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# DIVERSITY OF WILD EDIBLE YAMS AND ITS TRADITIONAL KNOWLEDGE AMONG MUNDA TRIBE OF DISTRICT KHUNTI, JHARKHAND, INDIA

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**Abstract:** Yams are common name for some plant species in the genus *Dioscorea* (Family-Dioscoreaceae) that forms edible tubers. These are monocotyledonous, perennial, herbaceous vine constituting an important part of the forest flora of district Khunti. The Munda tribe is dominating tribal community of the district. They live in close vicinity of nature. They have indigenous traditional knowledge of identifying and consuming wild edible plants and plant parts as food. This indigenous traditional knowledge is passed on orally from one generation to the other. But due to urbanization, change in the lifestyle, deforestation, unplanned developmental activities etc., the biodiversity and its associated traditional knowledge is declining at a rapid rate. Therefore, it is necessary to document the traditional knowledge of indigenous tribal people before it is been lost. This paper deals with the ethnobotanical study of nine wild edible *Dioscorea* spp. of the region.

**Key words:** Traditional knowledge; Wild edible; Yams; *Dioscorea*; Food security; Munda tribe

## INTRODUCTION

Munda tribe is the third leading tribal community out of total 30 tribal communities of the State Jharkhand and is the dominating tribal community of Khunti district. Ethnically they are proto - Austroloids and speak Mundari language [1]. The Munda people are living in remote places in close association of forests since time immemorial. They use locally available plants to meet their daily food and healthcare needs [2, 3]. The uncultivated wild plants and plant products especially the tubers are used as food, which provides an important supplement to daily nutrition. The food habit of Munda people developed on the basis of experiences and survival through generations.

The yams are scientifically named as *Dioscorea* and belong to family Dioscoreaceae. These are climbing herbaceous vines forming edible aerial and underground tubers. The climbing vines of *Dioscorea* flourish during rainy season but dries up after that. Although the above ground parts like, leaves, stems etc. dries up, the underground tubers remains as such in dormant state and forms new vines on the onset of next rainy season. The Munda people have unique traditional knowledge of searching these tubers even in absence of above ground parts and utilizing them as food. The traditional knowledge is usually passed on verbally from one generation to the next. So, there is always a fear of loss of precious traditional knowledge, if somehow it fails to pass on from one generation to the other. Therefore, this documentation work would help in preserving the traditional knowledge which is prerequisite for Biodiversity Act, 2002 and would in turn preserve the Intellectual Property Rights of the Munda community.

Although the indigenous traditional knowledge on medicinal uses of wild plants of Jharkhand has been relatively well documented [4, 5, 6, 7, 8], studies on the traditional knowledge of wild edible plants in Jharkhand are limited [9, 10, 11]. Now concern has grown worldwide to document wild edible plants as a strategy to tackle food insecurity in future [12-16].

## MATERIALS AND METHODS

This ethnobotanical study was conducted among the Munda people of Khunti district of Jharkhand through survey, interview and field work along with the knowledgeable individuals; more or less following the standard methodology used for ethnobotanical studies [17, 18, 19, 20]. All the traditional and other knowledge related to the collection and consumption of wild edible yams, on which the community depends, was documented. The knowledgeable informants were taken to the forest and along with the collection of plants; uses of the plants as given by them were recorded. The informal discussions and forest walks with key informants, both adults and children, was carried out to enhance understanding about traditional knowledge and about different species of wild edible yams available around the village.

The collected plant specimens were morphologically studied and further identified with the help of literatures and local floras [21, 22]. The accepted botanical names of the wild edible species were verified. Care was taken to identify the plant specimens when they were fresh. The coloured photographs were also taken for their correct identification and future use. The collected plant specimens were processed dried and herbarium specimens were prepared according to conventional herbarium techniques [17, 18, 19].

