

A Case Study

DOI: 10.15740/HAS/IJFCI/5.2/85-89

## Wild edible tuber and root plants available in bastar region of Chhattisgarh

AJAY BANIK, SHARAD NEMA AND DEO SHANKAR

**ABSTRACT :** Natural forest is the source of supplies of various plants of tuberous and roots importance that provides carbohydrates and some minerals and are often important ingredients in traditional medicines. They used as drought and famine foods, not only because they survive in low rainfall periods, but can also be an important source of water. Looking to the importance of wild tuberous crop in the tribal dominating region of the State an ethno botanical study was conducted to document and compile the wild edible tubers that had been observed and investigated in Central part of Bastar region of Chhattisgarh State. So that their importance, traditional uses could be realized. A total of 22 wild edible tubers were identified and recorded as food sources during the study period were *Amorphophallus paeoniifolius*, *Asparagus racemosus*, *Chlorophytum borivilianum*, *Colocasia esculenta*, *Costus speciosus*, *Curculigo orchioides*, *Curcuma amada*, *Curcuma angustifolia*, *Curcuma caesia*, *Dendrocalamus strictus*, *Dioscorea alata*, *Dioscorea bulbifera*, *Dioscorea hispida*, *Dioscorea oppositifolia*, *Dioscorea pentaphylla*, *Dioscorea bulbifera* var. *pulchella*, *Hibiscus rugosus*, *Ipomoea batatas*, *Leea macrophylla*, *Pueraria tuberosa*, *Scirpus grossus*, *Urginea indica*. *Dioscorea* or commonly known as yam was reported to be one of the major food sources in Bastar region. It was noticed that *Dioscorea* available as major tuber crops and highly utilized tuber species. The majority of villagers used *Dioscorea* in many ways in their life such as for food, medicinal purposes and fish poison. The 22 edible tuberous and root plants were belongs to the 13 families out of which Dioscoreaceae, Zingiberaceae, Liliaceae and Araceae had more than one identified plants whereas the families like Costaceae, Asparagaceae, Hypoxidaceae, Poaceae, Leeaceae, Fabaceae, Cyperaceae, Malvaceae, Convolvulaceae had only one edible tuber plant during period of study. The wild tubers are the dietary food and of seasonal resources of the tribals in forest dominating areas. Although the popularity of these wild tubers has declined, it is considered that special attention should be given to them in order to maintain and improve this important source of food supply in the area. This paper dealt with the wild edible tubers plant utilized by the tribal's of Bastar for their sustenance. The wild edible tubers plant of Bastar illustrated and documented for their utilization pattern.

**KEY WORDS :** Indigenous knowledge, Tubers, Kand, Root crops, Yams, Bastar, Staple food, Tribal

**How to cite this Article :** Banik, Ajay, Nema, Sharad and Shankar, Deo (2014). Wild edible tuber and root plants available in bastar region of Chhattisgarh. *Internat. J. Forestry & Crop Improv.*, 5 (2) : 85-89.

**Article Chronical :** Received : 04.09.2014; Accepted : 26.11.2014

### MEMBERS OF RESEARCH FORUM

**Address of the Correspondence :**

SHARAD NEMA, School of Studies Forestry and Wildlife, Bastar University, JAGDALPUR (C.G.) INDIA  
Email: sharadnema77@rediffmail.com

**Address of the Coopted Authors :**

AJAY BANIK, School of Studies Forestry and Wildlife, Bastar University, JAGDALPUR (C.G.) INDIA  
Email: ajaybanik07@gmail.com

DEO SHANKAR, AICRP on Tuber Crops, S.G. College of Agriculture and Research Station (IGKV) JAGDALPUR (C.G.) INDIA  
Email: deo1975ram@gmail.com, deotc@yahoo.com

### INTRODUCTION

Forest of the country serve as the source of various important wild food like fruit, leaves, root, tubers, stems, flowers, gums, etc. and store house of food for the tribal and rural communities. Forest supply the ample food especially during the hungry season or summer season and act as emergency food at the time of drought, famines and other crises. It has been estimated that about 80 per cent of the forest dwellers in Madhya Pradesh, Chhattisgarh, Orissa, Bihar and Himachal Pradesh depend on forest for 25-50 per cent of their annual food requirements (Tewari, 1994). Wild edible tuber species are

an important source of food in India and have a significant place in the dietary habits of small and marginal farm families and forest-dwelling communities during periods of food scarcity (Arora and Pandey, 1996 and Roy *et al.*, 1988).

