season and slightly lesser in October and in winter months. The air is dried in summer season. The Pharkiya region is spread over an area of 752 sq. miles.

From ethnobotanical point of view, we have targeted extremely poor ethnic community- 'The Musahars', who are enlarged as landless labourers community. The study was done to examine the impact of selected germplasms on their livelihood and other consequential influences.

*Dept. of Botany, Koshi College, Khagaria

**P.G.Department of Botany, TMBU, Bhagalpur.

THE MUSAHARS

According to Hunter (1877), “The Musahars, or Mousers, as we should call them, catch and eat the field rat”. Rat meat and rice comprise their food in the season of availability.

As observed by O’Malley (1925), “The Musahars are field labourers whose wages are customarily paid in kind in the villages. They live in a kind of social thralldom, sometimes selling themselves, their wives and children to lifelong servitudes for paltry sums. With an ingrained aversion to emigration, pilfering in times of plenty, and living upon roots, rats, snails and shells, they cause considerable difficulty to Government officials in times of death. They live away from *basti*. The bulk of the castes are field labourers and *palankeen* bearers, and only a few have attained the dignity of cultivating on their own holdings or acquired occupancy rights. The name *Musaharis* believed to mean rat-catchers or rat-eaters and is an appropriate usage, for they are professional rat catchers.

Lockwood, in his work “Natural History, Sport and Travel”, writes : “The Musahars, or Mousers, as they may be called, are found in every village of Monghyr, and are half starved even in times of plenty. They seldom see coin, but receive their scanty wages in terms of grain, which they flavour with rats, mice, snails, and jungle roots, whilst living in hovels which an English Pig would consider poor accommodation. One would imagine that such persons must find difficulty in

Protein	Fat	Carbohydrate	Fibre	Ash	Water
5.12 g	1.0 g	75.18 g	7.80 g	4.40 g	6.50 g

A perusal of the Table shows that tubers are rich in carbohydrates in addition to some proteins, fats, fibres, ash and water.

The calorie value of these food stuffs has been measured 340.

1. *Scirpus grossus*(Kysoor)

- * Fully grown plant reaches height of approximately 2 meters and gives tufted look.
- * Stem is triangular and fleshy.

Protein	Fat	Carbohydrate	Fibre	Ash	Water
4.12 g	1.0 g	76.18 g	6.80 g	3.40 g	8.50 g

A perusal of the table shows that the tubers are rich in carbohydrates in addition to some proteins, fats, fibres, ash and water. The calorie value of these food stuffs, has been 338.

UTILITARIAN VALUE OF GERMPLOASM :

As perceived earlier tubers of the endemic plants constitute a vital source of food for human survival in the periods of acute scarcity and therefore, they have rightly been called famine food. Apart from food, other plant parts like stems and leaves of these species are variously used, namely as fodder and for making household articles like mats, baskets and door curtains.

getting wives, but contrary is the case, for bachelors and spinsters are unknown. At the age of puberty they present themselves at their landlords house and having signed a deed binding themselves to remain in bondage for the terms of their natural lives, receive a few shillings in return, with which to entertain their friends at a marriage feast and set up house.”

THE GERMPLOASM

Cyperus palustris(Chichor) and *Scirpus grossus*(Kysoor) are sedges belonging to family Cyperaceae.

1. *Cyperus palustris*(Chichor)

- * Full grown plant reaches the height of approximately 1m and gives tufted look.
- * Leaves are cylindrical, hollow, grooved and green with parallel venation.
- * Large-sized blackish brown, amorphous, oval, rhizomatous tubers are produced near the base of the underground part.
- * The mean length of tuber is 3.52 cm and average diameter has been measured to be 2.25 cm.
- * The range of weight of individual tuber varies from 0.5-2g. The chemical composition of tubers in 100 is presented in the Table :-

- * Leaf is fleshy and 2cm wide in the middle. Parallel venation is present.
- * Spikelet inflorescence with glumes present.
- * Tubers look black and oval.
- * The mean length of tuber is 7.12cm and average diameter measures 3.45cm.
- * Weight of individual tuber varies from 6.5-8 g. The chemical composition of tubers in 100g is presented in the Table (after Paton and Dunlop) :

The collected germplasms have been conserved in the selected plots of the botanical garden. The cytological studies of these germplasms are under progress.