## RESULTS AND DISCUSSION

The ethnobotanical study among Munda people revealed the use of about nine wild edible yams or *Dioscorea* species (Table 1) (Figure 1-16). These yams produces underground tubers but some species like *Dioscorea alata* L., *Dioscorea bulbifera* L., *Dioscorea hispida* Dennst., *Dioscorea quartiniana* A. Rich. and *Dioscorea* sp. A; were also reported to produce aerial tubers too. The aerial tubers are consumed like the underground tubers. The tribal people procure them from the forest after rainy season i.e. from the months of August to May. The Mundari names of these wild edible yams were also recorded exactly as they were spelled, which would benefit future researchers working in this study area.

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**Table 1:** Wild edible yams used among Munda tribe of District Khunti, Jharkhand, India.

| S.No. | Botanical Name | Family | Mundari Name | Parts Used | Months of Availability |
|---|---|---|---|---|---|
| 1 | *Dioscorea alata* L. | Dioscoreaceae | Aaru Sanga | Aerial and underground tubers | August - May |
| 2 | *Dioscorea bulbifera* L. | Dioscoreaceae | Haaran bo / Piska Sanga | Aerial and underground tubers | August - May |
| 3 | *Dioscorea dumetorum* (Kunth.) Pax | Dioscoreaceae | Kulu Sanga | Underground tubers | August - May |
| 4 | *Dioscorea glabra*, Roxb. | Dioscoreaceae | Onotong Sanga / Ren Onotong Sanga | Underground tubers | August - May |
| 5 | *Dioscorea hispida* Dennst. | Dioscoreaceae | Hoseyar Sanga | Aerial and underground tubers | August - May |
| 6 | *Dioscorea puber* Bl. | Dioscoreaceae | Kukui Sanga | Underground tubers | August - May |
| 7 | *Dioscorea quartiniana* A. Rich. | Dioscoreaceae | Baiyang Sanga | Aerial and underground tubers | August - May |
| 8 | *Dioscorea* sp. A | Dioscoreaceae | Baiyang Sanga | Aerial and underground tubers | August - May |
| 9 | *Dioscorea* sp. B | Dioscoreaceae | Pete Sanga | Underground tubers | August - May |