Wild plants have been recognized to have potential to meet household food and income security (Guinand and Dechassa, 2000; Kebu and Fassil, 2006). Many wild fruits notably, Amla, Harida, Bel, Elephant apple have been exploited from wild for centuries across Indian subcontinent on account of its food and medicinal properties. Yam is important as it become a staple food in many tribal parts of the India because of its nutritional quality and easy availability. People consumed yams as cooked vegetables.

Bastar being a forest dominated region and has a great storage bank of wild tubers. Thus, the information on the wild edible tubers which are occurring as well as used by the local tribal communities are documented and compiled to provide values of the tuber plants which help in improvement of nutritional status of tribal and rural masses and to provide food from forest. The available literature reveals that there is gap in knowledge about tuberous and roots plants in these regions. The present paper, therefore, is an attempt to fill this gap. Apart from it and some new ethnobotanical uses have also been reported. Inventory of tuberous wild edible as food resources their ethno-botanical information and their traditional uses can help in the enhancement of health and food to the tribal and rural of the region.

## EXPERIMENTAL METHODS

### Study area :

Bastar is the southernmost district of the state of Chhattisgarh in Central India. It is one of the regions that has escaped excessive human interference and exploitation of its forests. The entire region is a tilted peninsular plateau about 40,000 km<sup>2</sup> and varies in elevation from 284 m to 1,200 m above sea level. The tract falls between the latitudes 18–30°N and 19–20° N and longitudes 81–10° E and 82–15° E. Bastar - plateau region comes under moist, sub - humid agroclimatic region of Chhattisgarh. The climate is dry moist tropical type with a mean rainfall of about 1100 mm and has an average temperature varies from 25–27°C.

### Method of study :

A field survey study was conducted during the year 2012 in the selected villages for the wild edible tuberous plants. Details information was recorded by interviewing the local respondents through semi-structured questioner and information from local markets visited for inventory of wild edible tuberous plants used by the tribals of Bastar during the study. Tribal informants were consulted and they provided useful information on wild edible tuberous plants and their



Fig. A : Map of Bastar district

usefulness in various dietary and other purposes. The categories of respondent were old men, tribal women and forest villagers' *i.e.* user group. The main aim of the survey was to collect information on wild edible tuberous plants which are used by the tribals and to identify and document by collecting samples of plant species. The identified and collected plant samples were arranged and documented according to their botanical name, local names, family, habit and their uses were noted. The information on traditional processing techniques of available plants was also enquired during the course of study. Information on Tuber species were gathered from 4 blocks of the Bastar district by using semi-structured questionnaire with random selection of respondents. The identified wild edible plants were confirmed from the books Floristic Diversity of Chhattisgarh, Flora of India and The Wealth of India. The questionnaire for the study used during the survey study are appended in Appendix-I.

### Questionnaires :

The identified and collected plant samples were arranged and documented according to the following questionnaires:

- Local name : Local name of the identified species indifferent local tribal languages e.g. Halbi, Maria, Gondi.
- Other common names : Other local names prevalent in the study area.
- Status in Bastar (Availability) : Information about the availability of plant species in the local forests.
- Edible uses : The edible uses of the plant species and also the way of edibility *i.e.* either used in raw or processed form.
- Processing techniques : The traditional techniques and

the modern processing techniques of the edible plant species.

analysed and tabulated in the Table 1 as given below :