ACKNOWLEDGEMENT

The team is extremely thankful to Sukhdeo Sada, Baleshwar Sada, Domi Sada, Chamru Sada, Chandi Sada, Charitra Sada, Biso Sada, Ram Saran Sada, Gopal Sada, Vikho Sada, Madan Sada, Sanichar Sada, Rampari Devi, Hira Devi and Parmila Devi from Pharkiya Region for their ready co-operation. The authors also acknowledge thankfully the financial assistance received from UGC to the project on which this paper is based.

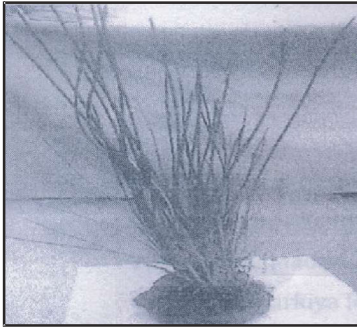


Fig. 1 (a) A tuft of chichor



Fig. 2 (a) Tubers of chichor

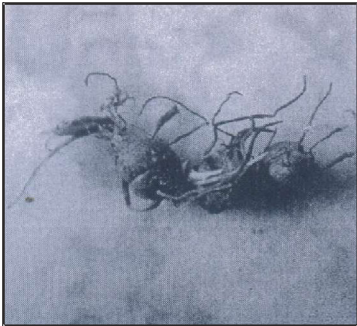


Fig. 3 (a) Germinating Tubers of chichor



Fig. 4 (a) A native woman baking bread from flour of chichor

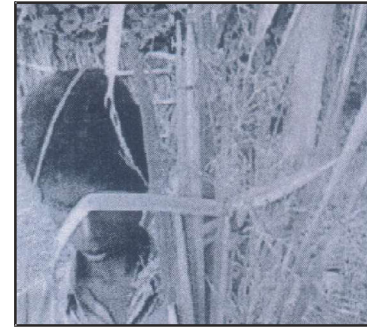


Fig. 1 (b) A local boy holding tuft of Kysoor

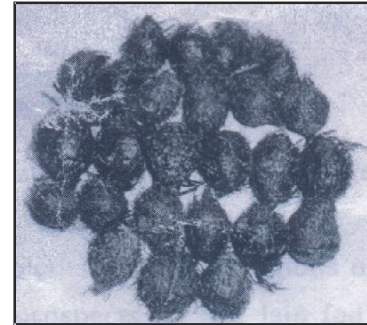


Fig. 2 (b) Tubers of Kysoor

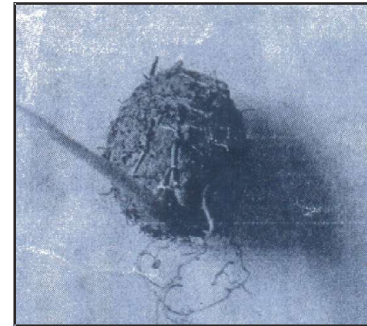


Fig. 2 (b) Germinating Tuber of Kysoor



Fig. 4 (b) A native woman weaving mat from plants of kysoor

References

- Hunter. W.W., 1877, (ed). "A Statistical Account of Bengal, Vol.XV, Page 87".
Jain S.K., (ed). A Manual of Ethnobotany".
O'Malley L.S.S., 1925, (ed). Bihar & Orissa District Gazetteer (Monghyr). Page 75.

Vartak. V.D., 1981. Observation on wild edible plants from hilly regions of Maharashtra and Goa : Resume and future prospects, in S.K. Jain (ed), Glimpses of Indian Ethnobotany. Oxford & IBH Publishing Co., New Delhi.