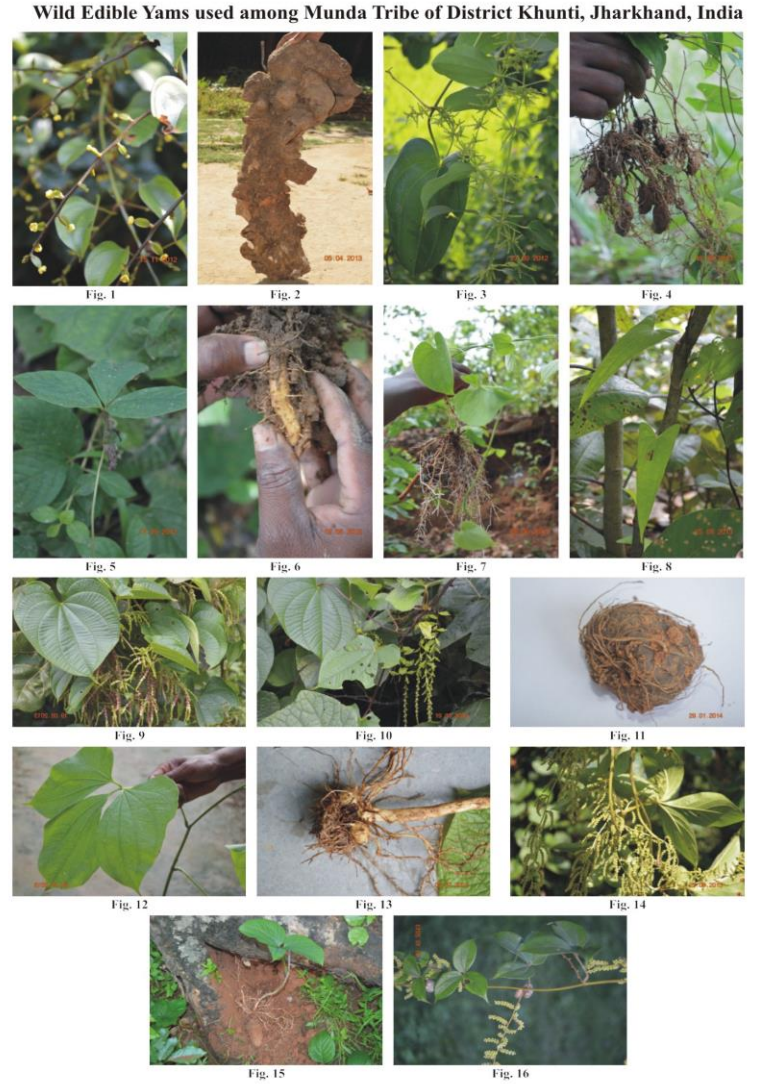


Fig. 1-2: *Dioscorea alata* L.; Fig. 3-4: *Dioscorea glabra* Roxb.; Fig. 5-6: *Dioscorea hispida* Dennst.; Fig. 7: *Dioscorea puber* Bl.; Fig. 8: *Dioscorea* sp. B Fig. 9-11: *Dioscorea bulbifera* L.; Fig. 12-13: *Dioscorea dumetorum* (Kunth.) Pax; Fig. 14: *Dioscorea quartiniana* A. Rich.; Fig. 15-16: *Dioscorea* sp. A

Traditionally most of the yams can be eaten after roasting them in low heat and peeling off the skin. The roasted yam tubers taste similar to the roasted potato tubers. They can even be boiled eaten without using oil. But some species of yams viz., *D. bulbifera* L. and *D. dumetorum* (Kunth.) Pax, needs to be processed to make them palatable. For this, the tubers are boiled in water; skin is peeled off, cut into thin slices and kept in some porous container under running water of stream, river or paddy field for 24 to 48 hours to leach out the toxic substances. After that they are removed from water and eaten by applying some salt. The tubers of *D. bulbifera* L., if not processed are acrid in taste and difficult to consume. Likewise, the tubers of *D. dumetorum* (Kunth.) Pax, is said to have sweet taste but shows intoxicating and hallucination effect, if not processed in the similar way as the tubers of *D. bulbifera* L. Due to the hallucination properties of *D. dumetorum* (Kunth.) Pax, the tribal people sometime mix small portion of the tuber in their local alcoholic drink prepared from rice called '*handia*'. The traditional methods of cooking the wild edible yams are very simple without using oil and spices; they can even be cooked by simple roasting without the need of any cooking utensils.

**Table 2:** Ethnomedicinal uses of wild edible yams among Munda tribe of District Khunti, Jharkhand, India.

| S.No. | Botanical Name | Ethnomedicinal uses | |
|---|---|---|---|
| | | Parts used | Ailments treated |
| 1 | *Dioscorea alata* L. | Cooked aerial and underground tubers | Relieves from constipation and piles. |
| 2 | *Dioscorea bulbifera* L. | Processed and cooked aerial and underground tubers | Processed tuber is given in gastric disorders and constipation. |

The tubers of *D. alata* L. and *D. bulbifera* L. are ethnomedicinally, said to be good for stomach and relieves from the problems of constipation and piles (Table 2). The Munda people have traditional knowledge of utilizing their natural resources in remote areas away from modern sophisticated products and lifestyle. The maintenance of good health by the tribal people seems to be due to their traditional food habits and lifestyle.

## CONCLUSION

The wild tuberous yams were assessed as the potential reliable food resource for the Munda people living in remote villages near forest areas of district Khunti. These tubers can be stored as conventional potato tubers. Large scale cultivation of these wild edible yams can serve as the potential inexpensive, healthier and alternative source of food for the ever increasing population. Further nutritional analysis can be done for these wild edible tubers to popularize them and for their wider acceptability. These edible yams can play an important role in obtaining food security of the nation.

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