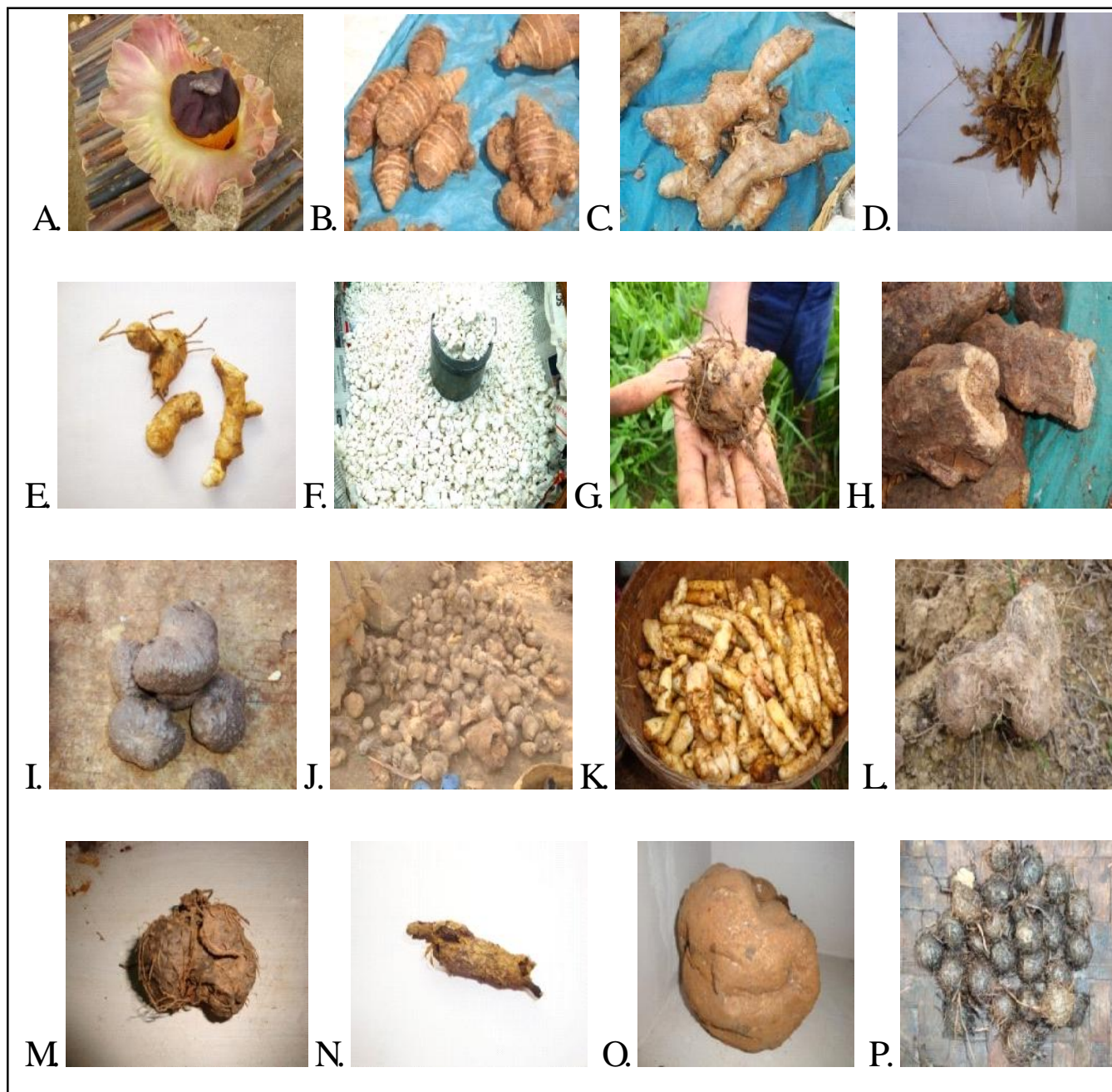
## EXPERIMENTAL RESULTS AND ANALYSIS

The data from survey and literature were documented,

22 Wild edible tuberous plants were recorded during the investigation to be eaten by the tribals of Bastar district are tabulated along with their other utilization pattern as depicted in Table 1. The plant name arranged in alphabetical order

Table 1: Wild edible tuberous and root plants found during the period of investigation					
Sr. No.	Botanical Name	Vernacular name	Family	Habit	Dietary use
1.	<i>Amorphophallus paeoniifolius</i>	Sirdikand, Surankand, Zimikand	Araceae	H	Corms, cormels and stem eaten and cooked as vegetable.
2.	<i>Asparagus racemosus</i>	Shatavari, Satawar, Satmuli	Liliaceae	H	Tubers are consumed as vegetable.
3.	<i>Chlorophytum borivilianum</i>	Korkota Kanda	Liliaceae	H	Tuberous roots edible as vegetable.
4.	<i>Colocasia esculenta</i> (L.) Schott	Kochai, Arvi, Ghuiyan	Araceae	H	Corms, cormels, petiole and leaves are cooked as vegetable.
5.	<i>Costus speciosus</i> (Koenig) Sm.	Kewkanda	Costaceae	H	Rhizomes eaten as vegetable, chutney and pickle.
6.	<i>Curculigo orchioides</i> Gaertn.	Kali musli, Musali kand	Hypoxidaceae	H	Tuberous roots eaten as vegetables
7.	<i>Curcuma amada</i> Roxb.	Amahaldi, Mango Ginger	Zingiberaceae	H	Rhizomes eaten as pickle and chutney.
8.	<i>Curcuma angustifolia</i> Roxb.	Tikhur, Batri	Zingiberaceae	H	Rhizomes largely used for starch extraction and it is used for the preparation of <i>Sarbat, Halwa and Barfi</i> .
9.	<i>Curcuma caesia</i> Roxb.	Kalihaldi	Zingiberaceae	H	Rhizomes used as Spice and flavour and sometimes for cosmetic.
10.	<i>Dendrocalamus strictus</i> (Roxb.)	Dongri bans, Male bamboo Solid bamboo	Poaceae	G	Fresh shoot (Basta) cooked as vegetable.
11.	<i>Dioscorea alata</i> (L.)	Ratalu, Nagarkand, Uskakand	Dioscoreaceae	C	Raw tubers used as vegetable and boiled form for consumption.
12.	<i>Dioscorea bulbifera</i> (L.)	Damgkanda, Lathikanda	Dioscoreaceae	C	Aerial and underground tubers are used as vegetable and boiled form for consumption.
13.	<i>Dioscorea hispida</i>	Kuliakand	Dioscoreaceae	C	Tubers eaten as chips after processing.
14.	<i>Dioscorea oppositifolia</i>	Tagariyakand	Dioscoreaceae	C	Tubers cooked as vegetable.
15.	<i>Dioscorea pentaphylla</i> (L.)	Suwarkanda, Barhakanda	Dioscoreaceae	C	Tubers cooked as vegetable.
16.	<i>Dioscorea bulbifera</i> var. <i>pulchella</i>	Pitakand, Karukanda	Dioscoreaceae	C	Tubers consumed as boiled form.
17.	<i>Hibiscus rugosus</i>	Dhokrakanda	Malvaceae	S	Tubers boiled and inner parts eaten.
18.	<i>Ipomoea batatas</i> (L.) Lamk.	Mitha aalu, Shakarkad	Convolvulaceae	C	Tubers consumed as boiled form and tender leaves as a leafy vegetable.
19.	<i>Leea macrophylla</i> (Roxb. ex Hornem)	Dhotelakand	Leeaceae	H	Roots cooked as vegetable
20.	<i>Pueraria tuberosa</i> (Roxb. ex Willd)	Patal kumda Bidari kand	Fabaceae	C	Tubers cooked as vegetable.
21.	<i>Scirpus grossus</i> (L.f.)	Kaseru Kand	Cyperaceae	G	Tubers consumed as boiled form and raw as medicine.
22.	<i>Urginea indica</i> (Roxb.) Kunth	Bailaagodri, Jangli-piyaz	Liliaceae	H	Bulbs used to cook curries.

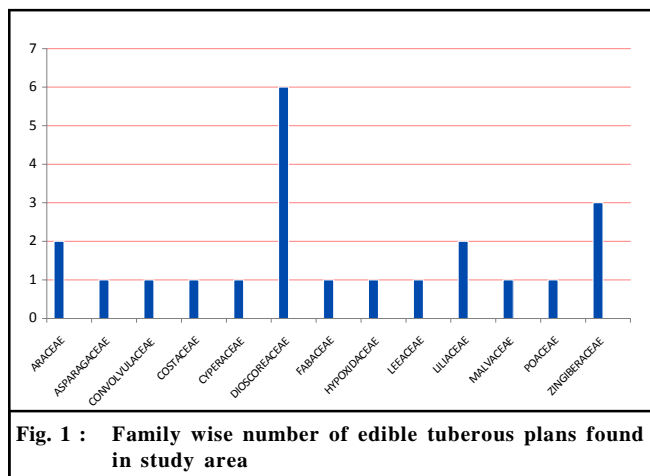
H-Herb, S-Shrub, C-Climber, G-Grass



- |    |  |    |                                     |
|----|--|----|-------------------------------------|
| A. | <i>Amorphophallus paeoniifolius</i> flower             | B. | <i>Colocasia esculenta</i> corms    |
| C. | <i>Costus speciosus</i> rhizomes                       | D. | <i>Curculigo orchoides</i> rhizomes |
| E. | <i>Curcuma amada</i> finger rhizomes                   | F. | <i>Curcuma angustifolia</i> starch  |
| G. | <i>Curcuma caesia</i> mother rhizomes                  | H. | <i>Dioscorea alata</i> tubers.      |
| I. | <i>Dioscorea bulbifera</i> Aerial tubers               | J. | <i>Dioscorea hispida</i> tubers     |
| K. | <i>Dioscorea oppositifolia</i> tubers                  | L. | <i>Dioscorea pentaphylla</i> tuber  |
| M. | <i>Dioscorea bulbifera</i> var. <i>pulchella</i> tuber | N. | <i>Hibiscus rugosus</i> tuber       |
| O. | <i>Pueraria tuberosa</i> tuber                         | P. | <i>Scirpus grossus</i> tubers       |

**Plate I : Classification on the basis of the systematic families of the tuber species**

according to their botanical name. The information on 22 tuber species belonging to 13 families were identified and their uses along with Vernacular names, family, habit and dietary uses are tabulated in Table 1. The trend of number of plants according to families presented and depicted in Fig. 1 and illustrated through photographs in Plate I.



Tuber and root Crops are the most important food crops after cereals in the tropical areas. They find an important place in the dietary habits of tribal and rural population especially in the food scarcity. Both tuber and root crops not only enrich the diet of the people but also possess medicinal properties to cure many ailments and check their incidence. Many tropical tuber crops are used in the preparation of stimulants, tonics, carminatives and expectorants. The tuber crops are rich in dietary fibre and carotenoids viz., a carotene and anthocyanin. India holds a rich genetic diversity of tropical root and tuber crops viz., Cassava, Sweet potato, Aroids, Yams and several minor tuber crops (Edison *et al.*, 2006).

#### Acknowledgement :

The authors are thankful to the Vice-Chancellor, Bastar University, Jagdalpur (C.G.) for providing necessary facilities to complete this work effectively. We are thankful to the Head, Department of Forestry, Bastar University, Jagdalpur (Chhattisgarh) for their valuable guidance and suggestion. We are extending our thanks to the rural, tribal and ethnic people of Bastar for sharing their knowledge and help during the course of study.

#### REFERENCES

- Arora, R.K. and Pandey, A. (1996). *Wild Edible Plants of India, Diversity, Conservation and Use*. National Bureau of Plant Genetic Resources, NEW DELHI, INDIA.
- Edison, S., Unnikrishnan, M., Vimala, B., Santha, Pillai, V., Sheela, M. N., Sreekumar, M.T. and Abraham, K. (2006). Biodiversity of tropical tuber crops in India. NBA Scientific Bulletin Number - 7, National Biodiversity Authority, Chennai, Tamil Nadu, India, 60 pp.
- Gowtham, Shankar K.J.N. (2005). Strengthening tribal economies through endogenous development. COMPASS Magazine, February 2005, 32-35 pp.
- Guinand, Y. and Dechassa, L. (2000). Indigenous food plants in southern Ethiopia: Reflections on the role of 'Famine foods' at the time of drought. United Nations Emergencies Unit for Ethiopia (UNEUE), Addis Baba.
- Kebu, B. and Fassil, K. (2006). Ethnobotanical study of wild edible plants in Derashe and Kucha Districts. South Ethiopia. *J. Ethnobiol. Ethnomed*, 2: 53.
- Roy, B., Haldar, A.C. and Pal, D.C. (1988). Plants for human consumption in India. *Botanical Survey India*, 63-65 pp.
- Saxena, H.O. and Brahman, M. (1995). The flora of Orissa, Orissa forest development corporation, BHUBANESWAR, INDIA.
- Tewari, D. N. (1994). Tropical Forest Produce, *International Book Distributors, Dehradun*, 665 pp.

5<sup>th</sup>  
Year  
★★★★★ of Excellence ★★★★★